

The Built Environment in Emerging Economies
(BEinEE): Cities, Space and Transformation

Volume 2



SPACE, PEOPLE AND TECHNOLOGY

RECLAIMING THE NARRATIVE ON CITIES

EDITED BY AMIRA OSMAN & GECI KARURI-SEBINA

The Built Environment in Emerging Economies (BEinEE):
Cities, Space and Transformation Book Series
Volume 2

**SPACE,
PEOPLE AND
TECHNOLOGY**
RECLAIMING THE NARRATIVE ON CITIES



Published by AVARSITY Books, an imprint of AOSIS Scholarly Books, a division of AOSIS.


AOSIS Publishing

15 Oxford Street, Durbanville, 7550, Cape Town, South Africa
Postnet Suite 110, Private Bag X19, Durbanville, 7551, Cape Town, South Africa
Tel: +27 21 975 2602
Website: <https://www.aosis.co.za>

Copyright © Amira Osman & Geci Karuri-Sebina (eds.). Licensee: AOSIS (Pty) Ltd
The moral right of the authors has been asserted.

Cover image: This cover design was created by Natascha Olivier/Coco Design with the use of artwork by James Mbele, obtained from James Mbele, titled 'Children of the Same Universal Love'. No unauthorised duplication allowed.

Published in 2023
Impression: 1

ISBN: 978-1-991269-01-0 (print)
ISBN: 978-1-991270-01-6 (epub)
ISBN: 978-1-991271-01-3 (pdf) 

DOI: <https://doi.org/10.4102/aosis.2023.BK323>

How to cite this work: Osman, A & Karuri-Sebina, G (eds.) 2023, *Space, people and technology: Reclaiming the narrative on cities*, in The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town.

The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series
ISSN: 2709-5142
Series Editor: Amira Osman

Printed and bound in South Africa.

Listed in OAPEN (<http://www.oapen.org>), DOAB (<http://www.doabooks.org/>) and indexed by Google Scholar. Some rights reserved.

This is an open-access publication. Except where otherwise noted, this work is distributed under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC-BY-NC-ND 4.0). A copy of which is available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>. Enquiries outside the terms of the Creative Commons license should be sent to the AOSIS Rights Department at the above address or to publishing@aosis.co.za.

The publisher accepts no responsibility for any statement made or opinion expressed in this publication. Consequently, the publishers and copyright holder will not be liable for any loss or damage sustained by any reader as a result of their action upon any statement or opinion in this work. Links by third-party websites are provided by AOSIS in good faith and for information only. AOSIS disclaims any responsibility for the materials contained in any third-party website referenced in this work.

Every effort has been made to protect the interest of copyright holders. Should any infringement have occurred inadvertently, the publisher apologises and undertakes to amend the omission in the event of a reprint.

The Built Environment in Emerging Economies (BEinEE):
Cities, Space and Transformation Book Series
Volume 2

SPACE, PEOPLE AND TECHNOLOGY

RECLAIMING THE NARRATIVE ON CITIES

Editors
Amira Osman
Geci Karuri-Sebina



Science, Engineering and Technology domain editorial board at AOSIS

Chief Commissioning Editor: Scholarly Books

Andries G van Aarde, MA, DD, PhD, D Litt, South Africa

Board members

Amira Osman, Professor of Architecture at the Tshwane University of Technology, South Africa; SARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), South Africa

António Carrizo Moreira, Professor in the Department of Economics, Management, Industrial Engineering and Tourism, University of Aveiro, Portugal; Member of the Governance, Competitiveness and Public Policies (GOVCOPP) Research Unit, University of Aveiro, Portugal and the Director of the PhD Programme in Business and Economics Studies, University of Aveiro, Portugal

Chong Zhi Lin, Professor in the Department of Mathematical and Actuarial Science, Lee Kong Chian Faculty of Engineering, Universiti Tunku Abdul Rahman, Malaysia

Colin S Thakur, Professor of the Enterprise Development Unit, Durban University of Technology, South Africa; Research Chair in Digitisation for the Banking Sector Education and Training Authority (BANKSETA), Research Office, Durban University of Technology, South Africa

George M Ochieng, Professor and Head of Department of the Department of Civil Engineering and Building, Vaal University of Technology, South Africa

John Butler-Adam, Doctor and Emeritus Editor-in-Chief, *South African Journal of Science*, Academy of Science of South Africa (ASSaF), South Africa; Editor for STEMI (NRF) Conferences, Presentations and Publications, South Africa; Vice Principal for Research and Graduate Education, University of Pretoria, South Africa

John B Kirabira, Professor of Mechanical Engineering, Makerere University, Uganda

Huiyu Zhou, Professor of Machine Learning, School of Computing and Mathematical Sciences, University of Leicester, United Kingdom; Deputy Scientist to Director, BioAnalytical Research and Development, University of Leicester, United Kingdom

Lech M Grzesiak, Professor and Dean of the Faculty of Electrical Engineering, Warsaw University of Technology, Warsaw, Poland

Roger Behrens, Department of Civil Engineering, University of Cape Town, South Africa; Director of the Centre of Transport Studies (CoTS), University of Cape Town, South Africa

Stephen Mutula, Professor and Deputy Vice-Chancellor of the University of KwaZulu-Natal, South Africa; Head of College of Humanities, University of KwaZulu-Natal, South Africa

Peer-review declaration

The publisher (AOSIS) endorses the South African 'National Scholarly Book Publishers Forum Best Practice for Peer-Review of Scholarly Books'. The book proposal form was evaluated by our Science, Engineering and Technology editorial board. The manuscript underwent an evaluation to compare the level of originality with other published works and was subjected to rigorous two-step peer-review before publication by two technical expert reviewers who did not include the volume editor and were independent of the volume editor, with the identities of the reviewers not revealed to the editor(s) or author(s). The reviewers were independent of the publisher, editor(s) and author(s). The publisher shared feedback on the similarity report and the reviewers' inputs with the manuscript's editor(s) or author(s) to improve the manuscript. Where the reviewers recommended revision and improvements, the editor(s) or author(s) responded adequately to such recommendations. The reviewers commented positively on the scholarly merits of the manuscript and recommended that the book be published.

Research justification

This series focuses on the connection between the built environment and economic development in the Global South, aiming to present unique perspectives and develop alternative theoretical frameworks for the study of the built environment better suited to the respective contexts. In so doing, it aims to contribute to the advancement of knowledge and skills that lead to the production of equitable, dignified and functional human settlements through a collection of writings from non-traditional perspectives and actors. Countries with emerging economies are reconceptualised, as is how they may evolve with specific reference to the built environment. The topic of economic development in the Global South, or emerging economies, as related to the built environment in no way alludes to hard economic analyses. The focus is rather on the imbalance in built environment texts, scholarship and as reflected in policies, reports and national and institutional agendas. By offering a platform for other voices in this field, an interdisciplinary view of the relationship between the built environment and the economy is presented that is more nuanced and relevant. It is a deliberate shift from the North to the South, from the West to the East, from the Eurocentric to the Global South – in all of the depth, contradictions and complexities of those terms.

This book takes the reader on a journey of exploration into different ways of looking at the built environment, from the heritage of communities in localities across the world, to policies, to new ways of thinking. The book studies space, people and technology in an attempt to reclaim the narrative on cities which are ‘captured’ by the Northern/Eastern/European lens. Venturing outside of mainstream literature on the built environment takes us to unexplored territory at the interface of different disciplines, where new approaches are identified in a highly original approach.

Theoretical and conceptual perspectives, as well as practical applications and innovative approaches to infrastructure, are presented in this volume. The philosophical is balanced by the practical in the case studies selected. The authors reflect on the role of historical narrative in shaping space, influencing people and making decisions about technology – and take those histories forward into a future vision of creative narrative-making. By changing the narrative and methods of representations, new urbanisms and imaginaries are generated and the scope of what is possible is significantly broadened, evoking new thinking and new practice.

In 2020, the first volume in the ‘The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation’ book series, titled *Cities, space and power*, was published. In mid-2020, we discussed the conceptualisation of this second volume, *Space, people and technology: Reclaiming the narrative on cities*, as a continuation of a conversation started and as a progression on themes explored, a refinement of the intentions set out in the first volume. The purpose was to make real and tangible what was conceptualised and promised.

While parts of the work have been published elsewhere, those contributions have been significantly broadened and reworked to address the particular themes of this book series. One chapter draws heavily from an unpublished dissertation. This is acknowledged and the republished material does not exceed 50% of the book chapter.

The 'Built Environment in Emerging Economies (BEInEE): Cities, Space and Transformation Book Series' Volume 2 is titled *Space, people and technology: Reclaiming the narrative on cities*. The book is split into three sections titled 'Narrative and history', 'Decolonial directions' and 'Practice as theory'. The contributions and contributors vary greatly and address the topic of the series in general, as well as the theme of the book, from diverse perspectives and disciplinary backgrounds. With authors from South Africa, Hong Kong and the United Kingdom (UK), while the focus of the book is on the built environment disciplines, it draws inspiration from a wide range of other disciplines, texts and experiences.

While this volume draws heavily from a wide range of experiences and has resonance with a wide range of stakeholders in the built environment, the book represents a scholarly discourse. It is a book written by scholars for scholars. The book constitutes original research which has not been published elsewhere and is not plagiarised.

Professor Amira Osman, Department of Architecture and Industrial Design, Faculty of Engineering and the Built Environment, Tshwane University of Technology, Pretoria, South Africa; and SARCHI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), Pretoria, South Africa.

Contents

Abbreviations and acronyms, figures and tables appearing in the text and notes	xi
List of abbreviations and acronyms	xi
List of figures	xiii
List of tables	xv
Notes on contributors	xvii
Section 1: Narrative and history	1
<hr/>	
Chapter 1: Space, people and technology: Reclaiming the narrative on cities	3
<i>Geci Karuri-Sebina & Amira Osman</i>	
Overview	3
The terminology	4
Changing narratives	6
The stories	8
Conclusion: Contextual clues for addressing global built environment issues	15
Chapter 2: The role of narrative in shaping space: A morphological study on urban transformations in Hong Kong	17
<i>Beisi Jia</i>	
Introductory thoughts	17
A historical narrative on the evolution and significance of high-density urban form	18
An alternative (Eastern) paradigm in the development of urban morphological research frameworks	25
Applications of morphological analysis on the case studies	28
North Point	28
Fortress Hill	30
Wan Chai	34
Thinking beyond the confines of modernist planning	37
Acknowledgements	40

**Chapter 3: Disability rights and public sector financing mechanisms:
Enablers for developing inclusive cities 41**

Amanda Gibberd & Amira Osman

Introductory notes	41
Bodies in space	42
Progress versus stagnation – perhaps regression?	44
Why?	46
An alternative reality?	51
The social model of disability	54
Use of standards in the built environment	56
The economic consequences of disabling barriers	57
The Department of Transport	59
Disability rights and public sector financing	64
Mechanisms in the conditional public transport grant	66
Standards (UN 2006, art. 9)	67
Relationships between the service user and service provider	67
Universal access in public transport network development	67
The Neighbourhood Development Grant: A missed opportunity to achieve universal access	70
Conclusion: Progression versus regression in universal design thinking and applications	73

Section 2: Decolonial directions 75

Chapter 4: Mother tongues, transcendental technologies and space 77

Russel Hlongwane

Introductory notes	77
Language and technology: Theoretical premises	78
Mother tongues	80
Transcendental technologies	80
Place, people and context	81
Artistic dialogue and the scope of the investigation	83
Democratising place-making through intellectual linkages and ‘triangulation’	84
Language as a tool to rethink space and cities	84
Technology in African history and traditions	92
Conclusion: Speculative dimensions	99

Section 3: Practice as theory **101**

Chapter 5: Care and well-being in the sustainable management of water systems in South African cities **103**

Jody Paterson & Nisa Mammon

Abstract	103
Introduction: Water, life and cities	104
‘Politics of care’: Sustainable drainage systems as a water management tool that embraces well-being	104
The law versus citizens’ rights: Water management as an approach for inclusive cities	105
Integrating care politics with evaluation models: An alternative approach	109
Contextualising sustainable drainage systems	110
Green infrastructure	111
Water-sensitive cities	112
Ecological infrastructure	112
Sustainable urban drainage systems	113
Sustainable drainage systems case studies in Cape Town	115
Supporting systems that facilitate flow: Introducing metro-wide green-blue networks in Cape Town, South Africa	116
Using our rivers and canals to transform the city – the case of Two Rivers Urban Park	117
Using urban development and sustainable drainage systems related measures to achieve urban integration – the case of Philippi	125
Conclusion: Systems and transdisciplinarity in working with water in cities	130

Conclusion: The journey to reclaiming the narrative on cities **131**

Geci Karuri-Sebina & Amira Osman

References **135**

Index **147**

Abbreviations and acronyms, figures and tables appearing in the text and notes

List of abbreviations and acronyms

4IR	Fourth Industrial Revolution
AfricaLics	African Network for Economics of Learning, Innovation and Competence Building Systems
ASAI	Africa South Art Initiative
ASSaF	Academy of Science of South Africa
AU	African Union
AUA	African Union Agenda 2063
BANKSETA	Banking Sector Education and Training Authority
BEinEE	Built Environment in Emerging Economies
BRICS	Brazil, Russia, India, China and South Africa
CBA	cost-benefit analysis
CBD	central business district
CIRIA	Construction Industry Research and Information Association
CoCT	City of Cape Town
CoP	Community of Practice
CoTS	Centre of Transport Studies
COVID-19	coronavirus disease 2019
CPI	Creative Producers International
CRPD	Convention on the Rights of Persons with Disabilities
DBE	Department of Basic Education
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning
DIY	do it yourself
DoL	Department of Labour
DoT	Department of Transport
DRC	Democratic Republic of the Congo
DWAF	Department of Water Affairs and Forestry
EI	ecological infrastructure
ETH	Swiss Federal Institute of Technology

GCRO	Gauteng City-Region Observatory
GDP	gross domestic product
GGP	Gauteng Government's Plan
GOVCOPP	Governance, Competitiveness and Public Policies
GPS	global positioning system
HKPSG	Hong Kong Planning Standards and Guidelines
INDS	Integrated National Disability Strategy
IPTN	integrated public transport networks
IUDF	Integrated Urban Development Framework
KZNSA	KwaZulu Natal Society of Arts
MSA	Moving South Africa
MTR	Mass Transport Railway
NDPG	Neighbourhood Development Partnership Grant
NESTA	National Endowment for Science, Technology and the Arts
NGO	non-governmental organisation
NIT	Nanjing Institute of Technology
NLTA	<i>National Land Transport Act 5 of 2009</i>
NSDF	National Spatial Development Framework
NUA	New Urban Agenda
OHI	Open House International
PEPUDA	<i>Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000</i>
PHA	Philippi Horticultural Area
PTNG	Public Transport Network Grant
RDP	Reconstruction and Development Programme
RSA	Republic of South Africa
SACN	South African Cities Network
SAIA	South African Institute of Architects
SANRAL	South African National Rail Agency
SANS	<i>South African National Standards</i>
SDG	Sustainable Development Goal
SDGs	Sustainable Development Goals
SHiFT	Social Housing Focus Trust
SIAS	Screening, Identification, Assessment and Support
STAND	Scholarship of Teaching and Learning in Art and Design Education
SuDS	sustainable urban drainage systems
TEEB	The Economics of Ecosystems and Biodiversity

TOD	transit-orientation development
TRUP	Two Rivers Urban Park
UDAP	Universal Design Access Plan
UIA	Union of Architects
UK	United Kingdom
UN	United Nations
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
UNESCO	United Nations Educational, Scientific and Cultural Organization
USA	United States of America
USDG	Urban Settlement Development Grant
VIAD	Visual Identities in Art and Design Research Centre
WPRPD	White Paper on the Rights of Persons with Disabilities
WSC	water-sensitive cities
WSD	water-sensitive design
WWF-SA	World Wildlife Fund South Africa

List of figures

Figure 2.1:	Timeline of historical moments of Hong Kong Island housing before the 1980s.	20
Figure 2.2:	Urban expansion by land reclamation in Shau Kei Wan, Hong Kong Island, depicted from 1913 to the present day.	21
Figure 2.3:	Land-use intensification in a sectional study of Quarry Bay, from 1973–2018.	22
Figure 2.4:	Representation of the types of land use 1995–2012 in Wan Chai.	23
Figure 2.5:	A visually mapped representation of urban morphological characters in three housing estates: (a) Mei Foo Sun Chuen, 1960 private housing estate, (b) Wah Fu, 1969 public housing estate and (c) Taikoo, 1970 mixed housing estate.	27
Figure 2.6:	Urban tissue: Bird's eye photographic view of the study area with the dotted line indicating the location of the section.	29
Figure 2.7:	Building form: An illustrated section of King's Road in the middle and surrounding buildings.	29

Figure 2.8:	Building level: An illustrated lift structure and unit circulation of the Metropole Building.	30
Figure 2.9:	Unit level: The diversity of major apartment unit types in the Metropole Building, scaled 1 : 400.	31
Figure 2.10:	Urban tissue: A photographic view of the streets as dominant characters planned and built in the early 20th century.	32
Figure 2.11:	Urban tissue level: An illustrated volumetric study.	33
Figure 2.12:	Building level: An illustrated section with the wide King's Road in the middle.	34
Figure 2.13 (a and b):	Unit level: An illustrated plan and section of Kung Lee Building.	35
Figure 2.14 (a-d):	Tissue level: An illustrated view of the intensified and mixed-use development in Wan Chai from 1980-2004.	36
Figure 2.15:	Building level: An illustrated section depicting Queen's Road in the middle and various building types.	37
Figure 2.16 (a and b):	Unit level: A visual study of one building in Wan Chai.	38
Figure 3.1:	The South African laws in place to establish and maintain the city during apartheid.	61
Figure 3.2:	The economic disadvantage as a result of the apartheid city structures and the resulting 'disablement' of the city because of the high percentage of the population left poor by the planning interventions taken. These people are, historically and currently, mostly 'black'.	62
Figure 3.3:	Integration zone planning guidelines.	71
Figure 3.4:	Conceptualising a more networked and integrated future through transport-orientated development to address the fragmented nature of South African cities.	72
Figure 5.1:	Cape Town's progress regarding transitioning towards water sensitivity.	113
Figure 5.2:	Cape Town's drainage system, showing natural water bodies and watercourses, canalised rivers and catchment management area boundaries.	118
Figure 5.3:	Cape Town's blue-green features as a set of opportunities including natural water bodies and the coastal sand aquifer, watercourses, canalised rivers and protected areas and agricultural areas.	119
Figure 5.4:	Photograph of a litter trap on the Black River.	120

Figure 5.5:	Photograph of a section of the Salt River canal.	120
Figure 5.6:	The Two Rivers Urban Park mapped in the context of the Salt River Catchment.	121
Figure 5.7:	The mapped Two Rivers Urban Park site depicting flood lines and green open space.	122
Figure 5.8:	Cape Farm 738 and 767, Philippi: Planning context.	124
Figure 5.9:	Concept of (a) interlocking fingers and (b) application of the concept to the site.	127
Figure 5.10:	Cape Farms 738 and 767 development concept in context.	129

List of tables

Table 2.1:	Different housing investment sectors and ownership structure, Hong Kong.	24
Table 2.2:	The density change in buildings from 1975 to 2014 in Wan Chai.	39
Table 3.1:	Rights-based legislation and policy describing the events in Mr Simbuku's case.	47
Table 3.2:	Health and rehabilitation-based legislation and policy describing the events in Mr Simbuku's case.	47
Table 3.3:	Education-based legislation and policy describing the events in Mr Simbuku's case.	48
Table 3.4:	Employment and skills development-based legislation and policy describing the events in Mr Simbuku's case.	48
Table 3.5:	Built environment and transport-based legislation describing the events in Mr Simbuku's case.	49
Table 3.6:	Transactions between a service user and a service provider which are particularly apparent in a universally accessible service and which have a marked effect on transport.	50

Notes on contributors

Amanda Gibberd^{a,b}

^aDepartment of Transport, Pretoria, South Africa

^bDepartment of Civil, Environmental and Geomatic Engineering,
UCL Faculty of Engineering Sciences, University College London,
London, United Kingdom

Email: gibberda@dot.gov.za

ORCID: <https://orcid.org/0000-0001-8666-135X>

Amanda Gibberd is the director of Universal Design and Universal Access in Public Transport at the Department of Transport, South Africa. Gibberd is responsible for monitoring and evaluating the implementation of the *Accessible Public Transport Strategy*, introduced through integrated public transport networks in thirteen cities nationally. Universal access is conceptualised through the ‘Travel Chain’, focusing on the safe, equal and dignified passage of people with disabilities and other universal access passengers (women, elderly people and children) on public transport systems.

Formerly an occupational therapist, Gibberd obtained a postgraduate diploma in Environment Access from the Architectural Association in London, United Kingdom (UK), and an MA degree in Universal Design and Universal Access in Urban Planning from the University of Pretoria, South Africa. She is a PhD candidate at the University College London in London, UK.

Amira Osman^{a,b}

^aDepartment of Architecture and Industrial Design, Faculty of Engineering and the Built Environment, Tshwane University of Technology, Pretoria, South Africa

^bSARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), Pretoria, South Africa

Email: osmanaos@tut.ac.za

ORCID: <https://orcid.org/0000-0003-1592-5965>

Amira Osman is a Sudanese–South African architect, researcher, academic, activist, public speaker and author. Osman is a professor of Architecture at the Tshwane University of Technology, South Africa, and holds the position of SARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment). She was, during the writing of the chapter for this book, a joint coordinator for the International Council for Research and Innovation in Building and Construction (International CIB) W104 Open Building Implementation Network, which is based in Ottawa, Ontario, Canada.

In addition to holding the aforementioned positions, Osman is the president of the South African Institute of Architects (SAIA). She is the convenor of the conference series which started in 2022, hosted by

the Tshwane University of Technology, 'A City is [Not] a Tree: The Urban Ecologies of Divided Cities', which is published annually by Springer in the Springer–Tshwane University of Technology edited book series, 'Advances in Science, Technology and Innovation' (ASTI).

Osman is the director of PLATFORM100, which is a think-tank organisation for liveable and lovable cities and a collaborative vehicle for promoting change in conversations and practice around architecture and space. She is a registered professional architect and the series editor of AOSIS Scholarly Books–Tshwane University of Technology book series, 'The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation'. Osman has extensive experience curating international events, coordinating complex programmes and exhibitions in terms of design, conceptualising content and managing diverse teams.

Beisi Jia

Department of Architecture, University of Hong Kong,
Hong Kong, People's Republic of China
Email: bjiaa@hku.hk
ORCID: <https://orcid.org/0000-0001-9862-6324>

Beisi Jia holds a Bachelor of Architecture awarded by the Nanjing Institute of Technology (NIT), the People's Republic of China, and a postgraduate diploma from the Swiss Federal Institute of Technology (ETH), Zurich, Switzerland. Jia further obtained a PhD in Architecture History and Theory in 1990 through a joint programme initiative of the NIT and the ETH.

Jia is a tutor, lecturer and coordinator of BA programmes in Architectural Study. Besides design studio, he is teaching courses in the History of Chinese Architecture, Open Building in Transition and Housing in Urban Development. He acts as a supervisor of MPhil and PhD students. Some of Jia's graduated students have won more than 30 national and international student design competitions, including the 1998/99 Dupont Benedictus Award, and exhibited work at the UIA XXII World Congress of Architecture in 2005.

Jia has been an invited guest and visiting professor at the Ball State University in Muncie, Indiana, the United States of America (USA), at the University of Montreal in Montreal, Canada, Southeast University in the People's Republic of China, and the Universiti Teknologi in Skudai, Johor, Malaysia, among others. Since 2010, he was also the director and partner of the Architectural Design Office of Baumschlager Eberle Architekten, Hong Kong. Jia, in his position at Baumschlager Eberle Architekten, led or participated in twelve major projects and prize-winning projects, including housing, shopping malls, institutional buildings, urban design and hotels.

Jia was, during the writing of his chapter in this book, a joint coordinator for the International CIB W104 Open Building Implementation Network, which is based in Ottawa, Ontario, Canada. He participated in the organisation of an international conference on Open Building and student competition almost annually since 2003, including in Zurich, Beijing, Durban, Boston, Paris and Bilbao.

Since 1996, Jia completed twelve research projects in housing adaptability and housing sustainable development based in China and Hong Kong. He has published four books and several academic papers in international and national peer-reviewed scholarly journals, including *Open House International* (OHI) by Emerald Publishing, *Landscape Research* by Routledge/Taylor & Francis, *Sustainability* by MDPI and *Habitat International* by Elsevier BV. He has been a guest editor for special issues of the *Open House International*, an editorial board member of *New Architecture* and *Time-based Architecture* and co-editor of the book series 'Art in Architecture'.

Geci Karuri-Sebina^{a,b,c}

^aWits School of Governance, University of the Witwatersrand, Johannesburg, South Africa

^bSouth African Cities Network, Johannesburg, South Africa

^cAfrican Centre for Cities, University of Cape Town, Cape Town, South Africa

Email: geci.karuri-sebina@wits.ac.za

ORCID: <https://orcid.org/0000-0003-4171-7465>

Geci Karuri-Sebina is a scholar-practitioner based in Johannesburg, working in the intersection between people, place and technological change and has published in the fields of development planning, policy, foresight and innovation. She was, during the writing of this book, an associate professor at the University of the Witwatersrand (Wits) School of Governance where she hosted the South African Cities Network, which is a Community of Practice (CoP) and action-learning network, and coordinated the establishment of Tayarisha, the Initiative on Digital Governance at Wits in 2021.

Karuri-Sebina is an adjunct professor at the University of Cape Town's African Centre for Cities and a principal at the School of International Futures based in London, UK, as well as global faculty member affiliated to the Singularity University based in Silicon Valley, USA, researching the future of cities and governance. She was, during the writing of this book, also a founding director of the Southern African Node of the Millennium Project and the vice-chair of African Network for Economics of Learning, Innovation and Competence Building Systems (AfricaLics).

Jody Paterson

NM & Associates Planners and Designers,
Cape Town, South Africa
Email: jody@visionplan.co.za
ORCID: <https://orcid.org/0000-0002-7570-4374>

Jody Paterson is the managing director and principal urban designer at NM & Associates Planners and Designers, South Africa, where she works as part of an integrated design and planning team. Paterson holds an MA in Urban Design and City Planning awarded by the University of Cape Town, South Africa, where she occasionally serves as an examiner. She is a registered professional architect and city planner. Paterson's academic training and professional experience as an architect, planner and urban designer supported her career in complex spatial planning exercises and implementation programmes. Her main research interest is in the public realm and the spatial preconditions necessary to promote inclusivity and support the most vulnerable urban residents. Paterson has co-written various research papers on a range of issues related to the role of planning and design in shaping South African cities. Work experience in urban housing, public space-making, non-motorised transport, transportation and green infrastructure in South Africa has given Paterson an understanding of how the public domain in the Global South can empower citizens to live a fuller and more meaningful life.

Nisa Mammon^{a,b}

^aNM & Associates Planners and Designers,
Cape Town, South Africa
^bAfrican Centre for Cities, School of Architecture, Planning and Geomatics,
Faculty of Engineering and the Built Environment, University of Cape Town,
Cape Town, South Africa
Email: nisa@visionplan.co.za
ORCID: <https://orcid.org/0000-0003-2800-2131>

Nisa Mammon is the managing director and principal professional planner at NM & Associates Planners and Designers based in Cape Town, South Africa. Mammon holds MA and PhD degrees in City and Regional Planning, awarded by the University of Cape Town, South Africa, where she serves as an adjunct professor. Her PhD dissertation focuses on urban land access and management for the urban poor in South African cities. She has written a number of chapters in published books, research papers and reports and has published in academic journals.

Mammon has practised in the private sector and has 30 years of experience in managing projects in spatial planning focusing on urban spatial transformation, promoting the public realm and citizen well-being. Her planning practice focuses mainly on making the public realm accessible to the majority of people to create an inclusive urban environment and integrated city. Mammon was, during the writing of this book, exploring

citizen care and well-being as an integral part of spatial planning and design. She is also involved in farming projects producing for export and local markets.

Russel Hlongwane

Substance.Point
Durban, South Africa
Email: russel@substancepoint.co.za
ORCID: <https://orcid.org/0000-0003-3573-7347>

Russel Hlongwane is a cultural producer and creative industries consultant based in Durban, South Africa. Hlongwane's work focuses on the intersection of heritage, modernity and culture and tradition. His interests include performing cultural research, creative producing, design theory, curatorship (programmes, exhibitions and events), writing and artistic endeavours.

Hlongwane's curatorial work includes co-curating the 'Beyond Binaries Pan-African' (2017) exhibition in collaboration with artists on the African continent and the diaspora. He also curated the 'Theatrum Botanicum: Imbizo kaMafavuke and Other Plant Stories' (2018) by the Swiss artist, Uriel Orlow. He produced and curated three exhibitions in 2019, namely, 'Umongo weDolobha', 'The Hands That Feed You' and 'The Behaviour of Public Art'. Hlongwane is also a commissioned artist for the London-based National Endowment for Science, Technology and the Arts (NESTA), who produced and directed an experimental video titled 'Ifu Elimnyama', speculating on the future of the Internet. This work has since been presented across multiple festivals and exhibitions across Europe, South America and South Africa.

Hlongwane has served on the board of Arterial Network South Africa, KwaZulu Natal Society of Arts (KZNSA) Gallery and Africa South Art Initiative (ASAI). He has also contributed to various panels and symposiums on curating and visual cultures. Hlongwane is a member of the Creative Producers International (CPI), African Fashion Research Institute, Thirdspace and Building Beyond, all of which are collectives, study groups and collective study programmes.

Hlongwane worked on the Goethe-Institut's Cultural Entrepreneurship Hubs Project across Greece, Indonesia, South Africa and Munich. In 2019, he served in the curatorship role of the Durban Film Mart (2018–2019), a film finance forum alongside the Durban International Film Festival, South Africa.

Hlongwane's experience in cultural policy includes research and development for eThekweni Municipality's cultural policy, and he has contributed to United Nations Educational, Scientific and Cultural Organization (UNESCO) monitoring reports through his membership in the Arterial Network.

Tariq Toffa^{a,b}

^aRE: Think/Design Studio,
Johannesburg, South Africa

^bDepartment of Architecture and Industrial Design,
Faculty of Engineering and the Built Environment, Tshwane University of Technology,
Pretoria, South Africa

Email: tariq.toffa@gmail.com

ORCID: <https://orcid.org/0000-0001-5984-9832>

Tariq Toffa is an educator, writer, practising architect and the director of RE: Think/Design Studio, a research, education and design consultancy and think-tank based in Johannesburg. Toffa was the manager of and a researcher at the South African-based non-governmental organisation (NGO), Social Housing Focus Trust (SHiFT), as well as the South African Bureau of the Dallant Networks–Ford Foundation Project on Urban Impact (URB.im). During the writing of this book, Toffa acted in a strategic advisory and collaborative capacity for the City of Johannesburg, South Africa, and international public space initiatives and is a DArch degree candidate at the Tshwane University of Technology, South Africa, focusing on collaborative and cross-sectoral models of addressing complex post-colonial challenges of societal transformation.

Toffa works between academia and professional practice, as well as between governmental and non-governmental sectors in the related field of cities, urban studies, education and the built environment. His research, publications and academic curricula similarly cover many aspects of architectural and city design, urban studies, history and theory and educational and institutional reform. Toffa has also co-created and co-edited the multidisciplinary volume on design pedagogy, *Standing items: Critical pedagogies in South African art, design and architecture* (2020), in collaboration with the Visual Identities in Art and Design Research Centre (VIAD) and the Scholarship of Teaching and Learning in Art and Design Education (STAND).

Ultimately, Toffa's work within the practice, interdisciplinary and teaching spaces is linked through a critical and humane discourse underpinned with principles of justice, compassion and collaboration.

Section 1

Narrative and history

Space, people and technology: Reclaiming the narrative on cities

Geci Karuri-Sebina^{a,b,c}

^aWits School of Governance, University of the Witwatersrand, Johannesburg, South Africa

^bSouth African Cities Network, Johannesburg, South Africa

^cAfrican Centre for Cities, University of Cape Town, Cape Town, South Africa

Amira Osman^{a,b}

^aDepartment of Architecture and Industrial Design, Faculty of Engineering and the Built Environment,

Tshwane University of Technology, Pretoria, South Africa

^bSARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), Pretoria, South Africa

■ Overview

This opening chapter of this second volume in ‘The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series’ sets the scene by presenting a brief background to the series, this book, the themes and authors, and aims to make the links between the previous volume, this volume and the planned future volumes.

The New Urban Agenda (NUA) Item 11 presents a vision of cities and human settlements that allow for equal access and opportunity and promote inclusivity for all citizens who (United Nations [UN] 2017):

How to cite: Karuri-Sebina, G & Osman, A 2023, ‘Space, people and technology: Reclaiming the narrative on cities’, in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 3-16. <https://doi.org/10.4102/aosis.2023.BK323.01>

[A]re able to inhabit and produce just, safe, healthy, accessible, affordable, resilient and sustainable cities and human settlements [...] We note the efforts of some national and local governments to enshrine this vision, referred to as 'right to the city', in their legislation, political declarations and charters. (p. 5)

We embarked on this project in alignment with these intentions and many others captured in various local, national and global agendas. Some countries may seem to have 'lost' the development 'game'. But what if we applied a different conceptual lens? What if we saw these countries as pioneers? And what if we offered an alternative perspective to the dominant scientific, technical and political-economy debates? Let us look beyond the dominant narratives, big government and big capital. We will find grass-root initiatives at the local level, at the site-level and in communities, away from the prevalent news cycles; we find governance systems, decision-making mechanisms and financial support systems that are highly evolved and that may be the answers to conceptualising an alternative future where the focus is on decentralised and local systems of innovation rather than on grand political gestures. Many so-called cities of the Global South are sites of incredible creativity. Could we present a forward-looking and intelligently optimistic outlook - a counter-narrative to the doom and gloom of political analysis?

■ The terminology

In the context of this volume and throughout the book series, the terminology used to describe the different countries will be further explored. In the introduction to Volume 1, Osman (ed. 2020) explains that 'emerging economies' defines countries with rapid economic growth and it is useful in grouping countries facing similar challenges and socio-economic conditions. This may be expanded to include historical, cultural, political, institutional, ecological and geographic factors. The term 'emerging economies' distinguishes between different and diverse global contexts and perhaps offers a similar, yet broader, category to 'Global South' which may imply a focus on geographic location.

The term 'Global South' further allows the consideration of factors such as the reliance of some nations on agriculture versus those that rely on industrialisation, energy and telecommunications and to what extent these countries have developed infrastructure. Yet, it is important to recognise that 'there are Souths in the geographic North and Norths in the geographic South' (Mahler 2018, p. 32). 'Global South' is therefore much more than a geographic condition (Clarke 2018). The fact that a country like the People's Republic of China is generally considered a part of the category of

'Global South' and BRICS (Brazil, Russia, India, China and South Africa) countries, of which Hong Kong is not a member, is reason to unpack further what the terminology really means because Hong Kong, as a non-Western context, cannot be comfortably included in what is generally considered North or West. Thus, these categories, while useful, will fall short if not subjected to constant interrogation. In this volume, we have included Hong Kong as one of the contexts of study in a conscious attempt to challenge the existing categories and call for their revision.

Dados and Connell (2012) believe that:

North-South terminology, then, like core-periphery, arose from an allegorical application of categories to name patterns of wealth, privilege, and development across broad regions. The term 'Global South' functions as more than a metaphor for underdevelopment. It references an entire history of colonialism, neo-imperialism, and differential economic and social change through which large inequalities in living standards, life expectancy, and access to resources are maintained. (p. 13)

The Global South consists of several groupings considered to be 'emerging economies' (Mohanty, Franssen & Saha 2019, p. 1). A conversation between countries with similar histories and socio-economic conditions is important in many ways. For example, 'intraregional trade among countries in the South is increasing more than in the North. This suggests that countries in the Global South are robustly helping each other to grow' (Mohanty et al. 2019, p. 7).

This attempt to group countries and to share experiences is also supported by the UN in Item 19 of the NUA, which believes that particular attention should be given to addressing unique development challenges. These unique challenges are faced by what are referred to as developing countries, African countries and least developed countries, among others. They include middle-income countries with special conditions as well as conflict and post-conflict conditions, foreign occupation and disasters (UN 2017, p. 9).

The exact terminology to be used and the actual groupings will continue to be a matter of debate in the foreseeable future. These categories will be revised again and again as country conditions and global dynamics are in a constant state of flux. It was argued in Volume 1 that the assumption that 'emerging economies' transition into 'developed economies' may not be a beneficial nor desirable convergence; it is hoped that their evolution will rather offer an opportunity for an alternative future of environmentally-friendly, egalitarian and equitable socio-economic and spatial systems. However, the literature seems to focus on the replication of the economic experience of the Global North as being a natural progression (Mohanty et al. 2019):

The strong performance of the South culminated in its 'catching up' with the North. The North's share of world income decreased from 71.3% in 2000 to 58.5% in 2016. In the meantime, the South's share increased from 28% to 40.6% in real terms. Because the North grew at a slower pace (1.3% year-on-year during 2000–2016), the South (2.2%) largely propelled world economic growth (1.5%). (p. 3)

■ Changing narratives

While the balancing out of world wealth and resources is desirable, it is hoped that the outlook will transcend a simplistic expectation of a transition from an emerging to a developed economy, with the presumption that there is imitation or replication or catching up to do. We should rather re-envision alternative economic systems towards more equitable development, better distribution of resources and less destruction of the environment. In this way, the term 'emerging' is appropriated to represent a form of socio-economic development beyond what the North or West offers us. An alternative understanding of emergent economies in the Global South, therefore, aims to dislodge the centring of North or West as being a desirable condition. It is a way of thinking, a method of practice, a collaborative network and an alternative form of future-making.

The complexity and uniqueness of varying contexts necessarily demands different and differentiated treatment beyond individual disciplinary frameworks and constraints. Therefore, the *disciplinary approach* must change. Innovation exists at the interface of different professions. The case for transdisciplinarity has already been made, arguing the need to transgress disciplinary specialisation to transcend the science–society dichotomy (MISTRA 2014). As such, this book series – and this volume in particular – casts a wide net beyond siloed disciplines in order to adequately engage with the subject of economies in the developing world and the role of the built environment. Architects, planners, anthropologists and artists – all may have something to contribute.

The *research process* must also change. Considering knowledge-building processes, the case for acknowledging the prevailing epistemicide in the academy and advocating epistemological decolonisation has also been built (Santos 2014). The volume positions the research process as a transformational process embedded in real-life concerns with issues that must resonate with academics, practitioners, communities and laypeople alike.

Moreover, the *authors and audiences* must also change and change each other. Practitioners can write about their practice and academic traditions of style and structure can adapt to accommodate their diversity without compromising scholastic rigour. Rigour, after all, is not in the structure of a

chapter or the use of particular conventional formulations of characters and frames. There are many diverse ways to represent and convey ideas, and these should be invited into the endeavour of knowledge-building and authoring. Thus, the audiences should also be inclusive, from specialists – our peers – in the built environment disciplines to educators, postgraduate students, practitioners and policymakers. Built environment narratives must be communicable to a diversity of stakeholders.

These critiques and desires fuelled this project to do something different. Turan wrote in 1990 that: ‘The “whatness” of an object can be learnt through the “whyness” of it [...] knowledge about an object is based on understanding or recognizing the causes of that object’ (Turan 1990, p. 9). Stripping objects, spaces and building of their meaning is problematic. Indeed, there is an attempt by built environment professions to erase how much of a profound impact design, materials and technology have on people and how ‘coloured’ by biases decision-making has been when it comes to reinforcing certain beliefs and stereotypes. That is why we, in South Africa, have a ‘township standard’ of building or a very set image for social housing.¹

Hilton Judin opened the Architecture Congress for the International Union of Architects (UIA) in Durban in 2014 (UIA Durban 2014) with the statement: ‘Architecture is political’. Amira Osman proclaimed at the South African Institute of Architects (SAIA) presidential inauguration in 2022 that architecture is truly political. Buildings, technology, design and space are political. Decision-making in the built environment is political. Material selection and detailing are political. Everything we do is value-based. Nothing is neutral. The built environment and how it is conceptualised, planned, designed and delivered is not neutral. How we build, where we build and how we make decisions about our cities and neighbourhoods says something about our belief systems. Osman proceeded to explain how the concept of transformation is multi-dimensional and involves transforming our built environment professions in terms of how we teach, research and practice as well as the demographic profile of the various professional communities.

Diversity in the voices we ‘hear’ in the built environment professions is crucial. Much research has been conducted into the implications of the lack of diversity in the design professions, some appearing with provocative

1. Townships are historically black neighbourhoods, an inherited phenomena from the apartheid era. They are usually hidden from sight and buffered by gaps in the urban fabric, highways and industrial zones, always close enough to service the city with cheap labour, yet never a part of the city. This is a pattern that persists till today, 29 years into democracy. Social housing emerged in the post-apartheid era as government-subsidised rental housing in well-located central areas. However, it still has a specific image and, thus, a stigma, attached to it.

titles such as 'Design has an empathy problem: White men can't design for everyone' (Weaver 2020) or *Invisible women: Data bias in a world designed for men* (Perez 2019). This book series and this volume contribute to ensuring that we achieve that much-needed diversity to facilitate design solutions that are relevant and effective for the majority of citizens of cities.

Osman also argued that every project and site-level intervention has the potential to be transformational and that experimentation and innovative pilot projects are as necessary as policy change. Professionals will frequently argue against this statement: 'We are built environment professionals'; 'we are technocrats'; 'we are trained in designing and delivering the built environment'; and 'we do not want to be too political'. Yet, all professions operate in a political space, and that space has been created through politics – there is no escaping this reality. Some will still argue that 'we operate at a site-level, so we can't make policy changes' (Osman 2021).

These conversations are important. We cannot change practice without changing our thinking. This aligns with many national and global agendas. The book series, and this second volume in particular, addresses many of the sustainable development goals (SDGs), specifically SDG 11: 'Making cities and human settlements inclusive, safe, resilient and sustainable'. Aspiration 1 of the African Union Agenda 2063 (AUA 2063) states: 'A prosperous Africa based on inclusive growth and sustainable development'; this determination to eradicate poverty and build prosperity through socio-economic transformation is well-aligned with the intention of the book series to engage in a dialogue which specifically centres the built environment. All the items listed under this aspiration may, in one way or the other, be related to the built environment – either services being delivered in buildings (such as health care or education) or the construction industry itself (job creation through building projects) – all of these collectively helping to achieve the aims of ending poverty, improving habitats, access to basic services, et cetera. The NUA (UN 2017, n.p.) offers a 'paradigm shift based on the science of cities' with five pillars: 'national urban policies, urban legislation and regulations, urban planning and design, local economy and municipal finance, and local implementation'. In this way, it ties in strongly with the SDGs and the AUA 2063.

■ The stories

This book series presents new thinking to help us progress towards new practices. Based upon this, the first volume in the series, *Cities, space and power*, was published (ed. Osman 2020). It offered philosophical, theoretical and practical engagements with the subjects of urban conditions (Morado Nascimento), power (Sanín-Restrepo), practice (Osman) and

training (Toffa). The four authors made poignant critiques of contemporary conventions, modes and relationships concerning how the built environment is produced. Universalist approaches are dispensed with and brave, contextual and inclusionary approaches are promoted.

The idea of this second volume, *Space, people and technology*, originated from asking ‘what next?’ from the perspective of the series’ planning. In asking this question, we began a conversation around contextually and temporally grounded realities within which we might locate further inquiry; basically, what was happening around us *now* that we could invite for further interrogation based on the messages from Volume 1? What emerged from this was a focus on three key contemporary trends that intersect powerfully.

Space has become even more focal for development policy and urban governance amid the coronavirus disease 2019 (COVID-19) pandemic, compounding the near-universal challenges of spatial inequalities and vulnerabilities with new concerns about public health concerning density types and connectivity (Florida, Rodríguez-Pose & Storper 2020).

People in place have also been increasingly centred on urban development and policy thinking as design-driven. Human-centric approaches emerge as necessary alternatives to technocentric and universalist approaches, which increasingly prove inappropriate and unviable in Global South contexts.

And finally, *technological change* has been pegged as the latest big disrupter, with digitalisation and the so-called Fourth Industrial Revolution (4IR) simultaneously presenting us with great hopes and fears about new forms of societal and industrial organisation and functioning (eds. Brotchie et al. 2017; Long & Holmén 2021). However, beyond technological definitions and determinisms that confine ‘technological transformation’ and the ‘smart city’ in tight little containers of particular wires, sensors, data and vendors, there have been emerging understandings that places can only be ‘smart’ if they use technology to empower people and recognise space. Smart cities have to ‘enhance democratic debates about the kind of city it wants to be and what kind of city people want to live in’ (Hollands 2008).

In keeping with the book’s transformative drive, however, we were not just going to craft this into yet another anthology about ‘smart cities’. We began looking for the various practice stories and intellectual pursuits that could help us explore the space–people–technology nexus in emerging economies in contextualised and perhaps previously unexplored ways. In this search, we connected with the particular authors presented in this volume.

We called upon these authors, as built environment or design professionals and intellectuals, to reflect upon the role of narrative in shaping space, influencing people and making technology decisions. Our interest in the narrative was grounded in the literature, suggesting that through the shifting of narrative and representation methods, new imaginaries can be generated and the scope of what is possible might be significantly broadened (Inayatullah 2004; Scharmer 2018). We concurred that contextualised narratives, vocabularies and metaphors could invoke and help inform much-needed new thinking and new practices in the built environment field (Karuri-Sebina & Govender 2021). To engage with the epistemological message of Volume 1, we told them that we were purposefully seeking new ideas and practices and were particularly inspired by ideas of ‘muddling through’ the complex issues. We welcomed experimentations with concepts and real-life contexts, learning through doing, policy change through evolutionary processes and a hands-on approach. We signalled a desire to shift beyond esoteric debates towards applied and contextual works, aiming to elevate our understanding of the vague concepts and possibilities of people-centredness, participation and co-creation. Moreover, we invited them to present interventions at various scales and intensities, from localised solutions to large-scale transformative programmes. Tariq Toffa is hereby acknowledged for his contributions and editorial support to the volume editor, Professor Amira Osman.

The chapters in this volume were borne out of this bold invitation. We received contributions of two broad types: some were conceptual and others were case study-based, both types having a solid empirical basis. These chapters form the story that we titled *Space, people and technology: Reclaiming the narrative on cities*.

Section 1 of this book is titled ‘Narrative and history’ and comprises an overview of this book’s purpose in the series context (ch. 1). It also presents two other chapters with very different topics: the urban development of Hong Kong and disability rights in South Africa, with a specific focus on transport systems. Both chapters consider the historical development of the themes and how thinking has changed over time, leading to a deeper understanding of why certain trajectories – progressive or regressive – transpired and how a different narrative may help us move forward in meaningful ways.

Maps and diagrams used by the planners to depict their contexts and systems are taken to the next level in Chapter 2 by Beisi Jia from the University of Hong Kong, People’s Republic of China, as a practising architect and widely published scholar teaching in the areas of architectural history and urban housing. Jia uses his view on space and time to undertake a morphological study of the urban transformations of Hong Kong,

analysing the plans, volumes, sections and schematics. Chapter 2 draws upon a pilot study aiming to develop a comprehensive programme for systematically investigating and representing the morphological evolution of urban complexes in Hong Kong, where housing and mixed-use urban areas have faced rapid economic and social change.

While the city has been much-researched, Jia's contribution presents a unique perspective by applying a different lens and theoretical approach that he considers to be better suited to the Hong Kong context. By compiling a focused historical narrative of how the city has evolved, he proposes that we rethink how it might be sustained, thrive and further develop by considering alternative strategies for design, funding, management and procurement in the built environments. As an architectural historian, Jia believes that understanding history is crucial to envisioning a future.

The chapter discusses the nature of urban density and provides a general city background. It presents Hong Kong as a context where the urban blocks and housing estates built before and immediately after the Second World War (WWII) have been partially demolished, inadequately maintained or increasingly transformed into high-rise and high-density urban forms. This represents, the author believes, a unique urban development pattern, which urban planners and designers should acknowledge in the future. Hence, successful and piecemeal urban regeneration cases must be adequately explained and illustrated.

The chapter presents the three central areas in Hong Kong: North Point, Quarry Bay and Wan Chai, through whose evolution the study attempts to create a coherent body of knowledge. The case analyses are based upon a literature review and a mapping of actual physical changes based on observing the urban transformations over time and at four spatial levels: *urban tissue, building form and structure, unit types and interior fittings*.

The analysis identifies the particular characteristics of the case areas' urban transformation processes and housing prototype evolution. The sectional mapping reveals the verticality of urban forms more strongly than the mapping of urban tissues. The analysis also reveals that the street and urban block tissues implemented in the early 20th century have successfully sustained the dramatic change in the economy and society for more than 100 years. Furthermore, the mapping reveals that diversity is more evident at the lower spatial levels, such as building forms, structures and units. Therefore, as an example, this close look at the elements of the urban fabric and open spaces in these cases of mixed-use areas in Hong Kong successfully demonstrates the potential of urban morphological research at different spatial levels. The study also shows how the powers intervening in the dynamics and vibrancy of the city are small

'powers' – developers and institutions which can only develop relatively small pieces of land, especially in areas of high land prices, and target particular user and buyer groups.

The study ultimately argues that the quality of mixed-use in the gentrification of a city, amidst pressure from the intensification of land use, can be achieved within the existing urban fabric. It also shows how the narrative emerging through the morphological analysis may help us better understand our cities, influence us and help us better conceptualise urban futures. By changing the narrative and representation methods, new imaginaries may be broadened, and new thinking and practice could be evoked.

In Chapter 3, Amanda Gibberd and Amira Osman write on disability rights and public sector financing. The authors turn their focus on how the lack of disability equality in South Africa is experienced in the day-to-day realities of people, despite these rights being stipulated in the *Constitution of the Republic of South Africa Act 108 of 1996*, the *Bill of Rights* (ch. 2 of the Constitution) and the Right of Access. These bills (should) include the right to transport and the right to participate in life's activities. The authors – an expert on universal access and planning and an architect – join with their different disciplines and expertise for the second time in their careers to offer new perspectives on the issues of universal access and the built environment. Chapter 3 oscillates between conceptual approaches to disability, policy and practice and the centring of people in these conversations.

This chapter discusses using national government grants to move the country towards universally designed municipalities. The purpose is to consider how South Africa moves towards achieving the UN's SDG 11 set on inclusive cities and how to implement the *South African National Development Plan*. It suggests that there is a national benefit to all South Africans if the relationship between transport and public space is examined as the basis for delivering universally accessible public transport services. It is argued that how national grants are used, creates a yardstick for measuring an inclusive society.

The chapter is heavily based on a thesis conducted by Gibberd in 2021, which looked at transport and universal access challenges in South Africa. It starts by describing how the lack of policy implementation influences people's day-to-day lives. An argument is presented that the social model of disability has its roots in South Africa and asks why, despite the progressive thinking that originated here, have these not impacted people's lives positively? South Africa's Constitution and policies have spoken to the Global South and Global North concerns for years, yet practice remains far behind.

The chapter opens by imagining how people's lives and daily experiences may transform through the translation of progressive policies and guidelines into action. This condition is far from reality. The chapter concludes by encouraging a different approach that may assist in achieving reality, feeling the change in the daily lives of people with and without disabilities at all stages of their lives and arguing that this will have positive repercussions for every other user of the built environment, specifically with regards to the ease of mobility in cities, access to services and participation in life itself.

Section 2, 'Decolonial directions', presents a unique chapter that we hope will catalyse further similar investigations, which this book series hopes to promote. In Chapter 4, Russel Hlongwane, a South African cultural producer and creative industries consultant, takes us into onto-epistemological territory through a speculative journey into rendering new meanings to the city through studying 'the "marrow" of the city' [*umongo we dolobha*], and situating the praxis of architecture and technology within a local context depicted by local language. In 'Mother tongues, transcendental technologies and space', we are reminded that in practice (the intellectual, historical and conceptual) there needs to be a guide constantly leading us to a deeper understanding of the contexts in which we practice as built environment professionals. Hlongwane attempts to look at these three areas of production from the perspective of *AmaZulu* and asks: What does the Zulu tradition offer to the fields of architecture and technology? His objective is to situate the praxis of architecture and technology within a local context, a praxis that prioritises local challenges and is informed by a local imagination. The isiZulu language is used as an access point to reach deep into a long past filled with traces of technology and architectural imagination. The 'speculative' is deployed as a methodology to render new possibilities for these two practice areas.

Reminiscent of Bayo Akomolafe's notions of searching for the otherwise (Akomolafe 2017), Hlongwane invokes the notion that how we have been trying to solve Africa's problems might itself be the problem. He (Akomolafe 2017) says:

Language for me, is a pipeline to an erased history; it mobilises a set of ideas that the makers of that language subscribed to and aspired towards. It becomes even more important to work with language given our folkloric form of knowledge transfer. This also valorises our knowledge system in a global order where Western thought is (over) valued beyond all else. Western knowledge has been given a long run-way in Africa and till now, it has failed to solve for African people in ways that are equitable, humane and sustainable, so another way has to be made possible. (n.p.)

Emerging from Hlongwane's inquiry is evidence from artists and writers exploring age-old spiritual practices and 'mediums' as very advanced forms

of technology. Where the urban practice is concerned, *AmaBhinca* (a community within *AmaZulu*) offer a taxonomy that textures – if not reimagines – our relationship with space. From the South African reality where the black body encounters a series of daily inconveniences, micro-aggressions and resistance from ‘inanimate objects’ (public infrastructure and other pervasive built forms) to one where ‘black ontologies are reflected in design practices’ so that ‘we reach a critical juncture where the city and its built forms will speak to black South Africans at an intuitive level’. When space is arranged in our mother tongue, we can speak to space and it can speak back, there is a created resonance – we can sound space. I think this will fundamentally alter our relationship with the built environment in a significant and positive way.

In this work, interdisciplinarity and the speculative method are valued and leveraged to bring disparate questions into relative proximity to achieve new interpretations. *Language* is explored as a tool for rethinking space and cities, seeking out how local imaginations embedded in language could be used to help re-assemble spaces from their memories. Ultimately, he seeks to offer a methodology that can be reused in other contexts with similar histories.

Finally, Section 3, ‘Practice as theory’, presents Chapter 5 by the Cape Town-based urban planners and designers Jody Paterson and Nisa Mammon, who extend the story of water beyond the coast to come further inland in writing about the management of the water systems of cities within an eco-sensitive, people-centred framing of care and well-being in city-making. Chapter 5 explores the benefits of managing water systems at various scales in the South African city context using their own practice-based experience in the urban planning and design field, case studies of sustainable urban drainage systems (SuDS) to challenge conventional engineering models and centre the valuing of water as a critical life-sustaining resource. They do so through the theoretical lenses of Amartya Sen’s ‘development as freedom’ approach and Ash Amin’s ‘good city’, which they use to interrogate water management as a resource from a ‘public good’ perspective.

As water and land are inseparable, access to water through land planning and design is a crucial consideration as far as water resources and systems management are concerned, as demonstrated in the case studies presented in the chapter. A key argument these authors make is that water is presently crudely regarded as an infrastructural element with economic value rather than having an intrinsic value to humans and other life forms, even in urban contexts. This technicist lens results in water being distributed, allocated and managed differently across various income, racial and geographical boundaries.

The authors acknowledge the varied nature of South African urban contexts from the informal to the formal areas, from places of extreme poverty to extreme opulence, and differing development contexts, including compact urban centres and low-density suburban peripheries. Moreover, while the two case studies presented in the chapter do not cover the full range of socio-economic and development conditions, they richly illustrate how interventions in any one area would affect the rest of the city. From the ‘deadly playground’ of polluted canal waters in Cape Town, where the green-blue recreational potential is ignored, to the urban park at the confluence of the Black and Liesbeek Rivers where a techno-scientific approach was giving shape to the park without much consideration for place-making measures. This includes the importance of creating ‘accessible and connected green open space’ to the case of Philippi, where the proposal for an ‘integrated scheme where water management, land, housing, urban agriculture, environment and crime were addressed in a single scheme which was also economically viable’ was summarily rejected. The authors demonstrate how the greatest public interest is repeatedly evaded by failures to enable systemic, interdisciplinary and integrative approaches. Paterson and Mammon (2023) argue, ultimately, that water services are seen as a ‘public good’ and that:

A ‘politics of care’ approach, that acknowledges the values that are intrinsic to reasonable human beings and an integral part of human meaning-making, should not only inform the process of planning and design of SuDS but be adopted as a general approach to city-making. (p. 104)

■ **Conclusion: Contextual clues for addressing global built environment issues**

While some contexts share similarities, a nuanced understanding and a deliberate, focused and unique solution are needed rather than blanket approaches and assumptions of a linear and simplistic interpretation of ‘development’ (Karuri-Sebina 2020; ed. Osman 2020).

We need new design and technical solutions, but we need new imaginaries to lead us to those solutions. In so doing, we join many emerging voices that challenge existing narratives and Eurocentric approaches. Authors such as Ngwane (2021) and Surico (2021) challenge the perception of disorder and claims of illegality in what we see happening in urban space. They rather see alternative forms of governance, agency and power, whereas, through another lens of outdated thinking on development, others see only a chaotic mess. These approaches demonstrate an inherent respect for local ways of doing – in that sense, they are transformational. Indeed, these alternative systems may be the only way to achieve resilience

in the face of pandemics or environmental stressors emanating from climate change – a form of a ‘contingency plan’ (Asian Development Bank 2020, pp. 10, 14). The COVID-19 pandemic has shown us that inequity is not only evident in socio-economic factors; for example, a plea is made for ‘health equity’ (Roe & McCay 2021).

The ability to look beyond image and form to systems and processes is a skill that needs to be developed, a wealth of knowledge that needs to be captured and a way of ‘doing’ that needs to inform policy and professional guidelines. Years before, in 2010, Hamdi asked that we engage with the mess rather than try to sort it out. In avoiding over-simplifications, Eurocentric modes of thinking and standardised designs and technologies, solutions may be found in the ‘mess’. We understand that. However, have we understood how to make it into a lived reality – and through it to increase the quality of life and protect the environment? Actual progress may be made when we shift the dialogue from identifying and supporting vulnerable groups to acknowledging our collective vulnerabilities. It is only in the eradication of all forms of vulnerabilities that we find collective benefit and progress.

In this collection, we have traversed much ground, from studying diverse narratives and histories through local strategies and community intelligence, settlement tools, systems and morphologies, and decoloniality and practice-theory in terms of universal as applied to water and access. We seek answers to these questions and solutions to these problems by exploring diverse contexts and theories – presented here. This conversation will continue into the next volume of this book series.

The role of narrative in shaping space: A morphological study on urban transformations in Hong Kong

Beisi Jia

Department of Architecture, University of Hong Kong,
Hong Kong, People's Republic of China

■ Introductory thoughts

The research presented here stems from a pilot study that develops a comprehensive programme to systematically investigate and represent the morphological evolution of urban complexes in Hong Kong, the People's Republic of China. Housing and mixed-use urban areas in Hong Kong are facing rapid economic and social change. While the city has been much-researched, this contribution presents a unique perspective and applies a different lens and theoretical approach better suited to this particular environment. A historical narrative of how the city has evolved has been compiled, allowing us to rethink how it may be sustained, thrive and further develop in the future by considering alternative strategies for design, funding, management and procurement in the built environment.

How to cite: Jia, B 2023, 'The role of narrative in shaping space: A morphological study on urban transformations in Hong Kong', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 17–40. <https://doi.org/10.4102/aosis.2023.BK323.02>

An understanding of history is crucial to the envisioning of a future. Hong Kong's urban blocks and housing estates built before and immediately after the Second World War (WWII) have been partially demolished, inadequately maintained or increasingly transformed into high-rise and highly dense urban forms. As the author believes, they represent a unique urban development pattern, which planners and designers should acknowledge in the future. Successful urban regeneration cases must be adequately explained and illustrated; some are large and integrated, and others are small and fragmented. This chapter intends to create a coherent body of knowledge of the evolution in three central areas in Hong Kong: North Point, Quarry Bay and Wan Chai.

Firstly, this chapter discusses the nature of urban density and provides a general city background. Secondly, it introduces urban morphological concepts and research strategies applied in observing urban transformations at temporal and spatial levels. Thirdly, it provides three case analyses observed from the literature review and the mapping of physical changes. In conclusion, the chapter identifies the particular characteristics of urban transformation processes and housing prototype evolution. The study argues that the quality of mixed-use in the gentrification of a city, amidst pressure from the intensification of land use, can be achieved within the existing urban fabric and lessons extrapolated for new developments. The chapter concludes by showing how newly constructed narratives may help us gain a deeper understanding of our cities, influence us and help us better conceptualise our future. By changing the narrative and representation methods, new imaginaries may be broadened and new thinking and practice may be evoked.

■ A historical narrative on the evolution and significance of high-density urban form

As early as 1996, the United Nations (UN) called for high-density and integrated developments in the *Habitat Agenda and Istanbul Declaration* document. The document states (UN 1996):

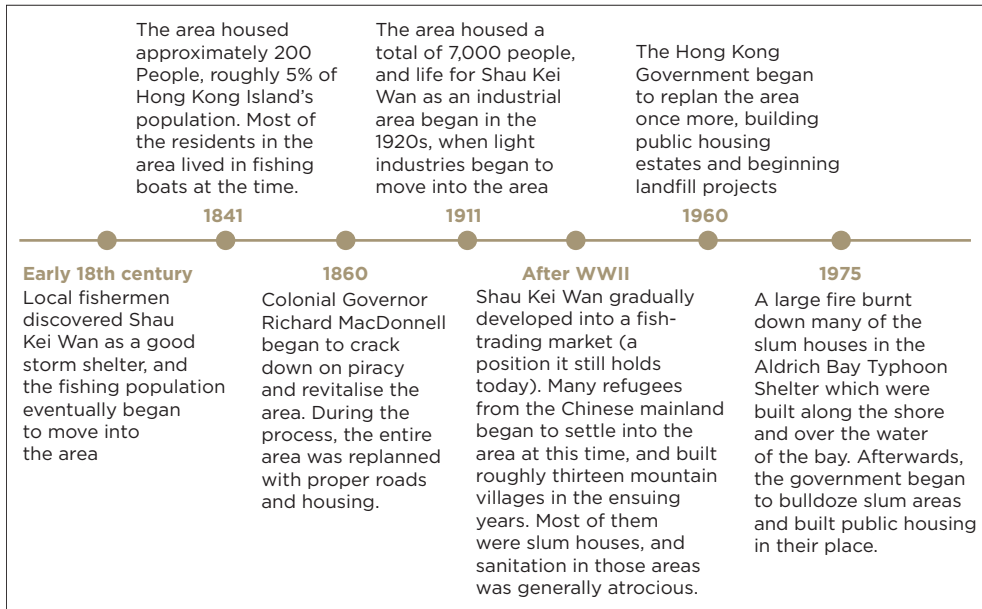
[A] city development should promote, as appropriate, socially integrated and accessible human settlements, including appropriate facilities for health and education, combating segregation and discriminatory and other exclusionary policies and practices, and recognising and respecting the rights of all. (p. 35)

Moreover, it seeks to promote land-use patterns that minimise transport demands, save energy and protect open and green spaces. Appropriate urban density and mixed land-use guidelines are primely crucial for urban development' (UN 1996, p. 87).

Urban form, including the pattern and density of development within and between settlements, influences travel patterns, the ability to maintain biodiversity and quality of life. A compact city form is essential for achieving energy efficiency and socio-economic advantages. Land use, transport facilities and infrastructure development should be well-integrated and well-connected to the city's major arterial networks to enhance mobility and accessibility (Jia 2000). Mixed use of land offers the opportunity to reduce vehicular movement inside the city and consequently minimise energy consumption in traffic. Through urban design, a balance of houses, jobs and facilities in each broad city sector will enhance liveability, increase convenience levels and stimulate cultural and social activities in different parts of the city. Hong Kong is one of the most important and significant high-density and mixed-use cities in the world; it has a territory area of 1,040 km² and, with over 76% of the land area being hilly terrains, it has posed physical challenges for development (Census and Statistics Department 1999). It is a very densely populated area with over 7.5 million residents living within the territory. However, only 6.9% of the land is used for residential purposes, compared with 64.1% of the total land area being used for open green space (Hong Kong Transport and Housing Bureau 2017). Considering the constraints of the terrain, the total developable landmass is not much more than 500 km², and over 90% of the total population is settled on less than 12% of the area designated as built-up areas (this area includes new towns). The density is nearly 26,000 residents per km² in the central urban areas, including North Point and Wan Chai, the case study areas of this research.

Shau Kei Wan is an urban fringe that was originally a fishing village in the 18th century. It was developed into a small community in the early 20th century with minimal urban planning and has since been transformed into an industrial town after WWII. Since the 1970s, it has become a residential and commercial centre (Figure 2.1). Figure 2.2 illustrates the expansion of the urban area through the construction of large residential estates in the reclamation land from the harbour in the north and upper hillside in the south. These housing estates represent typical modernist ideology in urban planning. Moreover, these estates are characterised by high-rise buildings and are surrounded by large open spaces. The central area in the urban fabric, which was planned in the early 20th century, has experienced intensified urban renewal in the last 20–30 years.

Hong Kong's high-density urban form was not just planned. It is a direct outcome of land-market and profit-driven land-use policies. The former colonial government intentionally created a shortage of land supply to maximise income from land leases. Historically, Hong Kong's urban development was regulated by the restricted release of land at a rate of 50 hectares (ha) per year. Land was a crown property leased by the



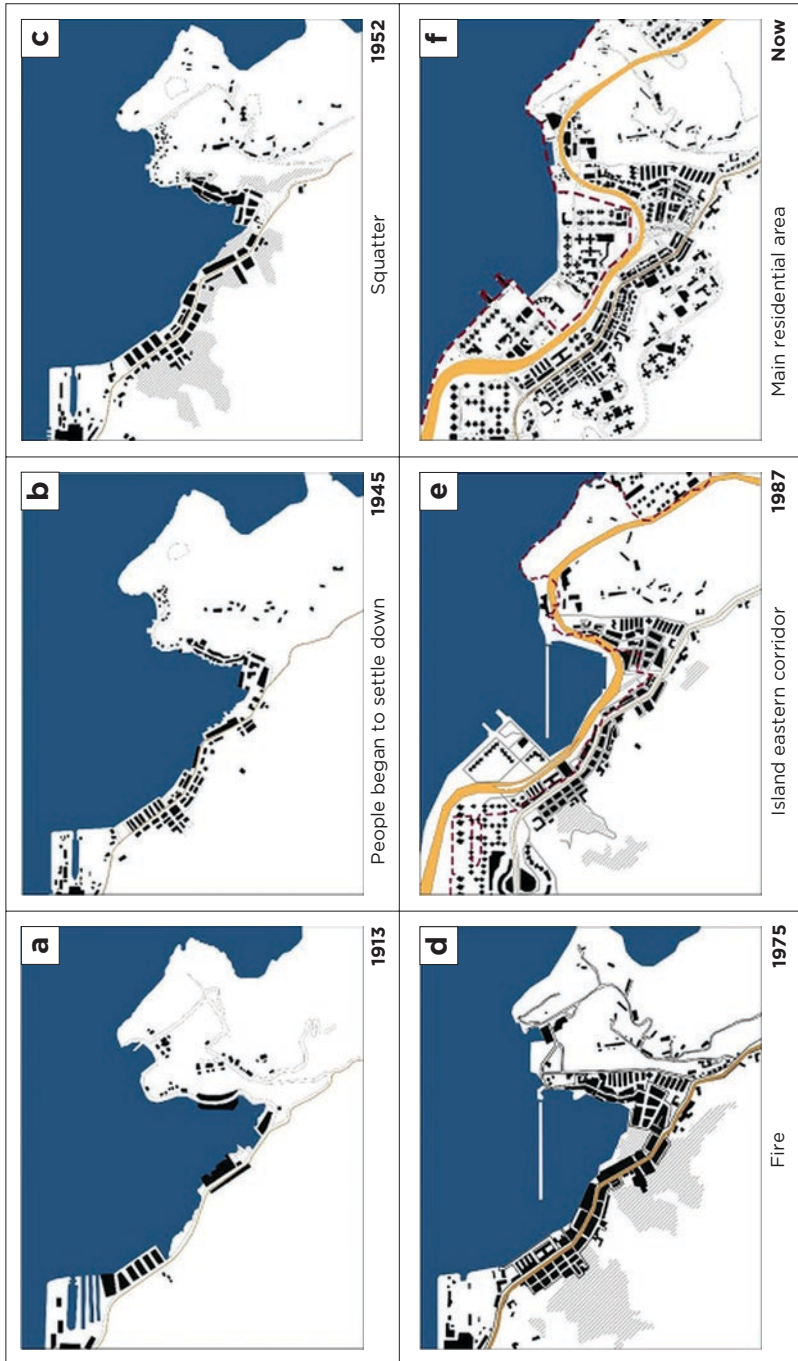
Source: Redrawn timeline of the Housing in Urban Development Course Document produced by Beisi Jia, Zijun Yi, Yonghao Xue, Xiaoxuan Zou and Fangyuan Zhao, 2018, reproduced with permission from the copyright holders in 2023.

FIGURE 2.1: Timeline of historical moments of Hong Kong Island housing before the 1980s.

government through open auctions to the highest bidders. In the early 1980s, land-related revenue amounted to over one-third of the government's total revenue.

Consequently, the high demand for housing and urban activities has made land very expensive. The private developer who buys the land development license tends to maximise profits by maximising the density. High-rise buildings concentrated on small pieces of land are the only solution to the high profits of land development. Although the government does not admit to pursuing a high land-price policy, the disposal method has contributed to high land prices, thus making Hong Kong's property among the most expensive in the world. This policy has created high density, high congestion, low living standards, polluted air and noise for the majority and low-income groups.

High density has caused the minimisation of open space in the city. The Hong Kong Planning Standards and Guidelines (HKPSG) recommend the provision of 15 ha of open space per 100,000 people as a minimum standard in the main urban areas and 20 ha in new town areas. In comparison, Singapore had a standard of 40 ha of open space per 100,000 people and proposed that a future standard of 80 ha be met by the end of the 20th century (Barron & Steinbrecher 1999, p. 72). The open space in Hong Kong is unevenly distributed, as country parks, conservation areas and green

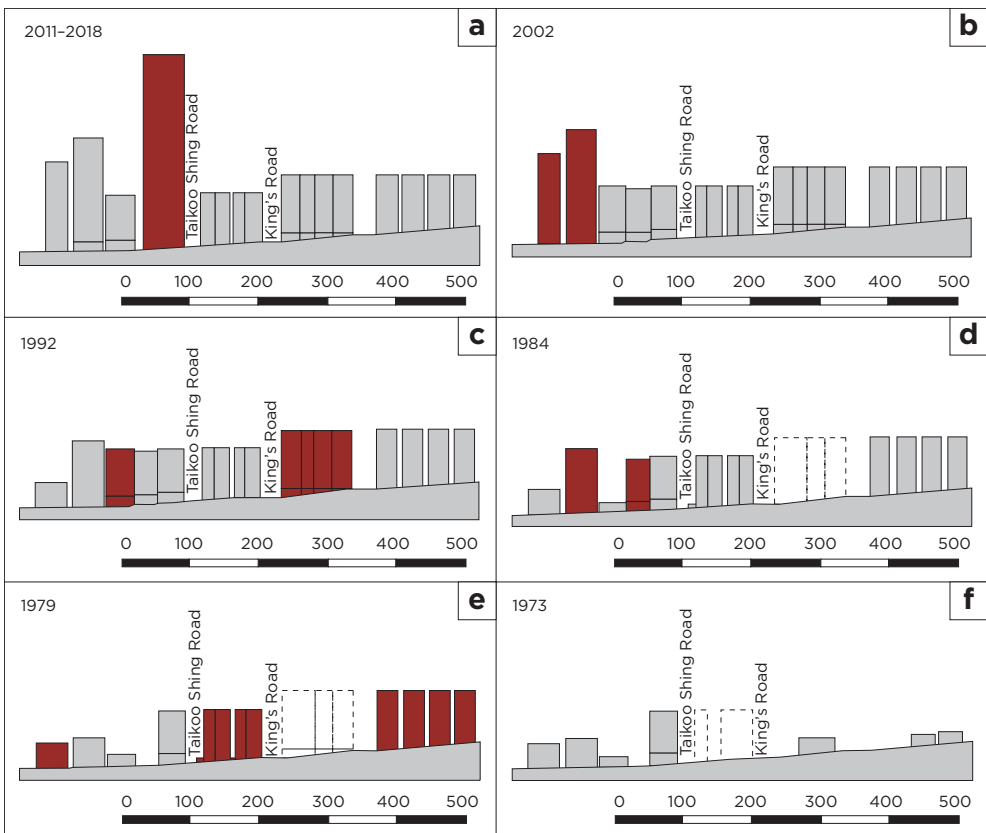


Source: Housing in Urban Development Course Document produced by Beisi Jia, Zijun Yi, Yonghao Xue, Xiaoxuan Zou and Fangyuan Zhao, 2018, reproduced for publication with permission from the copyright holders in 2023.

FIGURE 2.2: Urban expansion by land reclamation in Shau Kei Wan, Hong Kong Island, depicted from 1913 to the present day.

belts are all at the urban fringe. A surplus of open space in one area does not compensate for the lack of open space elsewhere (Barron & Steinbrecher 1999, p. 72). The intensification of land use in Quarry Bay started in the 1970s. It has transformed the area into one of the central commercial areas in Hong Kong Island, with increased building heights and reduced open spaces (Figure 2.3).

The high density has also caused expensive land development and a shortage of adequate housing. The plot ratio of private housing reached 8 : 9. For public housing estates, a plot ratio should range 6 : 7 in terms of the net estate area to achieve a high standard of estate layout design while maintaining efficient use of land. Government statistics have shown that, at most, 2.3% of the housing stock in Hong Kong, which comprises public and private temporary housing, is not self-contained. In 1998, Hong Kong had approximately 740 homeless persons; 131,160 households were on the waiting list for public rental housing, and the average time to



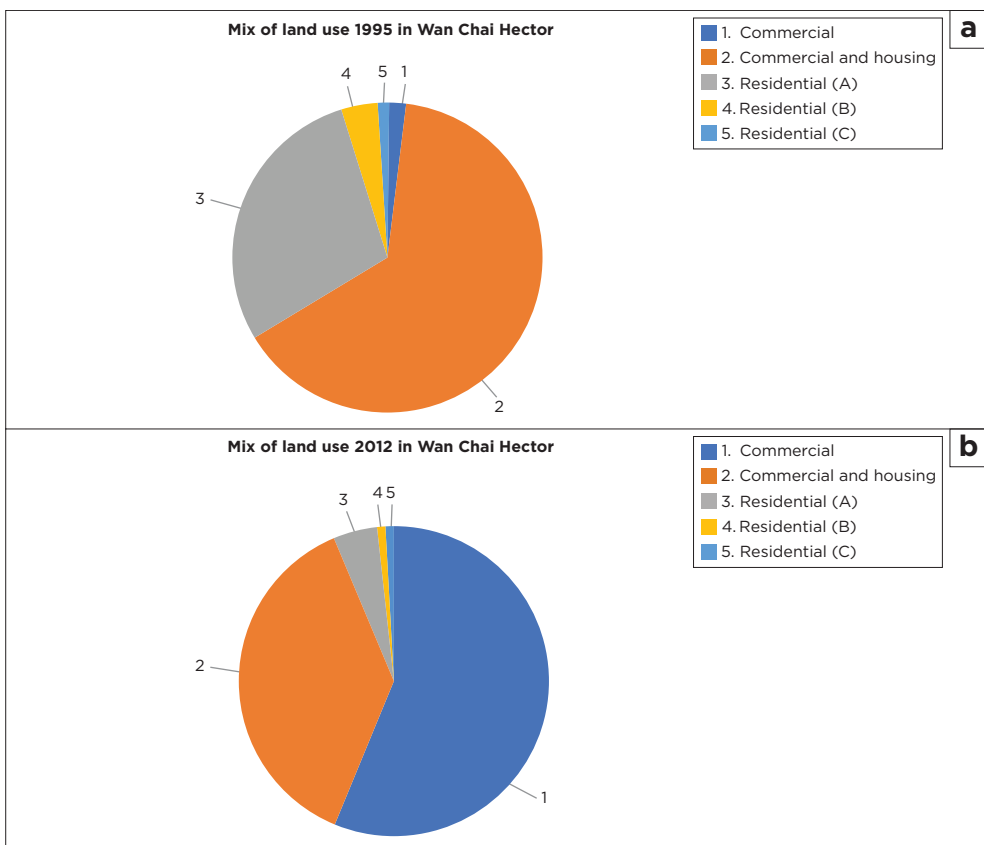
Source: Housing in Urban Development Course Document produced by Beisi Jia, Li Jin, Wenxin Zeng and Lap Man Wong, 2018, reproduced for publication with permission from the copyright holders in 2023.

FIGURE 2.3: Land-use intensification in a sectional study of Quarry Bay, from 1973–2018.

obtain this benefit was 6.3 years (Census and Statistics Department 1999). Although the number has been decreasing, a sizeable proportion of the population continues to live in accommodation that does not meet the basic standards.

Throughout history, Hong Kong has developed a unique pattern characterised by a mixture of functions in high density (Figure 2.4). Retailers, offices, restaurants and residential spaces overlap vertically in one block. The significance of dynamism in cities remains an undiscovered treasure for the success of Hong Kong and other Asian cities. In addition to having a modern business environment, Hong Kong has retained its traditional Chinese culture. Traditional streets, shops and buildings are still well-kept alongside modern buildings.

Moreover, the blend of Eastern and Western cultures has cultivated the city's development. Hong Kong's population is predominantly of Chinese



Source: Reproduced by the author based on data from the Planning Department of Hong Kong: District Planning No. 5 by Wan Chai [OZP] 1995 and 2012.

FIGURE 2.4: Representation of the types of land use 1995–2012 in Wan Chai.

descent (95%). In addition, it has a variety of ethnic and cultural groups with various religious beliefs. Buddhists and Taoists make up the vast majority. They co-exist with Christians (9%), Muslims (1.2%), Hindu people (0.2%), Sikhs (0.02%) and Jewish people (0.02%). Ancestor worship is also widely practised in Hong Kong, owing to the strong influence of Confucianism, which is not a religion but teaches a moral code based on human relations. Hong Kong also has diversified housing ownership: public housing ownership comprises 11.64% and private housing ownership comprises 52.74% (Table 2.1).

Besides the high efficiency and the mixture of land-use functions, another advantage of high density is public transportation. Approximately only 15% of Hong Kong families own a private car. Hence, unlike virtually any other place with a similar income level, Hong Kong's transport system is already strongly dominated by public transportation. It has a highly developed transport network and system supporting 90% of daily journeys on public transport, which is the highest percentage in the world (Hong Kong Transport and Housing Bureau 2017). The public transport system in Hong Kong, managed by private companies and public corporations with a high degree of autonomy, is praised for its effectiveness, efficiency and low cost. The pollution generated by the traffic is mainly from the intensity of trucks and buses, which use diesel engines, in the narrow streets.

The growing population and economy, land-use policy, topography, diversity of culture and society and pragmatic business manners all impact the highly dense urban and living form. The ideology of a modern city, characterised by its large open spaces and high-rise buildings, can also be found in suburban areas, especially in public housing. However, the congested urban form characterised by its streets and the gradual

TABLE 2.1: Different housing investment sectors and ownership structure, Hong Kong.

No.	Different sectors for housing investments	Stock of residential apartments in 1998 (thousands)	Percentage (%)	Population in 1998 (thousands)
1	Public housing			
	• Home ownership scheme	233 ^a	11.64	797 ^b
	• Private sector participation scheme			
	Housing authority's subsidised sale of apartments	9 ^a	0.55	-
	Housing authority's rental apartments	670 ^a	33.47	2.279 ^b
	Housing society's rental apartments	34 ^a	1.7	-
2	Private housing	1056 ^a	52.74	-

Source: ^a Housing Department, 1999 (http://www.info.gov.hk/hd/eng/hd/stat_99/mid_f.htm); ^b Housing Authority, 1997/98 Annual Report.

regeneration dominate the central areas and represent the image of Hong Kong. In the city, the prevalent concept of Western urban design in the 20th century, based on logic and rationalism, confronts Hong Kong and the Eastern world of relativity and pragmatism. Instead of investigating the social, cultural and economic causes of life's high density and vibrancy, the following research offers an alternative paradigm where the observation and description of the urban form as a transition process are based on morphological research theories and methods.

■ An alternative (Eastern) paradigm in the development of urban morphological research frameworks

Cities frequently develop in complex and organic ways, which makes them unique. All cities have their own network of special internal connections. Moreover, the factors involved in a city's development range from economic to political and social. Hence, their development is complicated and multifaceted. A thorough analysis that utilises a comprehensive approach is needed to understand a city's formation and attain insights into the urban morphology of any given area (Wang & Jia 2019). Hong Kong represents a unique urban form marked by verticality. However, a view of the classical morphological theory, especially the framework, will lead to a more precise methodology revision.

Social and economic changes in cities occur in numerous ways. However, urban morphological analysis can help us connect these developments when studying an urban environment. MRG Conzen and Gianfranco Caniggia developed a series of methods that act as an effective schematic for analysing the urban morphology of specific cities. In the 1960s, Conzen argued that a city is a physical form accumulated through time and complicated both in temporary and spatial dimensions. To better understand the city form, the form needs to be clarified using drawings in various scales. The dimensions of spaces and buildings need to be precise and divided into specific and clear properties (Conzen 1960).

'Urban tissues' or 'character areas' in urban morphology offer a useful analytical tool for studying cities (Conzen 2004; Kropf 2011). Urban tissues can be used to explain the history and physical structure of cities and the relationship between different urban areas and buildings. At the housing or land utilisation level, residential districts have more consistent function and form than the other units of spatiality. These features reflect the universal characteristics of the spatiality of compactness and homogeneity. 'Tissue' refers to the horizontal fabric of a city rather than the vertical city. However, the compactness, open spaces and patterns of high-rise complexes are

also determined largely by planning on the tissue. The verticality is presented by the sections of the city map, as shown in the section 'Analysis of the cases observed'. Caniggia stated that the different change processes in residential areas impact urban form and tissue and are closely linked with city life and the cities' physical structure (Caniggia 2001; Wang & Jia 2019). This long-term evolution process reflects the findings of various collective construction and operation types at two levels: diachronic and synchronic. Moreover, this evolution is representative of the 'operational history' of the majority of cities. Evolution and transformation in time are also a focus of this study regarding tissues and sections.

An urban tissue is a level that represents and is controlled by common values and serves the broad community. It has two sublevels on the building level: support or base structure and in-fill. Habraken divided residential buildings into 'support' and 'detachable units' and eventually proposed the 'level' concept (Habraken 2002). For Habraken, the issues are both technical and social. The built environment should be understood as territories controlled by a different power. A territory denotes a space or an arrangement of spaces that is under the control of one power (Habraken 1983, p. 29). By using the term 'power', Habraken gives people in any built environment or any person or group of persons the ability to change the physical reality of the territory (Habraken 1983, p. 15). The territory is never homogeneous. Moreover, physical hierarchies are found to respond to the impact of the people.

To better understand the morphological research methods, especially spatial levels, tissues, morphological character and 'power', Figure 2.5 illustrates three housing estates with high-rise buildings in a similar site scale. The figure-ground mapping shows that the three have distinguished characters. Figure 2.5a and Figure 2.5b demonstrate a united planning pattern at the tissue level because they are dominated by a single power – Figure 2.5a with a large developer and Figure 2.5b with a housing authority. However, Figure 2.5a is denser than Figure 2.5b because the developer intends to maximise the land value. Figure 2.5b shows various building types: short slab, long slab, triangle, T-shaped and U-shaped. Different architects designed each building type; hence, a diversity of powers exists at the building level. Neither Figure 2.5a nor Figure 2.5b has experienced any significant changes since the 1960s. Figure 2.5c demonstrates diversity at the urban tissue level. At least four characters of urban tissues can be distinguished. It has four estates built by four powers and designed and planned by four different architects.

Most importantly, they have been constructed at different times since 1970. As residents' socio-economic conditions are also different, variety within the prototype of the 'podium tower' can also be observed at the

building level. Moreover, the ‘podium tower’ prototype has dominated building development all over Hong Kong since the 1980s.

Figure 2.5a and Figure 2.5b also present the ideology of Western modernism; free-standing single-function buildings (residential) surrounded by large open spaces and streets are omitted. They also show that the land-price of public housing shown in Figure 2.5b was only one-third of that of private housing shown in Figure 2.5a.



Source: Housing in Urban Development Course Document produced by Beisi Jia, Hoi Wang Cheung, Zhi Hao Hu and Yao Qu, 2018, reproduced for publication with permission from the copyright holders in 2023.

FIGURE 2.5: A visually mapped representation of urban morphological characters in three housing estates: (a) Mei Foo Sun Chuen, 1960 private housing estate, (b) Wah Fu, 1969 public housing estate and (c) Taikoo, 1970 mixed housing estate.

The morphological analysis distinguishes four normal spatial levels: urban tissue, building form and structure, unit types and interior fittings. In the following case analysis, the focus is given to the first three levels for brevity. The following case studies describe the verticality, contributing to this study's morphological research for high-rise and high-density cities. Each case's historical and socio-economic backgrounds are also provided, addressing transformation in time.

■ Applications of morphological analysis on the case studies

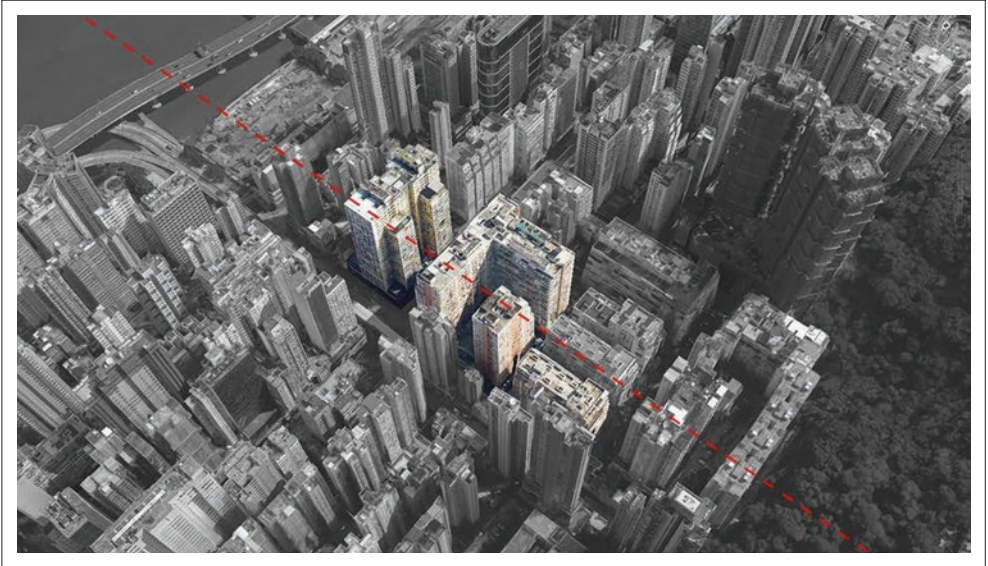
Hong Kong Island has been the social and economic centre of Hong Kong since the end of the 19th century. Three cases are selected along the coastline of Victoria Harbour on Hong Kong Island. These three cases are gradually generated from history, thus representing the varieties of urban tissues created in history. Most importantly, they present the image of the city and the energy of economics, especially the land market in the economic boom that has occurred since the 1960s.

■ North Point

North Point has had a history of land reclamation since the 1880s. Most of the land north of King's Road is reclaimed. Meanwhile, the south of King's Road has shallow slopes. Then, up the shallow slopes are a series of terraces. These terraces all have stepped walkways connecting to the lower area of the city.

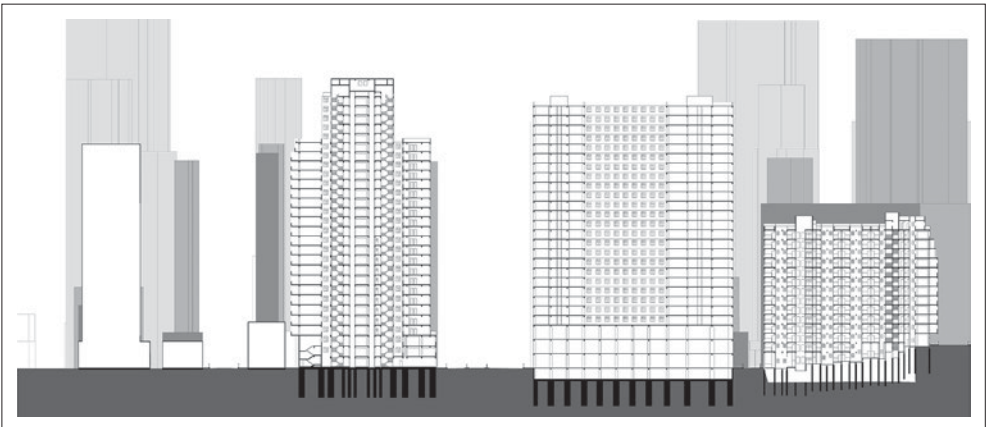
The site studied can be regarded as the traffic node of North Point. King's Road is the busiest road in this area. Moreover, several buses and trams go back and forth on this road. A Mass Transport Railway (MTR) underground station is within a 150m walk. In addition, the North Point Ferry Pier is within 400m of the site. Residential buildings in this area are of great convenience and commercial value. Here, the roads become more pedestrian-orientated as they extend to the northern and southern sides.

In 1936, the site was turned into a canning factory, and the southern part was turned into a settlement of refugees during WWII. At this stage, the site was for industrial and residential purposes because of the turbulent societal changes. After 1952, the site was bought by Dah Yuan Real Estate, and private housing started to be built. In addition, the construction of the Metropole Building (Figure 2.6 to Figure 2.8) began during the third reconstruction phase when some old buildings were demolished. Large housing projects, such as the Metropole Building, could be constructed with the development of the urban fabric and the prosperity of King's Road. After WWII, a new Western typology of private housing was proposed



Source: Housing in Urban Development Course Document produced by Beisi Jia, Yat Him Chan, GE Wen Ji, Hyoju Sohn and Bo Chao Sun, 2017, reproduced and published with permission from the copyright holders in 2023.

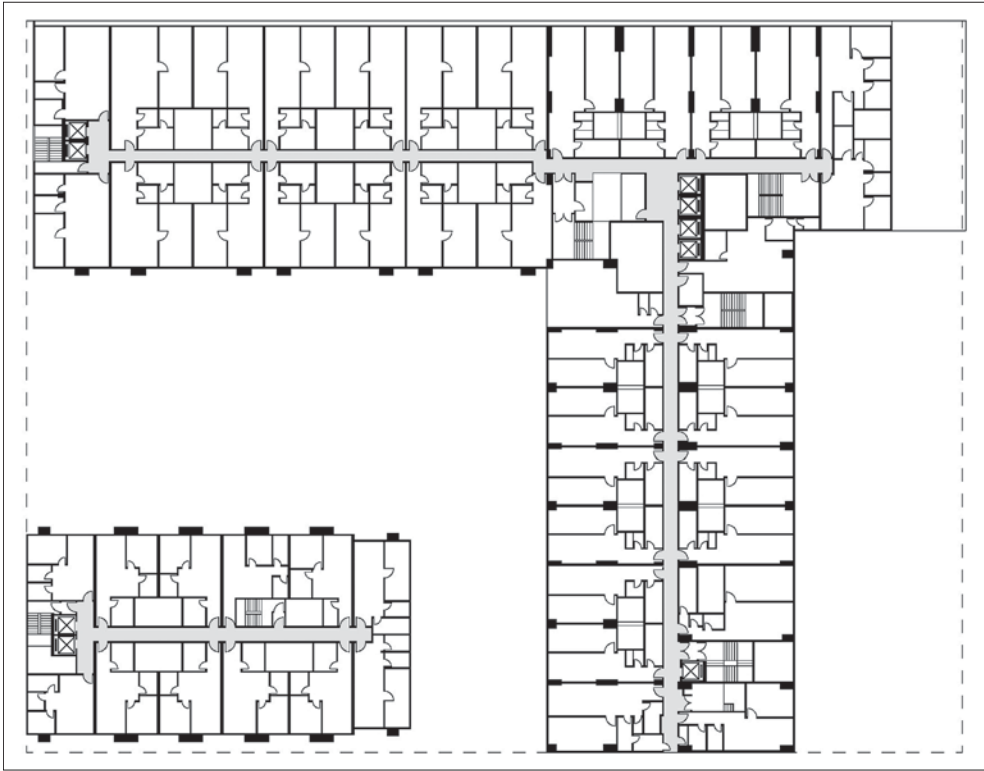
FIGURE 2.6: Urban tissue: Bird's eye photographic view of the study area with the dotted line indicating the location of the section.



Source: Housing in Urban Development Course Document produced by Beisi Jia, Yat Him Chan, GE Wen Ji, Hyoju Sohn and Bo Chao Sun, 2017, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.7: Building form: An illustrated section of King's Road in the middle and surrounding buildings.

to replace shophouses to solve the problem of population explosion. The Metropole Building was one of these high-standard, high-density housing typologies. Designed by Szeto Wai and built in 1967 and 1972 successively, the building is a large private housing with 1,037 living units. Long double-loaded corridors characterise its plan. Several light wells grace the building



Source: Housing in Urban Development Course Document produced by Beisi Jia, Yat Him Chan, GE Wen Ji, Hyoju Sohn and Bo Chao Sun, 2017, reproduced and published with permission from the copyright holders in 2023.

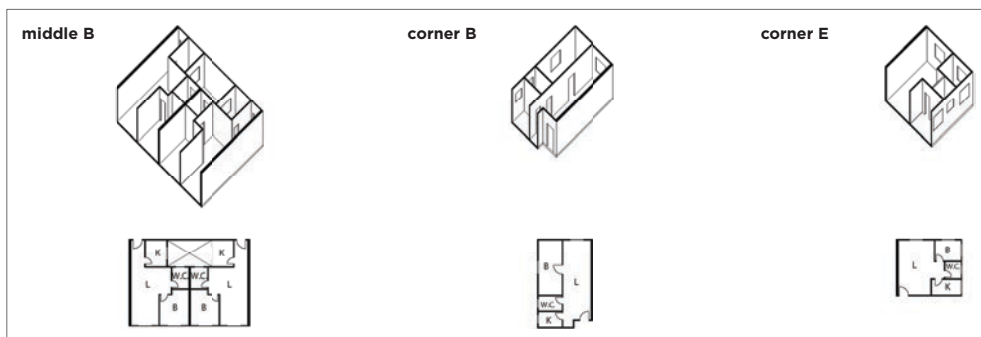
FIGURE 2.8: Building level: An illustrated lift structure and unit circulation of the Metropole Building.

to offer sunlight and ventilation. Each building block has a service core, lift, and fire escape. This design is a typical typology of slab block housing in Hong Kong in this period and has the advantage of land-use efficiency.

The Metropole Building has much more variations in its unit types (Figure 2.9). The positions of the units on each floor mostly determine these differences. Usually, corner units have more customisations, while the middle units tend to be identical. The various arrangements of the units demonstrate the complexity and massiveness of the Metropole Building.

■ Fortress Hill

The area has a rich history dating back to the colonial period, and two roads have turned out to possess the section's unique characteristics today. While wide motorways dominate King's Road, Chun Yeung Street is filled with urban activities celebrating its vibrant street life. This study investigates the intriguing contrast between these areas. It suggests reasons for such variance in urban history, building typology and space qualities from public



Source: Housing in Urban Development Course Document produced by Beisi Jia, Yat Him Chan, GE Wen Ji, Hyoju Sohn and Bo Chao Sun, 2019, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.9: Unit level: The diversity of major apartment unit types in the Metropole Building, scaled 1: 400.

to private territories. Two buildings are studied in particular to demonstrate how specific architectural features affect people's living and activities in the street.

Given that the MTR, bus and tram stations are concentrated on King's Road, the major flow of pedestrians is also located there. Occasionally, people spread to the streets, branching off the two sides depending on the activities in these paths. Thus, a hierarchy of the main road supported by the surrounding streets is established. In addition, the walkability in the area is high because of this tight but extensive street network. Reclamation occurred in Causeway Bay and North Point in the 1900s, from west to east (Figure 2.10). The area north of King's Road and west of Tong Shui Road was reclaimed in the 1920s, whereas the eastern area was reclaimed in the 1930s. Therefore, the urban grid is tilted according to the coastline. Streets were drawn parallel to King's Road, and plots were arranged perpendicularly.

The buildings constructed initially after reclamation were primarily residential. A significant example was the group of 40 interlinked row houses built by a Fujian merchant on Chun Yeung Street. These houses were subdivided and rented out, particularly to numerous Fujian and Shanghai workers. Some of the buildings were in the shop-house typology with ground-floor shops. People communicated in dialects and formed communities in the area, thus giving rise to commercial activities in the street with markets, theatres, hubs and other establishments. More public amenities and diversified programmes were established over the years. Then, tramways were introduced in 1953. Interlinked row houses began to be replaced by separated mansion blocks in the 1980s. Towards the 2000s, podium towers began to emerge with planned malls on the ground floor to



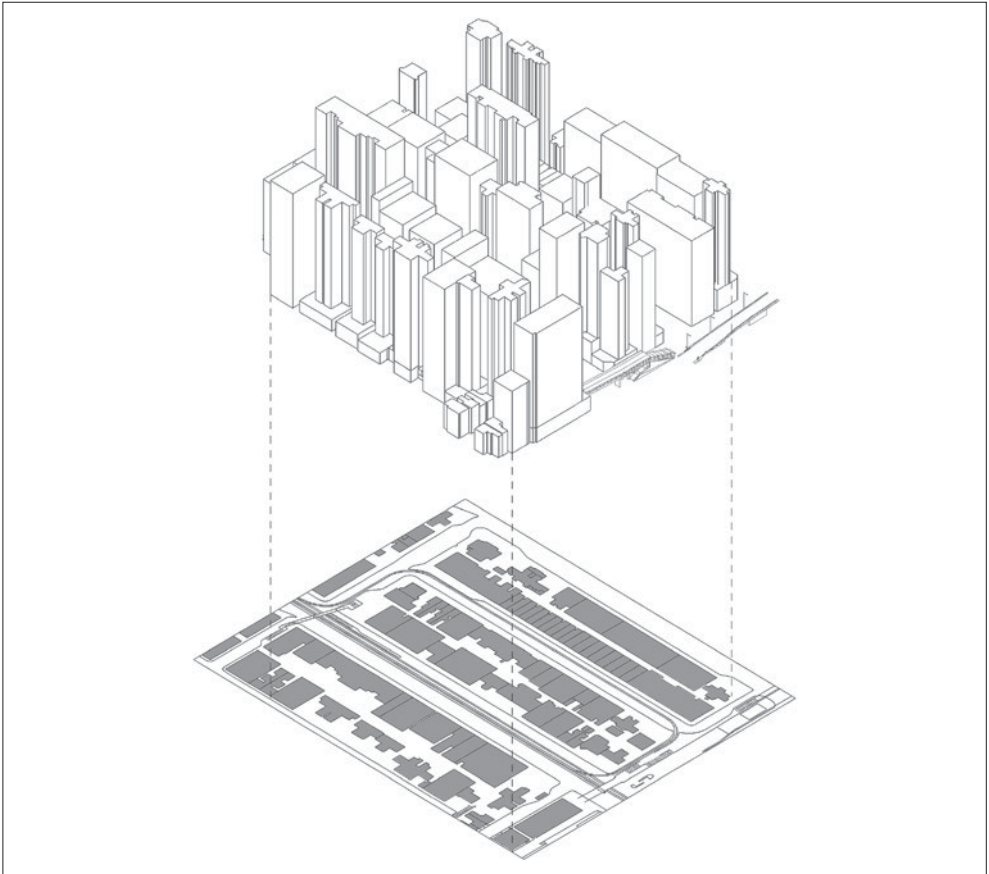
Source: A photograph from a Housing in Urban Development Course Document produced by Beisi Jia, Chun Yin Ng and Ho Ting Wu, 2017, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.10: Urban tissue: A photographic view of the streets as dominant characters planned and built in the early 20th century.

replace the ground-floor shops of the tenement houses. In general, dated buildings have been replaced more along the major road than in the surrounding streets, as newer types, such as podium towers, have been observed on King's Road. Meanwhile, several old tenement buildings remain on the side streets.

Given the rapid renewal of buildings on the main roads, the tall mansions and podium towers along King's and Java Roads reach over 20 stories. In contrast, the average height of buildings is much lower along Chun Yeung Street because of the tenement buildings built in the 1960s (Figure 2.11 and Figure 2.12). The traces of reclamation can also be observed from the overall section. King's Road has the longest road width of 30 m and stands on the slightly higher ground of the coast boundary before reclamation. The narrower streets in parallel and residential phases show the development process reaching out to the sea.

The scales and typologies of buildings pose different effects on the street conditions. The podiums of the buildings on King's Road are closely connected to one another, almost forming a continuous wall on the side of the pavement. Despite having entrances to the shops and malls, the podiums are strictly planned, and the boundary from the outside to the inside is clearly defined, thus resulting in a relatively weak dialogue between the shops and the streets. Meanwhile, the side streets have lower buildings, which are more related to the human scale. The buildings' elevations embrace the street; on the ground are shops that spill out to the pavement

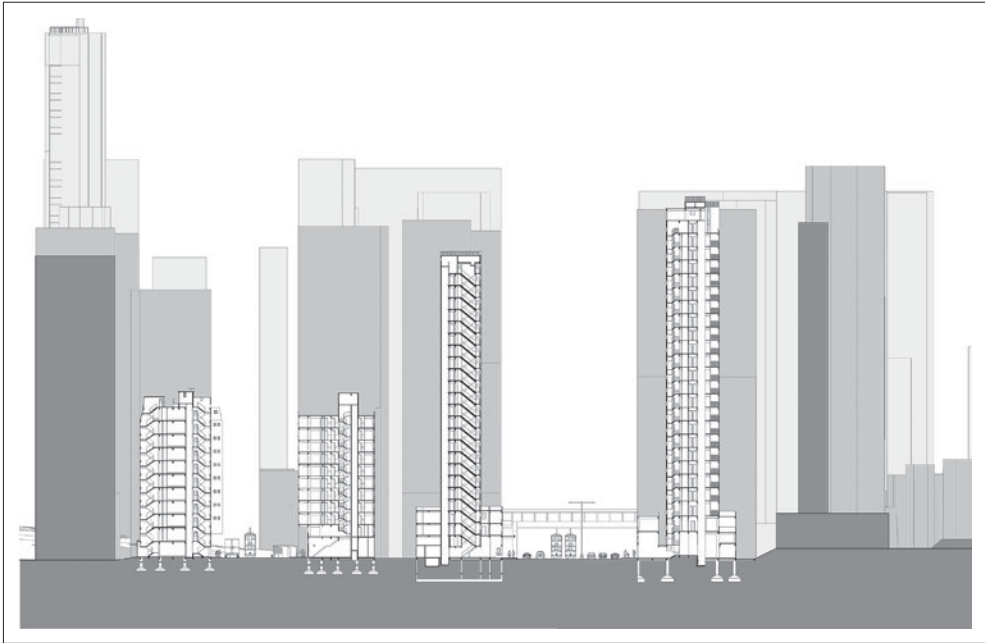


Source: Housing in Urban Development Course Document produced by Beisi Jia, Chun Yin Ng and Ho Ting Wu, 2017, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.11: Urban tissue level: An illustrated volumetric study.

when the owners use the cantilever and place the goods outside, while the units above have extrusions, such as clothes racks, air conditioners and advertisements. The creative ways of people occupying and making spaces are celebrated. Thus, the architecture reflects the people's livelihood and adds various textures to the urban fabric.

Kung Lee Building is a tenement building constructed in 1964 with 27 units (Figure 2.13a and b). While it has a similar unit arrangement to Ming Shou Building, the two staircases are at the back. This setup maximises the balcony spaces of the units while providing a large cantilever for the ground shops. These shops extend to the pavement under the cantilever, and an extra row of sheds (e.g. flower store) has been constructed as the second tier of commercial activity. Pedestrian circulation has been pushed onto the road as the pavement has been privatised.



Source: Housing in Urban Development Course Document produced by Beisi Jia, Chun Yin Ng and Ho Ting Wu, 2017, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.12: Building level: An illustrated section with the wide King's Road in the middle.

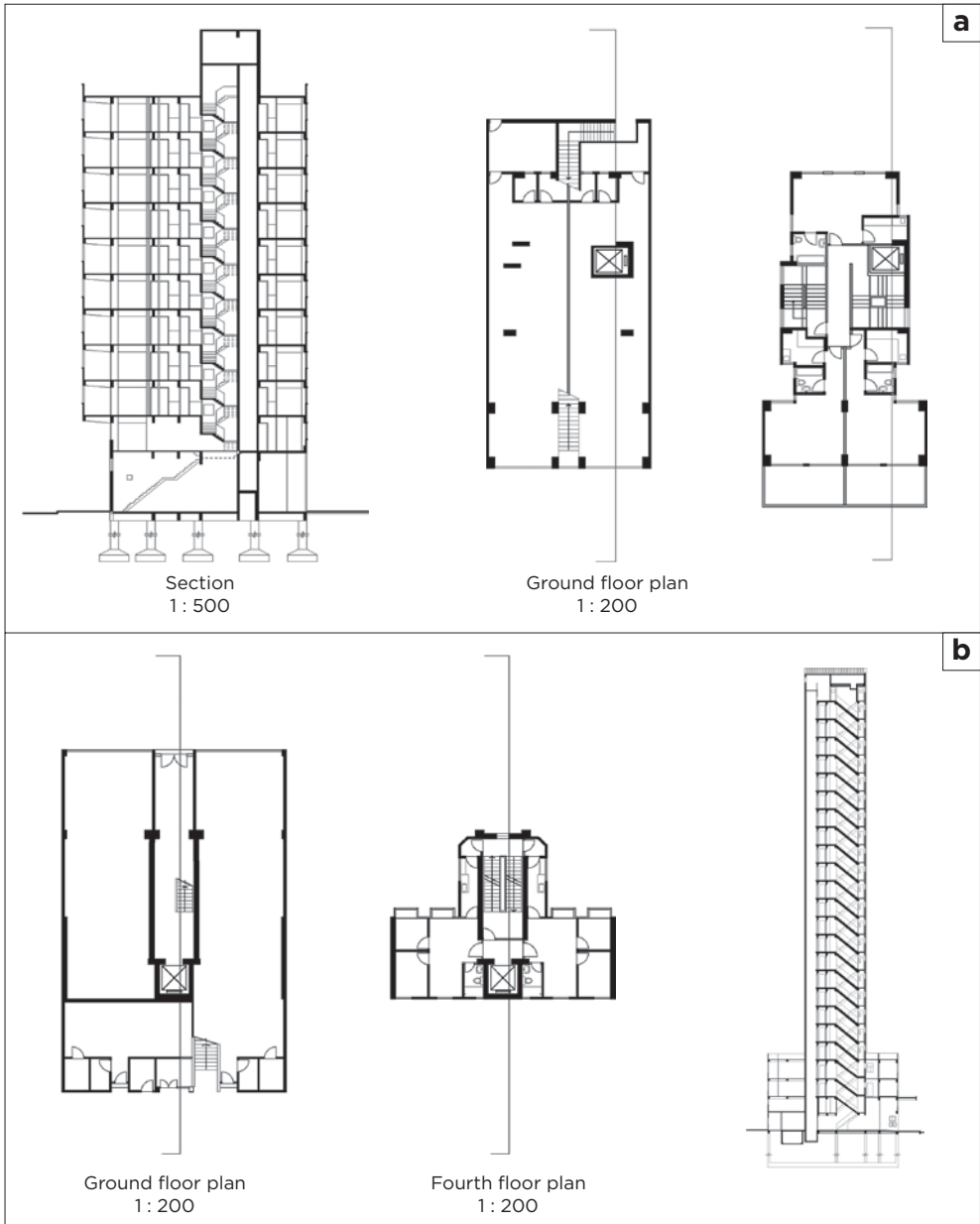
■ Wan Chai²

Wan Chai is one of Hong Kong's oldest areas, infused with a rich tapestry of traditional culture and contemporary living customs. During the 1970s, the inner city of the Hong Kong Special Administrative Region entered a new phase of gradual reconstruction which introduced higher buildings (Shi, Jia & Wee 2019):

Following economic transformation, increasing land prices became the most critical inducing factor for the renewal. In the process, urban spaces performed in various ways concerning their original parts, resulting in various effects such as confrontation, juxtaposition, interweaving, combination, mutation, evolution, and so on. (n.p.)

A large amount of renewal in small spaces has dominated the transitions of Wan Chai since then (Figure 2.14, Figure 2.15 and Figure 2.16). Besides a similar study on the building level (Figure 2.11) and unit level (Figure 2.12) to those in the previous two cases, the following discussion zooms in on the details of urban tissues – the open space in transition.

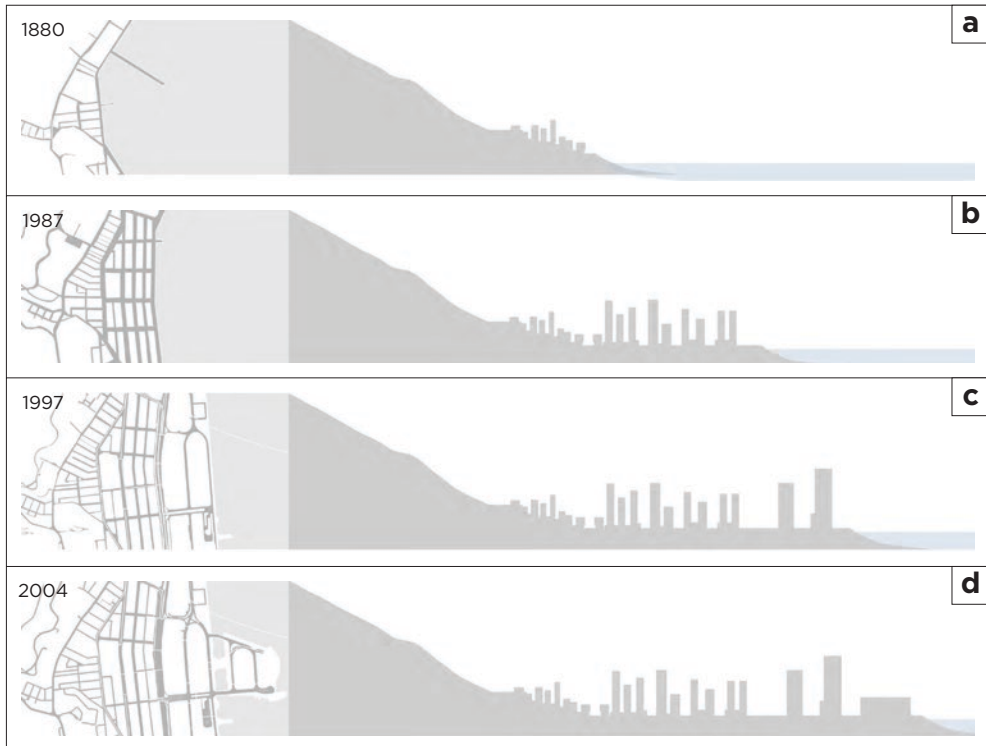
2. Facets in this section represents a reworking of Shi et al. (2019, pp. 9–28)



Source: Housing in Urban Development Course Document produced by Beisi Jia, Chun Yin Ng and Ho Ting Wu, 2017, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.13 (a and b): Unit level: An illustrated plan and section of Kung Lee Building.

In 1975–1992, the renewed building heights were similar to those of the remaining ones because the street structure had not changed since 1975. Increased density mainly relied on building construction on previously undeveloped land. In 1992–2014, although the projected area of renewed plots was much smaller than that of the remaining plots, new buildings



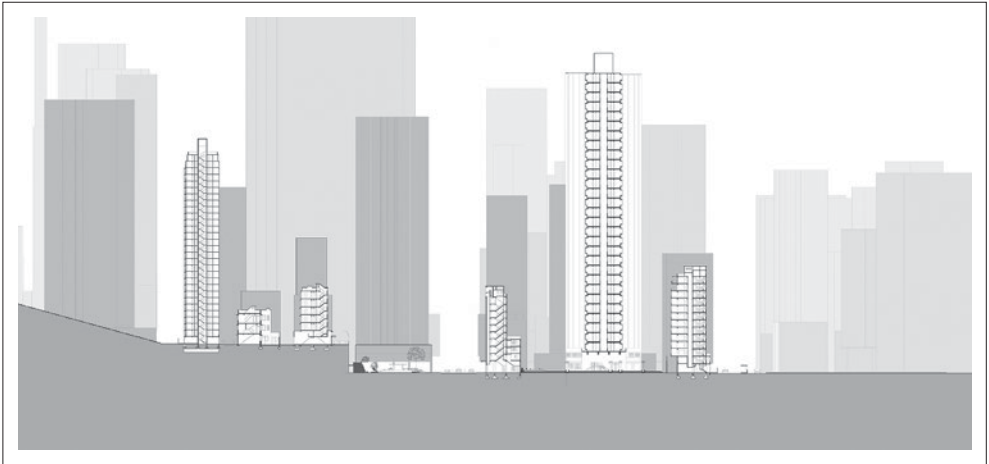
Source: Housing in Urban Development Course Document produced by Beisi Jia Gong Yu, Xu Nuo, Xu Xinyi Kumiko, Michelle, 2016, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.14 (a-d): Tissue level: An illustrated view of the intensified and mixed-use development in Wan Chai from 1980-2004.

were considerably higher than previous ones. This kind of development is a welfare consequence of the increasing density in 1992-2014 in the study area of the Wan Chai District (Table 2.2) (Shi et al. 2019).

Open public spaces are among the important components in morphological studies on the tissue level. When buildings became higher, and the density increased, several new types of open spaces appeared on the podium floor and replaced previous residential spaces, such as small lanes and pocket parks, after 1992 (Shi, Jia & Wee 2018). This change was mainly because of the emerging types of open spaces continuously located in places outside of the previous scope of land, such as upon the podium or on previously uncultivated land in urban or private and closed land areas.

The study also found that both the quantity and quality of open spaces on publicly owned land have improved since 1975. The open spaces on privately owned land relating to contemporary commercial activities have



Source: Housing in Urban Development Course Document produced by Beisi Jia and Jingyun Li, 2019, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.15: Building level: An illustrated section depicting Queen's Road in the middle and various building types.

benefited from more prosperous and influential developments than those on publicly owned land. The business benefit is the primary driving factor behind the increase in open spaces on privately owned land. Various connected, open spaces on the podium level improve the efficiency of the whole open space system in the case of the Wan Chai District by improving the boundary along the connections lying between different types of open spaces.

■ Thinking beyond the confines of modernist planning

The well-being of city life is more complex than the ideology of the modernist planning and design that dominated new towns and cities worldwide in the 20th century. A sustainable city mode also drives social, economic and cultural needs and resource efficiency. A compact city form is generally accepted as a sustainable urban form. The high mixed-use residential, commercial, industrial and services developments provide maximum social and economic efficiency. Mixed use of land offers the opportunity to reduce vehicular movement inside the city and consequently decrease energy consumption in traffic. Through good urban design and a balance of houses, jobs and facilities in each broad city sector, liveability, increased living convenience and stimulating cultural and social activities in different parts of the city will be enhanced.



Source: Housing in Urban Development Course Document produced by Beisi Jia and Jingyun Li, 2019, reproduced and published with permission from the copyright holders in 2023.

FIGURE 2.16 (a and b): Unit level: A visual study of one building in Wan Chai.

TABLE 2.2: The density change in buildings from 1975 to 2014 in Wan Chai.

Category	Year 1975	Year 1992	Year 2014
Building density	5.23	7.14	9.47
Nearest distance between buildings (measured in metres [m])	5.48	5.85	5.65
Site coverage	0.53	0.58	0.66
Average floor numbers	7.2	9.2	10.2

Source: Shi et al. (2019).

Hong Kong is among the highest-density cities in the world and is one of the fastest-growing economies in Asia and developing or emerging countries, such as China. It still retains the basic urban fabric grounded in the early 20th century in core areas with unique high-rise and highly dense urban patterns. The contribution of this research is found in the form of the city's core areas in narratives and graphics. After briefly reviewing the city's history, topography and land-use policy, the study addresses the significance of high-density development, mixed use of land, public transportation efficiency and land value increase.

The theories and methodology of the morphological study are introduced. The city fabric should be understood in terms of spatial levels and transitions in time. The decision-makers, or 'powers', and the distribution of their rights are fundamental in generating and sustaining urban form. The concept levels and methodology are tested and illustrated with three housing estates in Hong Kong. The powers are exercised differently at the spatial levels and create a different urban form – characteristics at the urban tissue and building levels.

The analyses of the three cases in the core area of Hong Kong represent the significant findings of this work. Firstly, at the urban study methodology level, the sectional mapping reveals the verticality of urban forms more strongly than the mapping of urban tissues. For example, a close look at the elements of the urban fabric and open spaces in the cases of mixed-use areas in Hong Kong demonstrates the potential of urban morphological research at different spatial levels. Secondly, the analysis reveals that the street and block urban tissues implemented in the early 20th century have successfully sustained the dramatic change in the economy and society for more than 100 years. Thirdly, the diversity is more evident at the lower spatial levels, such as building forms, structures and units.

Further study on the utilities, functions and façade will ensure similar findings. Lastly, the most important finding of this research is that the powers intervening in the dynamics and vibrancy of the city are small 'powers'. These are developers and institutions that can only develop small pieces of land, especially in areas with high land prices, and target particular user and buyer groups.

The limitation of this chapter is not only found in the utilities, demographic structure, façade of buildings and interior level but also in the exercise of powers in creating 'territories'. However, this work indicates the possibility of morphological studies in high densities and the potential to reveal part of the phenomenon which would otherwise remain as only a superficial impression of high density.

■ Acknowledgements

The author would like to thank the University of Hong Kong for providing the funding for 'high-density residential complexes and the impacts on communication patterns', as well as the students who took part in the Course on Housing in Urban Development offered by Beisi Jia. He extends special thanks to the following students who assisted in the analysis, drawings and photographs used in this chapter: Zijun Yi, Yonghao Xue, Xiaoxuan Zou, Fangyuan Zhao, Li Jin, Wenxin Zeng, Lap Man Wong, Hoi Wang Cheung, Zhi Hao Hu, Yao Qu, Yat Him Chan, Wen Ji Ge, Hyoju Sohn, Bo Chao Sun, Chun Yin Ng, Ho Ting Wu, and Jingyun Li. The author is also extends his thanks to Zhejiang Jianyuan Architectural Design and Urban Planning Institute for support provided in research on the housing environment. The author would also like to thank Ms Miner Li (research assistant), who finalised the drawings in this chapter.

Disability rights and public sector financing mechanisms: Enablers for developing inclusive cities

Amanda Gibberd^{a,b}

^aDepartment of Transport, Pretoria, South Africa

^bDepartment of Civil, Environmental and Geomatic Engineering, UCL Faculty of Engineering Sciences, University College London, London, United Kingdom

Amira Osman^{a,b}

^aDepartment of Architecture and Industrial Design, Faculty of Engineering and the Built Environment, Tshwane University of Technology, Pretoria, South Africa

^bSARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), Pretoria, South Africa

■ Introductory notes³

When writing of the built environment, we often think of structures, space and systems – the physical manifestations and the processes that bring them to being and sustain them, including the economic aspects. We sometimes neglect to fully understand the societal aspects which influence our building culture as much as other factors. The act of construction

3. This chapter represents a substantial (more than 50%) reworking of Gibberd (2021).

How to cite: Gibberd, A & Osman, A 2023, 'Disability rights and public sector financing mechanisms: Enablers for developing inclusive cities', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 41-74. <https://doi.org/10.4102/aosis.2023.BK323.03>

(through conceptualising to realisation) is, first and foremost, a social act – it does not exist in a social vacuum. That act sets the scene in which society functions. Belief systems, values and collective understanding of the meaning that certain structures and designs reflect and convey in terms of thinking are key in driving the physical and spatial manifestation that appears as our built environment. Furthermore, once built, buildings and infrastructure ‘house’ bodies and people in spaces that sustain them and give them further meaning and purpose.

Based on this background, this chapter discusses the use of South African national government grants as a potential mechanism for moving the country toward universally designed buildings and neighbourhoods at a local level and to the design of cities at a broader level. The chapter also emphasises that these grants are not the only mechanisms. In addition to grants, governments can use licenses, contracts and policies to promote better implementation of universal design (Republic of South Africa [RSA] 2021). By doing so, the country can move toward the achievement of covenants such as the United Nations’ (UN) Sustainable Development Goal (SDG) 11 on inclusive cities and implement the *South African National Development Plan: Vision 2030* (RSA 2011) where the removal of environmental barriers is an important consideration.

The chapter grounds ‘conceptualisation’, ‘planning’ and ‘design’ in the national context of equality, dignity and safety. It is worth noting that universal design concepts introduced in this chapter are no longer new; they are over 20 years old. Globally, when considering our approaches to designing buildings, neighbourhoods and cities, perhaps modernist approaches were a regression from the past, as John Habraken has often postulated in his various texts and speeches. There is also evidence of national retrogression in South Africa, already plagued with inhumane apartheid settlement planning. From the optimism emanating in the post-apartheid era, the thinking and accompanying policy change premised on the social model of disability as explored in planning, design and economics becomes a complex and multi-layered problem that needs to be addressed. This chapter explores a proposed way out of the current state to a better future. In a country that has become a pioneer in many ways, including developing one of the most advanced constitutions in the world, how we design for and accommodate everyone becomes an essential part of achieving dignity and freedom.

■ Bodies in space

In the context of this volume on *Space, people and technology: Reclaiming the narrative on cities*, the topic of ‘bodies in space’ is important as it contributes to how cities and space may be fully reclaimed by

accommodating bodies, in all their forms, shapes, sizes, genders and capabilities, as an integral part of the built environment, ultimately fulfilling the purpose of the very act of building – that is creating habitat, accommodating people and facilitating lives. This function cannot be achieved adequately without changing thinking.

There is no standard or unified description of ‘bodies in space’. The ideal body – the ideal person – is the historical model for the modernist movements’ design of buildings and urban planning. In the formal training of architects, for many decades and without question, Le Corbusier’s ‘Modulor’ perpetuated in the minds and practice of architects and others, fully entrenching a lack of consideration for gender, age, capability and other human variations. Le Corbusier was a celebrated and undisputed authority figure. We are now more evolved and better educated in an era that believes the imposition of standards on society through built form and space must be dealt with consciously (Osman 2017).

This chapter is particular to the South African context, history and realities, which are sobering and eye-opening, yet further background on the modernist movement of architecture may be helpful to set the context. Somewhat amusing and somewhat sad, Buzzi writes about how the plumb body of his 86-year-old aunt, with limited mobility, was trapped in a modernist chair LC2 armchair (Buzzi 2017):

The Modular Man is a healthy white male enhanced by mathematical proportional gimmicks ‘of nature’, such as the golden ratio and Fibonacci series. He represents the normative and normalised body around which Le Corbusier conceived his designs. As a result, most modern architectural forms are all tellingly calibrated on a similar standard, the healthy, white male body. (n.p.)

Buzzi (2017) continues:

[...] the Modular Man is obviously flawed [...] in a world so diverse [...] the Modular could not possibly define the politics in design mechanisms and their corresponding societal influences.(n.p.)

Modern laws and regulations mandate us to build for all people, ‘not only six-foot-tall, white males [; yet,] a vast majority of man-made designed environments have been built upon the capacity of the able-bodied, genuinely disregarding physical disabilities’ (Rahemtulla 2021) and proceed to claim that ‘being anything but the Modular invokes inferiority’. Perez (2019, p. 32), in *Invisible women: Data bias in a world designed for men*, does not believe that men deliberately set out to exclude women in designing systems, equipment and places; she simply states, ‘they just didn’t think about them’. An omission that ultimately excludes, humiliates, inconveniences and dehumanises.

So, in the context of a history that tends to discriminate, what chances do people with disabilities have at leading equally fulfilling, dignified lives

premised on the human rights entrenched in many local, national and global agendas? If one adds the extra levels of complexity such as gender, race or other defining characteristics, multi-layered levels of disadvantage emerge – a concept often described as intersectionality.

■ Progress versus stagnation – perhaps regression?

South Africa is very ‘policy progressive’. However, the lack of disability equality in South Africa is experienced in the day-to-day realities of people despite these rights set out in the *Constitution of the Republic of South Africa Act 108 of 1996* (the Constitution), the *Bill of Rights* and the *Rights of Access* (RSA 1996a, ch. 2). These foundational documents, among other considerations, set the scene for the right to use transport and the right to participate in life’s activities. We suggest in this chapter that there is a national benefit to all South Africans if the relationship of transport to public space is examined as the basis for delivering universally accessible services. We present a different way of using national grants, so that they can create a yardstick for measuring an inclusive society as outlined in the Integrated National Disability Strategy (INDS) (RSA 1997, Foreword) and provide a mechanism to change the unforgiving apartheid urban form.

South Africa does not operate in a policy vacuum. The African Union (AU) (n.d.), in vision number 12 of the African Union Agenda 2063 (AUA 2063), states:

We aim to achieve cities and human settlements where all persons can enjoy equal rights and opportunities, as well as their fundamental freedoms, guided by the purposes and principles of the *Charter of the United Nations*, including full respect for international law. (n.p.)

The UN (2017), in the New Urban Agenda (NUA), states:

In this regard, the New Urban Agenda is grounded in the *Universal Declaration of Human Rights 11*, international human rights treaties, the Millennium Declaration 12 and the 2005 World Summit Outcome 13. It is informed by other instruments such as the Declaration on the Right to Development 14. (p. 5)

Disability rights are part and parcel of this agenda.

By 2000, we had adopted a novel approach to ‘special needs’, redefining ‘people with special needs’ philosophically based on function and using statistical information from the period to reinforce our argument (Osman & Gibberd 2000, p. 2). Opening with the quote: ‘[...] disabled people are not like everyone else. They are everyone else’, we proceeded to describe the users of the built environment as (Osman & Gibberd 2000):

[...] people who are physically disabled, people with sensory disabilities: both hearing and sight, people with learning disabilities, people with mental illnesses,

elderly people, young children, people with heavy luggage, people with dexterity problems, people with neurological problems, woman who are very pregnant, people who are in a hurry and not looking where they are going, people who have had an accident and are temporarily disabled, people who are not wearing their glasses that day, people who are distracted or concentrating on something else. (p. 2)

In other words, we are all 'special needs candidates'. While we have previously used the term 'the disabled', we would now like to acknowledge that the nationally accepted term is 'people with disabilities' or 'persons with disabilities' and that the language that we used in our original paper, while acceptable in the United Kingdom (UK), is not acceptable in South Africa. Statistically, suppose one considers people with sight, hearing, physical, psychosocial or other impairments combined with people living with serious illnesses and the segments of the population who are categorised as female, who are elderly or who have children. In that case, we have a substantial proportion of any society. It is possible to state that the majority of the South African population needs an accessibly designed and universally planned environment. This does not in any way undermine the wide spectrum of people with disabilities that have the right to the equal enjoyment of everything that life can offer. On the contrary, it is an approach that aims to de-stigmatise a learnt approach to thinking about disability. It emphasises that good design works for everyone, living with a disability or not; good design benefits everyone using the environment throughout their lives and changing life circumstances.

The term 'architectural apartheid' was used to illustrate the disadvantage faced by people trying to navigate the built environment. Nowhere are barriers felt more than in public space, public buildings and transport systems; the spatial divisions inherited from apartheid planners and the standards still used further exacerbate this problem, rendering everyone disabled in some form and even more disadvantaged when they have to contend with some form of physical or other impairment. We are approaching planning incorrectly; what we are doing is not sustainable and costs us all personally. We consume much physical and emotional energy living in this segregated environment, and the environmental and financial cost we expend in doing so affects our health, wellness, safety, status and value.

This chapter is heavily based on a thesis conducted by Gibberd (2021), which looked at transport and universal access challenges in South Africa. It starts by describing how the lack of policy implementation influences people's day-to-day lives. An argument is presented that the social model of disability has its roots in South Africa and asks why, despite the progressive thinking that has originated here, have policies and legislation not impacted people's lives positively?

■ Why?

Gibberd (2021), in her thesis, uses the life of Mr Masibulele Simbuku from Izinyawo in Cofimvaba, Eastern Cape (Kretzmann 2019) as an illustration of the current crisis faced by people with disabilities and, therefore, South African society. The news article reveals that Simbuku is unable to walk or talk because of an undiagnosed childhood illness. The article describes how Simbuku's mother carried him on her back from birth in 1995 until he received a wheelchair as a private donation at 23-years-old in 2018. This was the year he was first registered to receive a disability grant of ZAR1,780 (US\$134.4) per month. A chance observer noticed his mother carrying a grown man in town on her back and thought that the man was drunk. After investigation, he discovered that this mother was supporting a grown-up son with a disability.

This particular case is interesting for several reasons. It is apparent in the article that Mr Simbuku was not diagnosed or treated through local health or social services. Neither does he appear to have received an assistive device, rehabilitation or follow-up. In a country where transport is already inaccessible and expensive, access to the only transport available, in the form of minibus taxi services, was probably intermittent as some drivers refused him and his mother passage. Thus, access to school or education was probably impossible. Assuming that he had been able to get to school, in other similar cases, teachers have understandably refused to teach children after a certain age because of the inaccessibility of school infrastructure or because children with a disability become too heavy to physically carry. Children with disabilities also tend to drop out because the school day is too tiring in a poorly designed environment or because the additional assistance that they need is not available. School class sizes are frequently too large, with little additional teaching time available to teachers for children with learning disabilities that need extra assistance. Although Mr Simbuku has received subsistence-level income from a disability grant, he does not appear to have been able to access educational programmes, learnerships, apprenticeships or other forms of skills training or attend a university. It is apparent that he has not been able to get a job, and given that his mother has cared for him all his life, neither has she.

The accidental incidence of Mr Simbuku's age means that his life forms a yardstick to chart the failed policy implementation on disability equality in the first quarter of a century of democracy, reflected in Table 3.1 to Table 3.6. These tables demonstrate the intended effect of legislation, policy or court cases within Mr Simbuku's lifetime. They are grouped into different sets of legislation and policy: rights-based, health and rehabilitation, education, employment, skills development, the built

TABLE 3.1: Rights-based legislation and policy describing the events in Mr Simbuku's case.

Year	Mr Simbuku's age	Law or policy	Intended effect
1996	One-year-old	<i>Constitution of the Republic of South Africa Act 108 of 1996</i> (RSA 1996a)	Equal rights in law because of Mr Simbuku's race and future disability. This was extremely unusual in a developing or developed country at the time.
1997	Two-years-old	Integrated National Disability Strategy (INDS) (RSA 1997)	The approved governmental approach to disability equality was published but never properly implemented
2000	Five-years-old	<i>The Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000</i> (PEPUDA) (RSA 2000a)	This gave meaning to his constitutional right to equality, dignity and safety, as well as freedom of movement, which is synonymous with transport
2004	Nine-years-old	Out-of-court settlement reached between <i>Esthe Muller v DoJCD and the Department of Public Works</i> in the Equality Courts (Flynn et al. 2019)	Because of the finding that all courts would be made accessible, Mr Simbuku should have been able to get to court from the age of nine to demand his rights, as all courts then had to be made accessible to him
2004	Nine-years-old	Equality Court case won by Mr Bosch against the Minister of Safety and Security and Department of Public Works because of inequality of service provision in an existing two-story building (Holness & Rule 2014)	Mr Simbuku was still nine years old. This Equality Court case should have caused all existing buildings to be modified to be accessible, opening up endless life-changing opportunities. Logically, subsequent new buildings would have been universally designed from the outset.
2007	Twelve-years-old	<i>United Nations Convention on the Rights of Persons with Disabilities</i> (UNCRPD) (UN 2006) South Africa signed the UNCRPD in 2007 and was one of the first countries to do so	Despite the progressive nature of this convention, and South Africa's early adoption of it, this has little impact on the lived realities of Mr Simbuku
2016	21-years-old	<i>White Paper on the Rights of Persons with Disabilities</i> (WPRPD) (RSA 2016a)	As the INDS made so little impact on equal rights, Cabinet released the WPRPD. This still did not see a change in the conditions to which people with disabilities are subjected.

Key: RSA, Republic of South Africa; INDS, Integrated National Disability Strategy; PEPUDA, *The Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000*; UNCRPD, *United Nations Convention on the Rights of Persons with Disabilities*; WPRPD, *White Paper on the Rights of Persons with Disabilities*.

TABLE 3.2: Health and rehabilitation-based legislation and policy describing the events in Mr Simbuku's case.

Year	Mr Simbuku's age	Law or policy	Intended effect
2000	Four-years-old	<i>National Rehabilitation Policy</i> (RSA 2000b)	The policy gave Mr Simbuku the right to a wheelchair when he was four-years-old. However, he only had access to a wheelchair at 20-years-old. After the failure of the formal government system, charity provided him with one sixteen years later in 2016
2003	Eight-years-old	<i>National Health Act 61 of 2003</i> (RSA 2004)	Though never achieved, this Act should have granted him equal access to health care

Key: RSA, Republic of South Africa.

TABLE 3.3: Education-based legislation and policy describing the events in Mr Simbuku's case.

Year	Mr Simbuku's age	Law or policy	Intended effect
1996	One-year-old	<i>National Education Policy Act 27 of 1996 (RSA 1996b)</i>	This Act implies equal access to education; however, this is not the case
1996	One-year-old	<i>South African Schools Act 84 of 1996 (RSA 1996c)</i>	-
2001	Six-years-old	<i>Education White Paper 6 on Special Needs Education (DoBE 2001)</i>	Had he been admitted to a school, he could have had the privilege of access to reasonably built facilities and all the equipment that he would have needed in the classroom
2011	Sixteen-years-old	<i>National Curriculum Statement: Guidelines for Responding to Learner Diversity</i>	Learner diversity in the classroom should have been guaranteed through the implementation of these guidelines
2014	Nineteen-years-old	<i>Policy on Screening, Identification, Assessment and Support (SIAS)</i>	This policy framework allows for the standardisation of the procedures to identify, assess and provide programmes for all learners who require additional support to enhance their participation and inclusion in school. If he had been kept behind during his school career, had he had one, he should have received a SIAS assessment to identify and accommodate his learning needs appropriately.

Key: RSA, Republic of South Africa; DoBE, Department of Basic Education; SIAS, *Policy on Screening, Identification, Assessment and Support*.

TABLE 3.4: Employment and skills development-based legislation and policy describing the events in Mr Simbuku's case.

Year	Mr Simbuku's age	Law or policy	Intended effect
Employment			
1998	Three-years-old	<i>Employment Equity Act 55 of 1998 (RSA 1998a)</i>	No access to employment was achieved as none of the measures that would ensure this had been put in place
2002	Seven-years-old	<i>Code of Good Practice on the Employment of People with Disabilities (RSA 2002; DoL 2015)</i>	This code, as first released in 2002 and reissued in 2015, should have ensured that employers could accommodate him in the career he never had
2004	Nine-years-old	Technical assistance guidelines (DoL 2004)	This guideline provided further information on the accommodation of people with disabilities in the workplace
Skills development			
1998	Three-years-old	<i>Skills Development Act 97 of 1998 (RSA 1998b)</i>	This is one of two Acts that were promulgated to set up learnerships and skills development
1999	Four-years-old	<i>Skills Development Levies Act 9 of 1999 (RSA 1999)</i>	This Act established a payment system by employers for skills development programmes

Key: RSA, Republic of South Africa; DoL, Department of Labour.

TABLE 3.5: Built environment and transport-based legislation describing the events in Mr Simbuku's case.

Year	Mr Simbuku's age	Law or policy	Intended effect
Built environment			
2008	Thirteen-years-old	<i>National Building Regulations and Building Standards Act 103 of 1977</i> (RSA 2008a; amended in 2008)	Equal access was to be created in public buildings and in most parts of all buildings, with few exceptions, including both non-domestic and domestic buildings, except for single private dwellings on single plots
2011	Sixteen-years-old	<i>South African National Standards (SANS)</i> (RSA 2011)	New minimum standards were introduced to make buildings more accessible. These were rarely, if ever, implemented. Mr Simbuku did not benefit from improved access because this standard was not frequently or consistently used. However, it was intended to be applied in transport, housing, public buildings, facilities and public space.
Transport			
1999	Four-years-old	Moving South Africa (MSA) (DoT 1999)	While this document highlighted the fact that the majority of passengers were not properly accommodated on public transport, including people with disabilities, it did not lead to many felt changes in the Eastern Cape
2007	Twelve-years-old	<i>Public Transport Strategy</i> (DoT 2007a)	This strategy indicates that, because of MSA findings, all transport will become 100% (or universally) accessible
2009	Fourteen-years-old	<i>National Land Transport Act 5 of 2009</i> (DoT 2009)	This Act outlines the responsibilities of all spheres of government to make all public transport accessible
2010	Fifteen-years-old	Public Transport Network Grant (PTNG) (RSA 2019b). Grant conditions for selected municipalities to develop a Universal Design Access Plan (UDAP) to show how public transport can become accessible.	If implemented, this grant could have allowed a significant change in conditions for Mr Simbuku through pilot projects, which could have then been replicated in the rest of the country
2016	21-years-old	<i>Minimum requirements for the Preparation of Integrated Transport Plans</i> (DoT 2016). Universal access is included as a minimum requirement and applies to all municipalities, whether they received the PTNG or not.	This has not yet been implemented
2018	23-years-old	Zero Project Award (Zero Project Report 2018). In recognition of The DoT's progress in providing universally accessible public transport through the <i>Implementation Strategy to Guide the Provision of Accessible Public Transport Systems in South Africa</i> (DoT 2009).	Accessible transport will most likely never reach Izinyawo in Cofimvaba, Eastern Cape province, the home place of Mr Simbuku, at the current speed of progress with the rollout of these various Acts, guidelines, policies and frameworks

Key: RSA, Republic of South Africa; SANS, South African National Standards; MSA, Moving South Africa; DoT, Department of Transport; PTNG, Public Transport Network Grant; UDAP, Universal Design Access Plan.

TABLE 3.6: Transactions between a service user and a service provider which are particularly apparent in a universally accessible service and which have a marked effect on transport.

Service user	Service provider
The confidence that the service user has that the service provider will be able to meet their needs	The confidence that the service provider has that they will be able to meet the needs of the service user
The confidence that the service user has that they will not be given a lower standard of service or a reduced service for the same outcome as people without disabilities	The confidence that the service provider has that they are able to provide the service within their current budget

environment and transport. In this chapter, warning bells ring louder because we should ask the question: if these legal instruments have made no difference to Mr Simbuku’s life, how would the promulgation of any other legislation change the situation for anyone else in Mr Simbuku’s position or any of us in the future?

Using a lens that disability equality is a measure of every citizen’s equality from the demographic argument already outlined, any societal human right is undermined when the rights of people with disabilities are undermined. If all of this is still not considered a strong enough argument, one which cannot be denied is that, in old age, everyone has or will have one or other form of disability. Thus, the quality of life for everyone is threatened when society fails to equally accommodate people with disabilities, as the INDS (RSA 1997) warns in its foreword.

It is worth pausing here to consider the effect of the lack of wheelchair provision evident in the article, in the quote from Mr Simbuku’s mother. She indicates (in Gibberd 2021) that:

‘I used to have stress every time I had to take him to the hospital or social development because I had to carry him on my back, heavy as he is. Sometimes I would go and ask my father to help me carry him. I always suffer back pain,’ said his mother. ‘That is all in the past now. I will be able to push him around on his wheelchair,’ she said. ‘I never knew this day would come. I am happy beyond words.’ (p. 19)

Nevertheless, government legislation and policy were intended to provide equal access to participation in life, and more than a mere wheelchair.

As Gibberd (2021) identifies:

Despite any legislation passed, awards received or policies written, Mr Simbuku has been helped only by a system of patronage, sympathy and charity – the only functioning system available to him in 2018, 24 years after the founding of democracy in South Africa, and 23 years after his birth. (p. 19)

It is interesting to note that the wheelchair provides unimaginable freedom to Mr Simbuku and his mother. In the article, his mother, Mrs Simbuku

expressed her gratitude for her son's and her own life-changing experience through the kind donation of this device. She said (in Gibberd 2021):

For the past 23 years, I used to carry him on my back. It was easy when he was young, but as he grew older, he became heavier each year. But I had to carry him; he is my son. (p. 19)

This story has been selected from many other similarly published stories. It is an illustrative example of cases that the South African Department of Transport (DoT) records. It illustrates the relationship between people's lived realities and government policy. It is argued that legislation and policy already published should have led to different realities. Why has this not been the case? And why, it could be asked, have we been unable to envision the 'other' life that Mr Simbuku could have had? Why has this alternative reality been not only beyond the comprehension of Mr Simbuku and his mother but also beyond the comprehension of society and beyond the comprehension of different spheres of government? Why has change not happened despite legislative and policy provisions? And why have the Constitution and the government not been able to realise their promise? Why is it that a country so progressive in developing its Constitution and aligned policies still struggles to translate those policies into real-life experiences?

■ An alternative reality?

The life of Mr Simbuku could have been very different.

From the day he is born, Mr Simbuku is registered on the social and medical systems as a child with a disability; this is sensitively expressed and acknowledges his capabilities and disability in a dignified manner. His childhood illness is diagnosed, and rehabilitation is offered to make life with permanent disability easier. He receives a grant to support him with his additional functional needs. As part of the family, his mother and father support and care for him at a young age. The social support systems help them in accepting their child and guide them in how to deal with his disability - thereby enabling them to be proud of their son. The family receives support to adapt his home environment to his needs. The government-subsidised family residence that they received through the formal housing programme is thus greatly and easily improved because it had already been conceptualised, designed and built as an inclusive house, allowing for minor modifications to be paid for through public finance systems. This residence is also well-located in a beautiful and functional neighbourhood, close to social, medical and educational services and diverse job opportunities. The neighbourhood is a mixture of income groups, peoples and cultures, creating a rich and vibrant environment

where people are well-informed and offer support to the family of Mr Simbuku in various ways.

The family feels embraced, accepted and integrated into their community. Indeed, all the facilities that his parents have had to access across the city, be they public buildings, schools or clinics, houses that the family have lived in or visited friends in, have been well-designed, taking into consideration the different range of capabilities of people in general and the needs of people with disabilities in particular. These are built environments that are equitable, beautiful and universally accessible. In order to get to these facilities, Mr Simbuku and his parents have been able to use accessible transport systems at every stage of his development: level access, wide enough door openings and easy-to-use facilities. Facilities have all been accessible and situated in close proximity; this reality made their trips from origin and destination to meet with counsellors, educators, health care or wellness staff, government officials and private service providers easier because of the carefully planned and designed systems and services.

The higher density of this settlement, and others across the city, ensures an efficient public transport system, which was cleverly and innovatively developed in consultation with the local 'taxi' operators (an existing, informal and efficient local transport system). Mr Simbuku and his family feel that they are part of a whole integrated system that serves them and everyone in the community through its accessibility and effectiveness. Community building and awareness programmes are implemented at different locations and institutions, and public space is considered instrumental in these programmes.

As he grows older, his home environment is further adapted to his changing needs, and he receives mobility aids at different stages of his development until he is able to use a wheelchair. His parents are advised of proximate social services and schooling opportunities so their child can learn and work alongside his peers in an inclusive school setting, participating in all school activities, including sports and cultural activities. Every school he attends provides programmes for all learners who require additional support, and he is also part of his regular designated class with friends both with and without disabilities. By the time he finishes tertiary education, Mr Simbuku has been able to participate in everyday life, academically and socially. He has been keenly involved in schooling throughout his childhood and teenage years and has an active social life in mainstream society. On one occasion, when his schooling was delayed because of health issues arising from his condition, he received a formal assessment which identified his individual learning needs.

His mother is able to return to work after he starts attending school, and his father remains with the family, equally involved with his son. Once he completes his tertiary education, Mr Simbuku qualifies with a degree. He is then able to seek a job that is possible with the capabilities he has – he is advised on this by a job agency that understands how to accommodate applicants with disabilities; it is not a specialised agency; it is a regular one – it is by now accepted practice that all employment agencies and employers will be able to accommodate people with disabilities in their employment programmes. Policies and guidelines are issued just in time to ensure that employers are able to accommodate him in his chosen career. In addition to the government grants he has received throughout his life, his job can further improve his life circumstances because of the additional income. Mr Simbuku starts a business and can offer employment to others in similar conditions. In this scenario, he becomes empowered to support those denied access to opportunities; in a way, he ‘becomes’ the gentleman or non-governmental organisation (NGO) that would have offered him a wheelchair in the other reality. He offers charity, employment and personal development to others, empowering them to do the same. In so doing, he could argue that permanent employment is much more secure than trying to fund a cash-strapped NGO. The system has ensured that every individual becomes a valuable asset to the community in various ways, based on the level of their strengths and capabilities, rather than rendering people limited by focusing on their limitations.

Mr Simbuku and his family have been educated and supported by the government system at every age and at every stage of his development about how the Constitution protects his rights. All related policies and acts ensure that he has equal access, as a person with a disability, in a safe and dignified manner. Indeed, all the people whom he has interacted with have been aware of these rights and have offered him the necessary support. Public finance systems have all been accessible to him, and there are sufficient budgets to realise the visions encapsulated in various official documents. Any additional costs needed to finance the reasonable accommodation that Mr Simbuku requires are already minimised because he functions in a universally planned and designed environment.

Public transport systems, public spaces and facilities were all accessible to Mr Simbuku, supporting his development over the years and significantly improving his quality of life. Various policies ensured that he was always treated equally and with dignity and safety in all his movements and interactions. In learning and work environments, he always had accessible facilities and appropriate accommodation that was well-located, close to the services he required and to job opportunities. He had access to any

courtroom if needed; not only that, but because policies dictated that ALL public buildings be accessible to him within every city, town or village, they were. These policies, court cases and regulations directly and profoundly impacted his life and well-being. They gave him an equal quality of life and assisted everyone he has ever met to experience the same.

■ The social model of disability

There is an unexplored history of socio-economic policy in South Africa. We need to look back a quarter of a century to the beginning of democracy, and even further back another quarter of a century to the 1964 Rivonia Trial speech made by Nelson Mandela just before the possibility of his execution. One of Nelson Mandela's penultimate phrases in the Rivonia Trial speech is usually read as if it relates only to racial equality, with the 'we' and 'our' first-person plural pronouns in the quote referring to people defined as 'black'. It reads: 'Above all, My Lord, we want equal political rights because without them our disabilities will be permanent' (Mandela 1964). This statement is profound considering the fact that in another context, this usage of societal barriers that are permanently disabling refers to the social model of disability (Berghs 2017; Finkelstein 2001; Oliver 1990). Also, South Africa's deep relationship with the Global Disability Rights Movement and the social model of disability is usually paralleled with the development of the Black Consciousness Movement (Berghs 2017). However, the importance of the Rivonia Trial speech in the history of the disability movement nationally is that it firmly establishes the social model of disability not as an import from the Global North to Africa, but as an African export to the Global North.⁴

Nelson Mandela expressed the same sentiments in his memoirs that first appeared in his Rivonia Trial speech. He referred to a different type of society than what he and his fellow prisoners experienced in everyday life under apartheid (Mandela 1964, p. 137). The conceptualisation of disability equality has developed internationally over more than 50 years and stems from this speech. This historic journey unites the Global North and Global South, is part of the history of the anti-apartheid movement and demonstrates the close relationship between the UK and South Africa in particular. One of the background figures to the Rivonia Trail was Vic Finkelstein, a South African national using a wheelchair, exiled to the UK in 1968 because of a banning order from the apartheid government, as were many other South Africans in this particular movement. On reading Nelson

4. The Rivonia Trial speech, incidentally, also contained relevant and interesting costs of living comparisons, which will be explored later.

Mandela's pivotal speech in the UK following his release from prison in South Africa and puzzling over the phrases used in it, the relationship between disability and race in an apartheid society dawned on Finkelstein (2005), as well as the wider scope of disability discrimination in any society.

Through his contacts with people with disabilities in the Global North, the social model of disability, as compared to the medical model of disability, became defined and is conceptualised as presented in the following (Osman & Gibberd 2000):

The medical model of disability assumes that the human beings are and must be alterable - they need to adjust their bodies or minds to be able to navigate the structures of society which are assumed fixed and unalterable: the 'norm' thus unchangeable or unwilling to be changed. (p. 3)

On the other hand (Holmes-Seidle 1996):

The social model is based on the belief that the circumstances of people with disabilities and the discrimination they face are socially created phenomena and have little to do with the impairments of those people with disabilities experience. The disability rights movement believes, therefore, that the 'cure' to the 'problem' of disability lies in restructuring society. (p. 5)

With a focus now on 'creating *non-segregating* and "*enabling*" rather than "disabling" environments, socially and physically' (as explained in Osman & Gibberd 2000, p. 3), society needs to better understand the relationship and overlap between racial and disability discrimination. The comparison in the Rivonia Trial speech between race and disability is evident and further explained elsewhere in Nelson Mandela's speech, where he describes how the lived environments of South Africa are the cause of both physical and psychological oppression. The use of this comparison is noteworthy. Especially since, in the United States of America (USA) and Europe, the Disability Rights Protest Movement emerged in the 1970s, followed by the rest of the world in the 1980s. Disability discrimination legislation then developed in the 1990s in the Western world. Another movement, the Independent Living Movement, can be traced earlier in the USA. This movement, however, was not a protest movement but a movement to promote the independence of people with disabilities within societies and environments that made this impossible. Other similar developments were taking place in Asia, Europe and the Americas. As an approach, the right to independent living inspired the evolution of the idea of 'universal design' (Lifchez 1987, p. 3).

The disability rights-based protests in government buildings in the USA in the 1970s (Shoot 2017) started because the standards for buildings and environments that could allow for the inclusion of people with disabilities were not implemented. These later protests in the USA mimicked the South African anti-apartheid protests. Thus, we firmly claim that while others in

the UK and the USA, as well as the rest of Europe, realised the power of the social model of disability, recognised disability discrimination and initiated various protests, movements and practices to combat discriminatory practices at the time, it still remains that the foundational strand of the model is an earlier national export from South Africa to the world.

■ Use of standards in the built environment

Built environment standards accepted as ‘the norm’ are taught, inherited and institutionalised in planning and design. We understand the size of a car parking space for a car or a bed for a bedroom. We think about these objects without questioning whether the standards developed for use in planning were objectively developed based on researching a complete sample. We accept that cars and beds are different shapes and sizes. We plan and design our spaces accordingly. Why is this not the same for people? Why do we not? Mike Oliver, an academic in the UK, discussed disability in the context of the Industrial Revolutions (1990, p. 25) and explained how people with disabilities who used to live as parts of a community were removed from society and placed separately over time because they served no perceived purpose. He suggests a different, more inclusive society in post-industrial times. For Oliver (1990, pp. 12-17), pre-industrial society was not a panacea; as climate change awareness later showed us. The environmental problems emerged because of industrialisation. Other societal and economic problems also emerged.

In the post-industrial era – and as we favour using the term loosely to describe this era, the Fourth Industrial Revolution (4IR) – standards used in the built environment, and especially in South Africa, are not inclusive of people with disabilities. This is still the case despite the 2008 amendment to *National Building Regulations and Building Standards Act 103 of 1977* (RSA 2008a) extending accessibility standards to most buildings, building parts and the built environment in general. However, the level of knowledge and understanding of the application of these standards is misguided and misunderstood. In her dissertation, Gibberd (2021) explains, through her research outcomes, that there is evidence that these problems result from general misinformation, shortcomings of tertiary education of built environment professionals, lack of professional development and inadequate compliance processes. As a result, how buildings and cities are planned and designed results in people with disabilities experiencing discriminatory barriers to participation, whether in transport systems or other aspects of the spatial form. Despite the evolution of similar standards elsewhere, this problem has been, unfortunately, typical in urban planning internationally (Imrie 1996).

Barriers to access and participation in transport systems at the end of apartheid were identified in the Moving South Africa (MSA) study (DoT 1999). The MSA study recognised access barriers in transport for people with disabilities and explained access barriers as applicable to people without disabilities, including children, women, elderly people and others. The question remains the same over 20 years and over 50 years since the Rivonia Trial: how can this entrenched environmental discrimination be overcome using the tools available to the government?

The Constitution recognises disability equality together with race and gender equity and other rights. It outlines the right of freedom of movement for everyone. In 2007, South Africa was one of the first countries to sign the UNCRPD. The UNCRPD was established as a national objective through the White Paper on the Rights of Persons with Disabilities (WPRPD) (RSA 2016a).

The *Promotion of Equality and Prevention of Unfair Discrimination Act* (PEPUDA) references universal design, universal access and reasonable accommodation as tools to achieve disability equality through safe, equal and dignified access. While these words were not regularly used in 2000, Chapter 2 Section 9 describes them. In 2008, new regulations applied to public buildings, public space, transport and housing, and new minimum standards for infrastructure were introduced (South African Bureau of Standards [SABS] 2011).

Over the past 20 years of democracy, the disability movement in South Africa has clearly endorsed the social model of disability, both in legislation (RSA 1996a, 2000a, 2008a, 2008b) and in policy (INDS 1997; South African Human Rights Commission [SAHRC] 2002; RSA 2011, 2016c, 2021a, 2021b). The social model of disability calls for removing barriers that prevent equal participation in everyday life (Oliver 1990; Gibberd 2021; SAHRC 2012; Department of Social Development 2013).

■ The economic consequences of disabling barriers

The preamble to the UNCRPD references the link between disability and poverty (UN 2006). Many studies on disability inequality describe the higher cost of living to people with disabilities than people without (Batavia & Beaulaurier 2001; Hanass-Hancock & Deghaye 2015; Palmer, Williams & McPake 2016; RSA 1997). The resultant poverty gap is approximately 30%, accounting for lower-income and higher daily cost-of-living expenses because of disability. Batavia and Beaulaurier (2001) demonstrate the relationship between poverty and unemployment with the severity of a

disability, using daily cost-of-living expenses. A person with a disability would be approximately 30% poorer because of these elevated expenses. These figures parallel those in Nelson Mandela's Rivonia Trial speech (Batavia & Beaulaurier 2001, p. 142; Mandela 1964).

In his Rivonia Trail speech, Nelson Mandela used figures from 1964 on the cost of living. He said (Mandela 1964; cf. Gibberd 2021, p. 75):

The highest-paid and most prosperous section of urban African life is in Johannesburg. Yet their position is desperate. The latest figures were given on the 25th March 1964 by Mr Carr, Manager of the Johannesburg non-European Affairs Department. The poverty datum line for the average African family in Johannesburg, according to Mr Carr's Department is ZAR42.84 per month. He showed that the average monthly wage is ZAR32.24 and that 46% of all African families in Johannesburg do not earn enough to keep them going. (p. 24)

The negative difference between the income and expenditure in this economic argument presented by Nelson Mandela is ZAR10.60 per month. This amount of ZAR10.60 is around 30% (32%) of the average monthly wage, demonstrating a cost-of-living gap of 30% relative to income.

Studies on disability and poverty demonstrate a relationship between the amount of money received into a household with the amount of money going out. Similar studies in transport (Lucas et al. 2016) show that people who live further away spend a proportionally higher amount of their income on transport to earn such income. These are not people with disabilities because most forms of transport are still likely to be inaccessible to them. However, the same barriers with the high cost of living, low-income and inability to travel are apparent, further demonstrating the relationship between poverty (including disability poverty) and barriers to transport.

Two studies focusing on the situation of learners with disabilities (Kett & Deluca 2016; Rickert 2017) demonstrate the urgency of barriers to access because every day not in school might be another day wasted. Yet, the barriers to transport and learning experience are not easy to solve in the short term, regardless of the government's commitment to do so. An examination of these studies shows that the loss of control over development planning in developing countries is a hindrance in the development of villages, towns and cities, and subsequently, the accommodation of all children in the education system in Africa and elsewhere (African Child Policy Forum 2014; Rickert 2017).

These studies on disability (and transport) mirror the findings in the Rivonia Trial speech, showing demonstrably higher living costs relative to income to individuals with and without disabilities because of disabling barriers and loss of opportunities to participate in everyday life. The Rivonia Trial speech identifies the growing number of health and other problems

caused by these societal barriers, resulting in a negative gap between the cost of living and income, which matches a continued negative downward spiral in well-being. Many social development arguments support the provision of grants for people in extreme poverty for various reasons, including disability. However, regular studies on disability or poverty do not always consider reducing the cost of living to the individual through changing the environment or how both institutions and the application of historic standards might perpetuate poverty. This is of no concern to people who are never affected. However, it is argued here that everyone is affected and that this income gap is, therefore, everyone's concern. By not assessing these underlying systemic and institutional mechanisms grounded in an apartheid system that has not changed, we are all in a negative spiral of increased costs, reduced income and well-being. Is it because the cost burden the institutional system should be protecting us from (through ensuring the application of standards that would reduce the cost of living over time and throughout our lives) is absent?

■ The Department of Transport

The Acts of Parliament for transport and supporting policy documents drafted from 1996 onwards refer to the principles of equality of outcome, equity in treatment and reasonable accommodation (DoT 2009, 2021; RSA 2009). For a service to be 'universally accessible', the individual's experience is relevant (RSA 2008a). The outcome of equality is measured by the experience of the individual with the disability and the degree of reasonableness in offering the service conferred by the service provider in attempting to meet the service user's needs (Currie & De Waal 2013). The duty of reasonableness, a dynamic measure of whether an individual has been able to use a service successfully, is required. Feedback to the service provider on treatment received is an ongoing measure of whether or not the service providers themselves, not the service, are 'universally accessible'. Let us see how the DoT has fared.

The DoT's MSA Study (1999) already identified barriers to all forms of transport for 'special categories of passengers'. In 2007, the DoT developed the *Public Transport Strategy and Action Plan* (DoT 2007b) to help guide, support and monitor municipalities in implementing accessible public transport systems. Twelve major municipalities were selected to test its implementation through integrated public transport networks (IPTNs) (RSA 2018c): Johannesburg, Cape Town, Tshwane, Ekurhuleni, Nelson Mandela Bay, Buffalo City, eThekweni, Polokwane, Rustenburg, Mbombela, Msunduzi and Mangaung. A thirteenth, George, was added in the fiscal year 2013/14. Six rural municipalities were also identified in the Public Transportation Strategy. Using existing national standards that already

applied to the built environment, the Public Transport Network Grant (PTNG) aimed to help municipalities accelerate the construction and improvement of accessible, affordable, integrated, efficient and sustainable public transport networks within a 20-year timeframe.

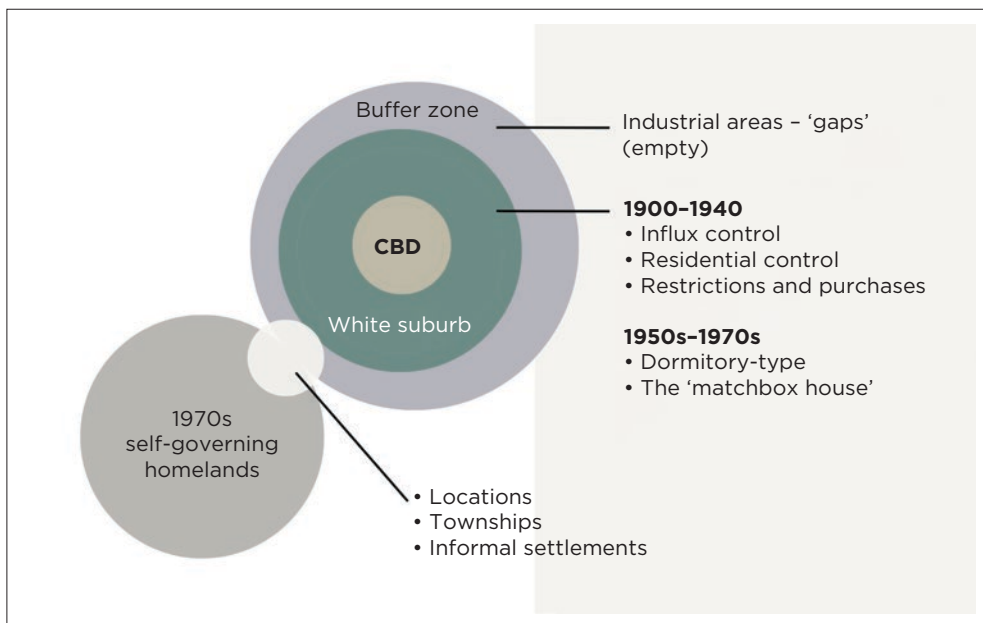
The *National Land Transport Act 5 of 2009* (NLTA) (DoT 2009) mandates universal access to public transport. Two documents published in 2016 support this aim. The first is the gazetted guidelines for *Integrated Transport Plans*, which include planning for universally accessible transport as a minimum standard (RSA 2016b). Also, the first new standard was released; for pedestrian crossings, developed in line with WPRPD requirements (DoT 2016). The DoT developed the Universal Design Access Plan (UDAP) for the 13 IPTN municipalities to record and measure progress toward a universally accessible transport system. This process is now gazetted in the *Universal Design and Access Framework* (RSA 2021).

Several points in the NUA (UN 2017) identify the importance of transport and access to transport. Point number 113 of the NUA states that improved road safety needs to be integral to sustainable mobility and transport infrastructure planning and design. It asks for special attention to the needs of women and girls, children and youth, older persons, as well as persons with disabilities or other vulnerabilities, focusing on pedestrian and cyclist safety. Point number 114 promotes access for all to safe, age-and-gender-responsive, affordable, accessible and sustainable urban mobility, among others. This point emphasises the importance of ensuring and enabling meaningful participation in social and economic activities. Transport and mobility plans must be integrated into urban and territorial plans to achieve this. It promotes (UN 2017):

[E]quitable ‘transit-orientated development’ that minimises the displacement, in particular, of the poor, and features affordable, mixed-income housing and a mix of jobs and services. (pp. 29-30)

In point number 115, the NUA calls for taking measures and employing efficient mechanisms at different levels of governance (national, subnational and local levels); point number 116 supports the development of these mechanisms and frameworks based on sustainable national urban transport and mobility policies while point number 117 asks for better coordination between transport and urban and territorial planning departments; point number 118 concludes by linking the issue of transport to ensuring ‘efficiency, connectivity, accessibility, health and quality of life’ (UN 2017, pp. 29-30).

The NUA is difficult to achieve in the context of divided and fragmented apartheid city structures (see Figure 3.1). The city structures are ‘disabling’ – systematically and carefully made so through hundreds of apartheid laws – they restrict ease of movement and ease of access to services



Source: Author's own work.

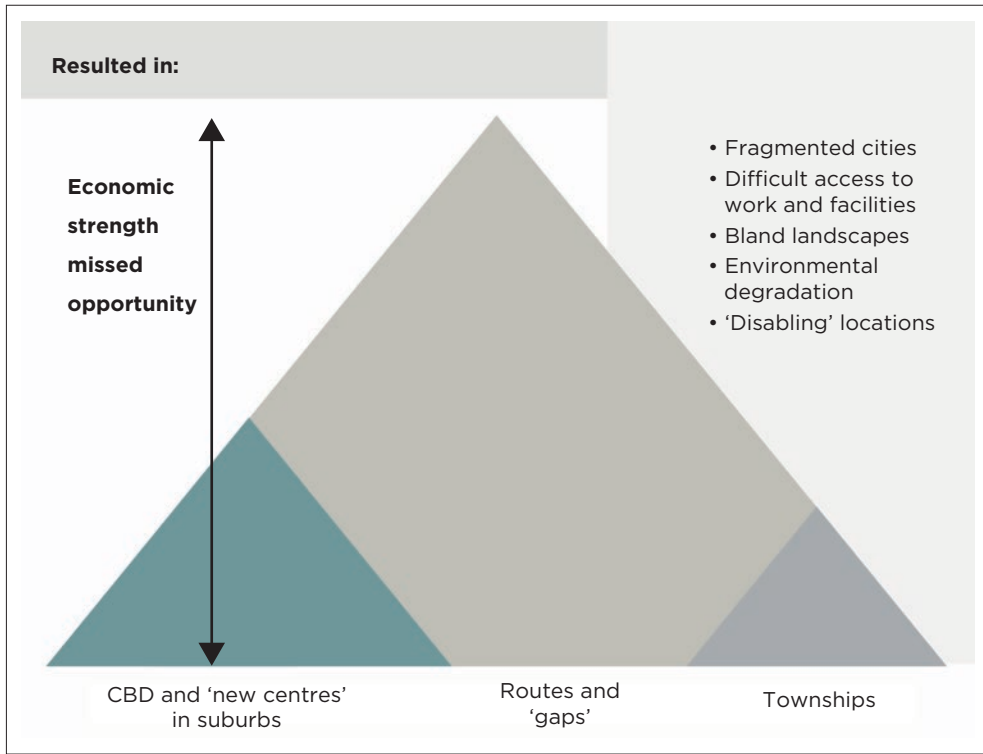
Key: CBD, central business district.

FIGURE 3.1: The South African laws in place to establish and maintain the city during apartheid.

and opportunities. As Nelson Mandela (1964) described, it is not a question that people with disabilities alone are negatively affected in South African cities. Everyone who lives within those 'cut-offs' or excluded areas is more negatively affected than others who are not. Unless both planning and the institutions responsible for those planning decisions change their approach and apply those standards, we will have to continue living and dealing with the negative consequences of these problems.

Furthermore, there is a great economic disadvantage to everyone if certain parts of the city have minimal economic activity compared to others. Institutionalised planning laws mean that people travel long distances to access jobs at high transport costs, waste hours on transport time and are the victims of a system that denies them opportunities for progress, development and growth, as demonstrated in Figure 3.2. Their lives and livelihoods are adversely affected.

The residents of cities are subjected to great stress; to navigate the city, they need money, time and a fully abled, young, fit body. Any form of disability, whether age-related, because of an accident or from birth, becomes a double layer of disadvantage. Navigating a disabling urban environment is incredibly difficult for most residents and dangerous for many reasons. The daily lives and struggles of people are the result of the



Source: Author's own work, adapted from a presentation given by an economist.
Key: CBD, central business district.

FIGURE 3.2: The economic disadvantage as a result of the apartheid city structures and the resulting 'disablement' of the city because of the high percentage of the population left poor by the planning interventions taken. These people are, historically and currently, mostly 'black'.

divisions, long routes, hazardous experiences and empty gaps in the city fabric that are un-serviced, unpaved, lacking landscape and not harnessing the potential they have to be 'corridors' that stitch the divided city together. The wealthy rely on private vehicles – they rarely 'walk' the city as the city does not encourage walking by nature of its layout, density patterns and concerns about individual safety or security. They are car-captured, reliant on ever-increasing vehicle costs. Low density and sprawl mean that many have to access jobs and services far from their places of residence – these long distances are accepted as a fact of life. Townships that are not integrated into the city are a persistent remnant of apartheid – historically conceptualised as mono-functional, residential areas for cheap 'black' labour to be close enough to affluent 'white' neighbourhoods for people to travel to work daily but not close enough to be an integral part of the city. This latter category of people is public transport-dependent.

Historically black townships have remained, to a great extent, untransformed. Residents are also concerned for their safety or security on public transport, highly dissatisfied with the transport services they have to receive, and would prefer to use a car if they could afford it (DoT 2020). Within the buffer zones, those intended to separate the black population from the white population during apartheid, more exclusionary residential developments have sprung up. Housing for poorer people has extended outwards, not inwards, sprawling beyond the far-away townships themselves, and people who remain 'public transport-dependent' are even less likely to be able to afford the higher long-distance transport costs than those in the townships. Most people spend a large portion of their time and money commuting to and from work, should they be lucky enough to have work.

This is how people live and move through the city. Could a different future be imagined and implemented? To what extent do policies allow for that? Could the city's structure and its institutional policy mechanisms be addressed to facilitate and ease access? How would each province, state-owned entities and national government need to support this change in approach? Evidently, the disadvantage is pervasive and affects everyone, irrespective of income. However, city developments pose real and severe additional restrictions on people with disabilities – a condition made worse if a disability is coupled with poverty.

While transport legislation is based on formative policy and implementation shows the desire for change, that which has been implemented has made little or no difference. One of the underlying problems is that an accessible public transport system cannot be implemented in isolation from the entire transport network. Neither can it be adequately implemented without dealing with urban transformation. The costs to society of failed spatial transformation are felt through ever-increasing movement restrictions, increased living costs and segregated living experiences.

Whether or not the 20-year implementation timeframe since MSA was published in the *Public Transport Strategy* (DoT 2007a) was reasonable is open to debate. Both the National Development Plan (RSA 2011) and the Gauteng Government's Plan (Gauteng Provincial Government 2020) use the same conclusive time period of 2030. Arguably, legislation such as the NLTA (DoT 2009) was needed first, as well as the *Consumer Protection Act 68 of 2008* (RSA 2016b) and the amendment to the *Building Regulations Act 103 of 1977* (RSA 2008a). Other policy instruments, such as the *Universal Design and Universal Access Framework* (RSA 2021a) and the *White Paper on National Transport Policy* (DoT 2021), are now published. On the other hand, the PEPUA was published in 2000. The *South African Human Rights*

Commission's Report, which included the identification of transport as a barrier, is now more than 20 years old (SAHRC 2002). The INDS is 25 years old. Relevant Equality Court cases are all around fifteen-years-old. If it is possible to have made so little progress over this period, how would a further eight years make any significant difference?

In all of the points that the NUA mandates, mobility and transport are seen as crucial to ensure a good quality of life for all city residents – and the success of mobility and transport are reliant on a more dense, compact and multi-functional city structure. The emphasis is placed on the importance of transparency and effectiveness of financial systems for public transport towards these aims. The World Bank also identifies the distribution of funding and accountability of spending as key mechanisms for implementing policy. In what ways does public sector finance support the rights of residents in general and the rights of people with disabilities specifically?

■ Disability rights and public sector financing

In 2014, the national government took a clear policy decision to mainstream disability issues. This was to be achieved through universal access to services, inferred in the Constitution (RSA 1996a; see *Bill of Rights*) and by signing the UNCRPD in 2007. The WPRPD, approved by the Cabinet in 2015 and published in 2016, brings national authority to the international convention.

In 2015, the South African National Treasury provided ZAR3.95 trillion (RSA 2015a, p. xvi) to national, provincial and municipal governments, which set the direction and tone for implementing the National Development Plan. Even before the COVID-19 pandemic struck in 2018, South Africa faced severe economic challenges, with the real gross domestic product (GDP) per person falling since fiscal years 2013/14. This means that the average South African is becoming poorer (RSA 2019b). This has an impact on every aspect of life and affects budgets for categories of investment such as public transport; it may therefore be seen as a cause for retrogressive progress despite the forward-looking policy intentions. A consolidated government expenditure of ZAR2.02tn is presented in the 2021 budget, which focuses on 'economic recovery'. ZAR45bn is allocated to public transport, a sector that has been negatively affected by the pandemic. A budget of ZAR218.8bn is allocated to community development (RSA 2019b):

This function facilitates access to housing and basic services and affordable public transport. It also supports spatial transformation and urban development. Over the medium term, total expenditure is expected to grow from ZAR211.5 billion in 2020/21 to ZAR240.7 billion in 2023/24.

Water, sanitation, electricity, housing and public transport functions are delivered by municipalities, provinces and public entities. As a result, transfers and subsidies are the largest share of expenditure in this function. Transfers to local government equitable share remain the largest spending item, in order to fund municipalities to provide free basic services for low-income households and subsidise poorer municipalities. (n.p.)

Each municipality in the country, through the equitable share provided to the province, receives an amount of money based on a formula related to the number of people who live in each municipality. This money is for the provision of basic services (water, sewerage and electricity). The number of people in each municipality includes people who are elderly, children, women and people with disabilities and the money is intended to be spent on ensuring that they all have access to these services equally, safely and in a dignified manner. Funds are also distributed through each national department and government agency in the form of grants. Where these grants are conditional grants, they contain a series of goals, outputs and a set of grant conditions, which can be measured to chart progress in meeting the goals, and are supported by sector-specific or departmental guidelines and requirements.

However, the government has still largely provided isolated measures to accommodate people with disabilities through grants. The Housing Code made provision to modify a discrete RDP house (a reference to the Reconstruction and Development Programme [RDP] of 1994 and the government-funded housing emanating from that) if a person with a disability lived in it. The type of adaptations includes the fitting of a ramp rather than steps and grab bars next to the toilet (RSA 2009).

This type of modification does not lead to independent living, equality of access and equal participation. At best, it results in a 'building in isolation' to segregate an accessible person surrounded by an inaccessible neighbourhood. Universal accessibility can only be achieved through planning universal design into transit-orientated development, housing and supporting 'trip attractors'. Regulation of the private sector is a difficult area, but it can be done. Municipal, provincial and national governments have enough tools and supporting legislation (RSA 2021). Significantly, government or land-owning agencies of government can use grants to demonstrate the type of development it wishes to see on state-owned land. The release of state-owned land close to city and town centres can result in more compact settlement development of the type that is socially sustainable and economically viable, as long as universal access outcome indicators at the levels of 'access' and 'participation' are measured. Access for everyone must be considered in its widest sense to enable sensible planning decisions. Including city farms and farmland in city boundaries,

for example, means that food transport costs are drastically reduced and living expenses need not be so high. Sites with no easy access to food supplies or which limit the possibilities for people to grow some of their own food are likely to have higher food prices.

In 2016, the South African National Road Agency (SANRAL) released a parcel of land for more compact urban development, including schools and other amenities (SANRAL 2016). If this development used the basic, authorised South African national infrastructure standards, which support universal design, applied to housing, transport and the built environment (both internal and external) – which national legislation has already required for over a decade since the amendment of the building regulations was passed in 2008 – the development could provide very different living and working conditions from what people with and without disabilities usually experience throughout their lives. It could equip the entire neighbourhood, regardless of gender, age or capability, with a settlement that can support its residents, whatever their age.

Despite a surfeit of supporting national legislation, only one of the conditional grants affecting spatial planning, the PTNG, deals with implementing universal access. Universal access through the universal design of goods, facilities and services is the essential approach identified in the UNCRPD to bring about the equality of outcome that the disability movement seeks to achieve. Nationally, it is critical to how the National Development Plan (RSA 2011) can be implemented.

The National Development Plan provided South Africa with a broad development goal (2011, p. 41). The grant process regulated by National Treasury can provide direction towards meeting that goal. All grant conditions need to be evaluated to examine whether they are encouraging universal access to goods, facilities and services or inadvertently making it worse. Universal access is part of the progressive realisation of the rights of people with disabilities. It is also a pragmatic approach towards a caring society, thus affording social sustainability and ongoing access to opportunities throughout the human lifecycle.

■ Mechanisms in the conditional public transport grant

The Directorate of Universal Design and Universal Access in the DoT has found that in implementing universal access to public transport through a conditional grant process, a number of key factors are measured, which can plainly be calculated and compared between different municipalities or operators of public transport as seen in the following sub-sections.

■ Standards (UN 2006, art. 9)

- National Standards for the physical and digital world: urban space, infrastructure, vehicles, wayfinding, signage and products.
- National Standards for tangible soft issues that affect the delivery of services: communication and information provision, operations, customer care and fare systems.

■ Relationships between the service user and service provider

An underlying mechanism of trust in transactions is particularly apparent in a universally accessible service and has a marked effect on transport, shown in Table 3.6.

The proof of this mechanism of trust and the safety net required to make it work is included in the legislation. However, there are very few processes within service systems to make it work, if any.

■ Universal access in public transport network development

The *Public Transport Strategy* (DoT 2007a, p. 7) highlights the goal for public transport that is 100% accessible, regardless of mode. The strategy identified two pillars for achieving this goal: the implementation of new accessible systems and the upgrading of existing transport services (DoT 2007a, p. 3). Moving South Africa (DoT 1999) and the NLTA (DoT 2009) both identify special categories of passengers as a wider group of people than solely people with disabilities; the definition in the NLTA includes children, people accompanying children, pregnant women and elderly people (DoT 2009, p. 8).

The *Public Transport Network Development Grant* now includes the following elements listed in Schedule 5 (RSA 2010–2020):

- **Strategic goal:** To support the *Public Transport Strategy* (which uses a measure of 100% accessibility).
- **Outputs:** To formulate the UDAP as part of the operational plan, which progresses in line with the planning and operation of the system.
- **Grant conditions:** All public transport infrastructure and services funded through this grant must ensure provision for the needs of special categories of passengers in line with the requirements of Section 11(c) (xiv) of the *National Land Transport Act*.
- **Grant conditions:** IPTN projects must meet the minimum requirements of the South African Bureau of Standards (including Part S of the Building Regulations).

The DoT issues annual guidelines and requirements which expand on the grant content and provide a level of detail not possible to include in the grant conditions. An annual reporting process accounts for differences in each city's social and economic context. While all the references in the grant conditions relate to existing South African legislation and standards, municipalities struggle with them. There are frequent complaints from officials that the standards for universal access are too high, despite the fact the DoT is merely monitoring the implementation of existing legislation, most of which is ten-years-old or more.

The *National Disability Rights Policy Discussion Document* (RSA 2015b) echoes the South African Human Rights Report of 2002 and rightfully indicates that:

The failure of South Africa to enforce existing accessibility legislation and develop minimum norms and standards for universal design is perhaps the single most important failure over the past 20 years. (p. 4)

It is apparent that through monitoring the implementation of national standards in the conditional grant process:

1. The expense of trying to apply legislation that has not been applied by the built environment sections of different spheres of government for the past 20 years is a major barrier to progress.
2. In this context, existing South African standards are seen as a threat because they have never properly been implemented.
3. Provincial and local governments seem to have little knowledge of suitable standards for universal design in planning and development and no understanding of implementing them.

The UNs' SDGs released in 2015 were supported by member states, including South Africa (UN 2016). According to SDG 11, sustainable cities and communities require the integration of universal design standards into settlement development in housing and public transport.

Providing public transport (whether accessible or not) seems to be a wretched task for South African provinces and municipalities. It is a basic need, not funded by the equitable share. Providing public transport is as important as providing health care services and education because walking, cycling or using public transport provides basic access to these and any other service. Numerous government studies (DoT 2006, 2009; SAHRC 2002, 2012) have shown that if a person cannot get to a school, university or clinic, there is little point in those facilities being accessible. Likewise, it is impossible to get a job, get to work or access essential services without accessible transport (Department of Public Service and Administration [DPSA] 2021). Providing transport through specialised 'Dial-a-Ride' or scholar transport services alone can never meet the demand and is prohibitively expensive for municipalities to run (Gibberd 2021).

Municipal officials struggle with the concept of the social model and the progressive realisation of rights. A municipality recently posed a concern: ‘What is the point of spending so much on so few with so little impact when the grant could be spent wider and arguably have a greater impact?’ (National Treasury 2016). If universal design really is a design approach that accommodates everyone, this argument would be untrue.

The INDS (RSA 1997) highlighted the problem of access to ‘trip attractors’; education, health, employment and other facilities emphasised by the disability movement (1997, p. 18). It is not solely a transport issue. It is an issue of how settlements are developed around transport. The *Public Transport Strategy* (DoT 2007a) proposes that public transport provides the backbone around which settlement development is moulded (DoT 2007a, p. 8). The strategy identifies major metros and larger secondary municipalities as the focal points for funding, which together account for roughly half the population of the country (Gibberd 2021). However, because of the fragmented nature of apartheid planning, each city has a deformed spatial pattern that requires modification to achieve universal access to goods, facilities and services (RSA 2000a). By using the social model, grants become the assistive devices through which this deformed landscape can be rehabilitated. As with all rehabilitation programmes, progress is slow. As with any good rehabilitation programme, it is important not to do anything that halts progress and not to do anything that actively makes the condition worse. Setting timeframes is sometimes useful, but it must be done with caution because the change achievable through rehabilitation is not known until it is possible to measure the rate of progress after a project is launched. With this one grant, significant change may be made to make universally accessible transport available nationally (Gibberd 2021). Therefore, the other grants, such as the *Human Settlements Development Grant* (RSA 2018b), the *Urban Settlements Development Grant*, the *Integrated City Development Grant* and the *Neighbourhood Development Partnership Grant* can, and will, make a substantial difference to the rate of progress if they are all aligned to the principles of universal design. Achieving the stated goals of sustainable and integrated settlements, which apply to most of these grants, would become more realistic (Cameron 2016).

By extrapolating the geographical rehabilitation paradigm, other factors can be considered. Public transport is still perceived as the poor cousin of travel; services are inferior compared to services available to private car users. Most people would like to use private transport (DoT 2020), a finding that has persisted in national travel surveys (RSA 2013). However, both public and private transport are ergonomically inefficient. Both public and private transport require the transfer of people, wheelchairs, luggage and pushchairs. Passengers experience the anxiety of planning, waiting and the

frustration of missing connections, the discomfort of being tightly packed into overcrowded or shared vehicles, hot, cold, wet, uncomfortable, thirsty, needing the bathroom, stuck in traffic and late.

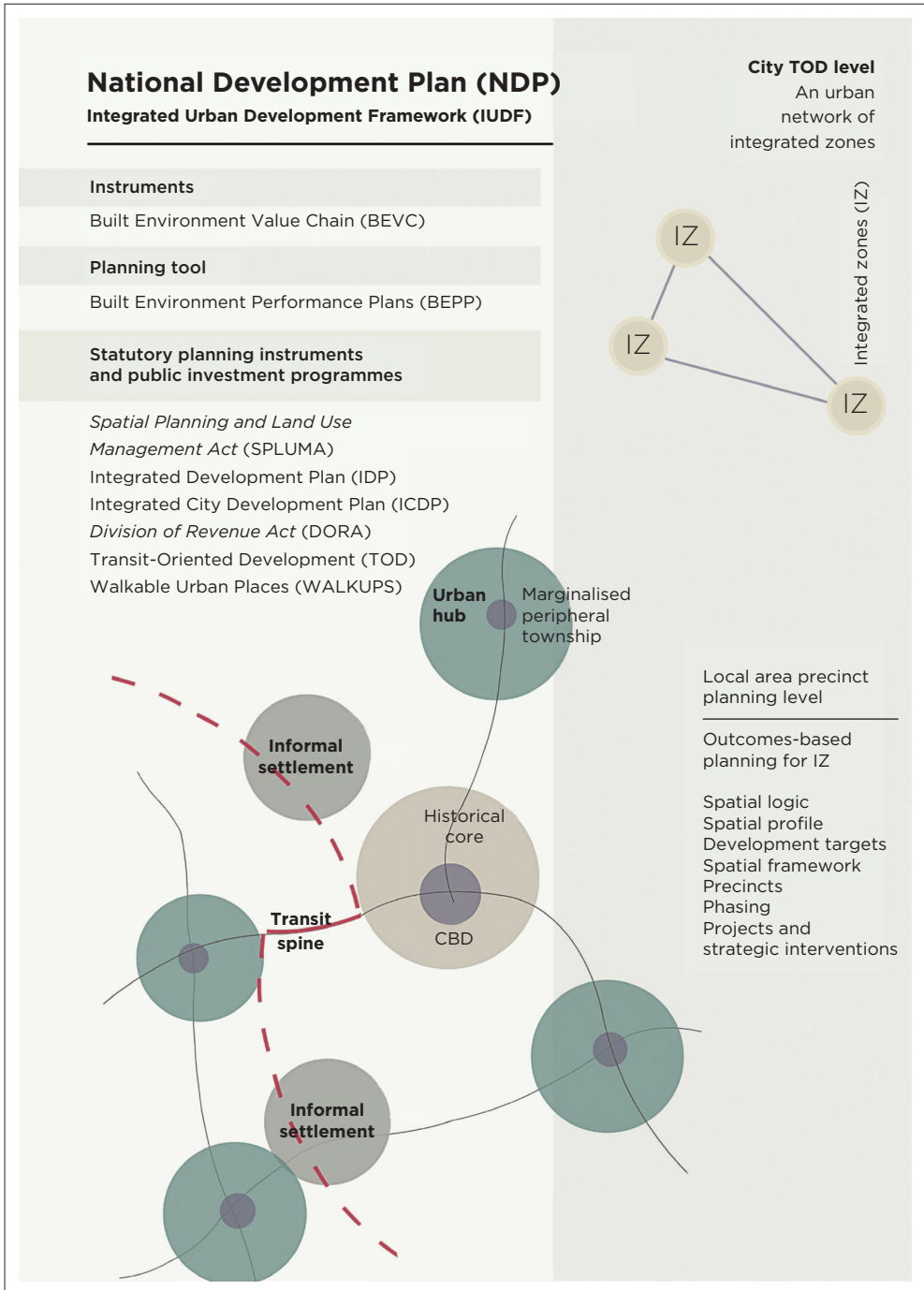
Compact cities are easier to travel through and more efficient in terms of time and energy. As a result, anyone can easily walk to their destinations; it costs them nothing. Fewer people in private vehicles on the road and more people on integrated, regulated and road-based transport or rail means less traffic, fewer road accidents and better air quality. The general population is healthier because they exercise more without being exhausted. After all, the walking distances are reasonable. This is a positive spiral that reduces health care costs as well as the need for grants. The effort required to achieve this goal is monumental, largely because it means that all spheres of government have to work together in the same direction to achieve it (Todes 2013, p. 41).

The use of universal design conditions in all grants that different departments receive encourages implementing the same standards in different parts of the built environment. This is an opportunity for different departments and spheres of government to work in an integrated manner. The same universal access outcomes can more quickly be achieved. This also means that the use of public transport and walking is encouraged as the design of our settlements ensures the efficiency of both.

■ **The Neighbourhood Development Grant: A missed opportunity to achieve universal access**

Some of the policies, instruments and tools in place to support transit-orientated development strategies are shown in Figure 3.3 with a focus on integration zones to promote the development of an urban network through a number of grants, including the Neighbourhood Development Grant. This grant's outcomes propose the in-fill of development between townships, usually located on the peripheries and predominantly occupied by the black population, and the centre of towns, historically considered to be white areas. Figure 3.4 speculates that a much more networked and integrated future may be achieved through transport-orientated development to address the fragmented nature of South African cities, including the use of relevant, already published minimum standards properly applied in planning. Those that relate to the human form (SABS 2011), as case law determined from the year 2000.

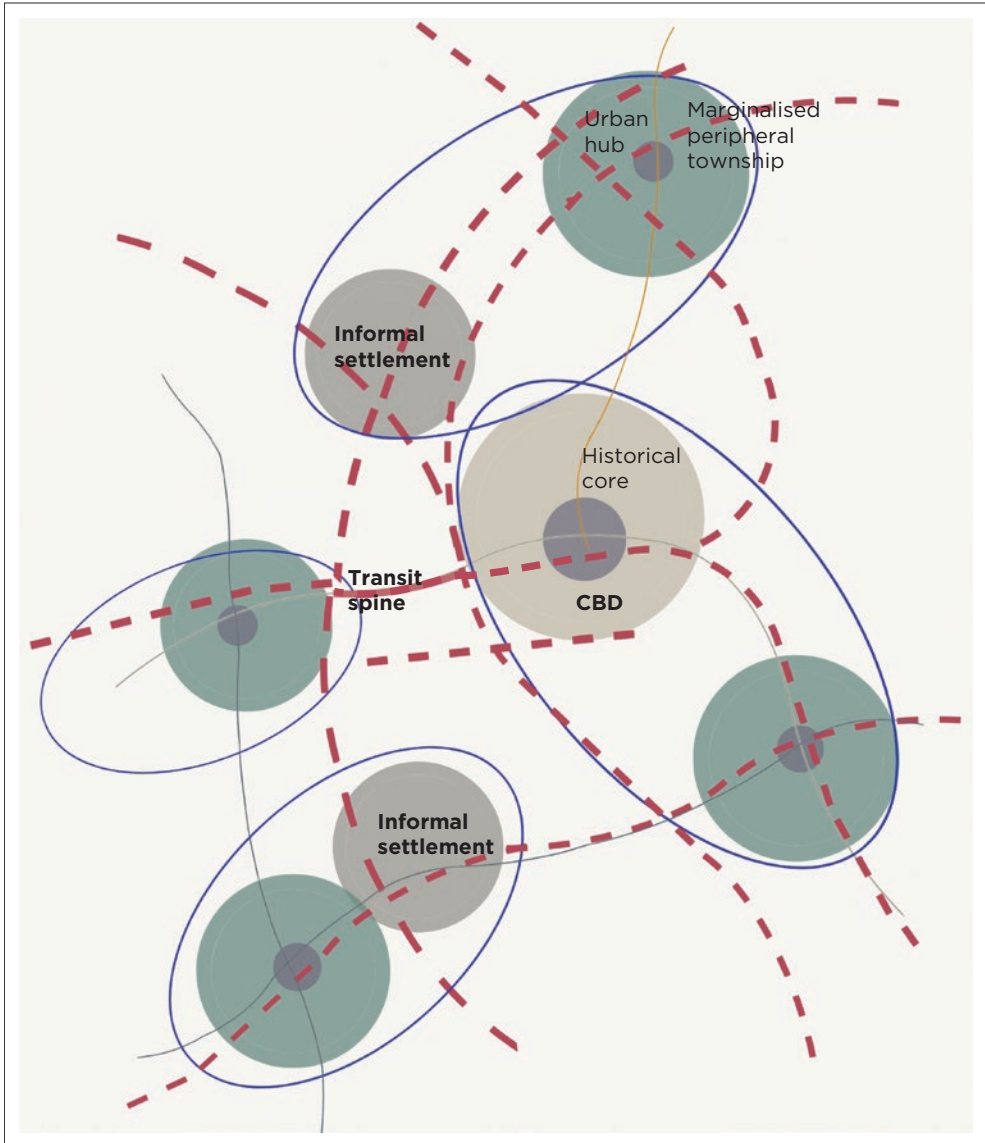
Transit-orientation development (TOD) is one tool that is proposed to achieve integrated settlement planning (Beg et al. 2014, p. 36). Although universal access is contextualised in the TOD principles, in a report by the



Source: Adapted from Integration zone planning guidelines: Outcomes-based development (RSA 2019b).
 Key: CBD, central business district; IZ, integrated zone.

FIGURE 3.3: Integration zone planning guidelines.

South African Cities Network (SACN) (Beg et al. 2014, p. 102), universal access is relegated to non-motorised transport (NMT) and only through kerb cuts and sidewalks. Suitable walking distances between origins and destinations (door-to-door) and safe pedestrian crossings are not included,



Source: Adapted from Integration zone planning guidelines: Outcomes-based development (RSA 2019b).
Key: CBD, central business district.

Note: While this is not an ideal scenario, it is a way to visually conceptualise an alternative reality with a more interconnected spatial reality.

FIGURE 3.4: Conceptualising a more networked and integrated future through transport-orientated development to address the fragmented nature of South African cities.

and without these, NMT fails; universal design standards required in urban planning and precinct development have been omitted.

Furthermore, the SACN Report uses the Fan Walk in Cape Town as an example of good practice in transit-orientated development (Beg et al. 2014, p. 104). This is unfortunate because, based on the inclusion of universal access in NMT alone, it cannot be considered good practice. For example, the manner in which shared space between cars and pedestrians has been incorporated is a safety hazard. In other parts, the kerb cuts are misaligned and badly designed, causing confusion over the safe place to cross bisecting roads and creating trip hazards which affect users who are blind and those who are less agile.

Another example is that the growth of settlement development in Gauteng is not universally accessible and is not within the proclaimed transit-orientated development corridors. It continues unabated, despite a recently published policy from the province requiring universal access to transport by 2030 (Gauteng Provincial Government 2020). Although this might seem grandiose and unachievable in the eight years from 2022, Gauteng's policy, on paper, is in line with international commitments already signed in 2007, national legislation and standards from 2000, a 1996 Constitution and a former president's speech made in 1964.

■ **Conclusion: Progression versus regression in universal design thinking and applications**

This chapter has attempted, through narratives and the combination of real and imagined stories, to put forward an argument for rethinking the disabling nature of South African cities. It has attempted to make 'real' and 'human' an understanding of the disadvantage that the city imposes upon its residents with and without disabilities. Furthermore, to propose a practical way of addressing universal access matters through public sector financing mechanisms. It is the author's belief that those mechanisms could serve as enablers for developing inclusive cities and providing opportunities for a better quality of life for residents; and meeting the South African constitutional goals at the very minimum.

The authors present a case whereby they argue that settlement planning, approved provinces and municipalities would be more effective if universal design principles and standards were included as part of TOD and urban planning in general. The national government and state-owned entities clearly have a role to play in ensuring that constitutional goals are met in the urban form, not least because it enables basic services to be delivered to everyone, including health care, education and transport.

The current approach to planning and standards used in implementation disregards the lessons and principles from history and the progressive guidelines in policy documents, and therefore takes the universal design movement backwards. The current approach removes constitutional and legislative rights to the extent that it is puzzling to understand how these plans and designs can have been approved. Achieving universal access in built projects requires more encouragement and stricter enforcement by the government. Without direction, as Imrie (1996) shows, financiers, developers, planners or other built environment professionals assume that they know best. Nevertheless, the same barriers for everyone except a 'Modular Man' will still exist for many years to come.

Section 2

Decolonial directions

Mother tongues, transcendental technologies and space

Russel Hlongwane
Substance.Point,
Durban, South Africa

■ Introductory notes

At the core of this enquiry sits three areas of interest: language, architecture and technology. I attempt to look at these three areas of production from the perspective of AmaZulu and ask: what does the Zulu tradition offer in the fields of architecture and technology?

The objective is to situate the praxis of architecture and technology in a local context, a praxis that prioritises local challenges and is informed by a local imagination. The isiZulu language is therefore used as an access point to reach deep into a long past filled with traces of technology and architectural imagination. 'The speculative' is deployed as a methodology to render new possibilities for these two areas of practice.

Emerging from this inquiry is evidence from artists and writers who are exploring age-old spiritual practices and 'mediums' as very advanced forms of technology. And where urban practice is concerned, AmaBhinca (a community within AmaZulu) offer a taxonomy that textures – if not reimagines – our relationship with space.

How to cite: Hlongwane, R 2023, 'Mother tongues, transcendental technologies and space', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 77-100. <https://doi.org/10.4102/aosis.2023.BK323.04>

Interdisciplinarity and speculative methods are incredibly valuable in bringing these disparate questions into relative proximity in order to achieve new interpretations. Ultimately, this offers a methodology that can be reused in other contexts with similar histories.

■ Language and technology: Theoretical premises

This chapter explores two areas of interest: language and technology. The first tangent is language, specifically isiZulu, the language tied to my heritage. From this position, I will use language as a resource from which a Nguni spatial imagination might be conjured and mobilised. In so doing, I utilise language as a vessel that transmits critical fragments from the 'long-past'. I adopted this term, the 'long past', after I encountered its use by Heeten Bhagat (Zimbabwe) and Erica De Greef (South Africa) (2020) in their *African Fashion?* short course. This term concerns itself with a long timescale and I use it here to refer to a pre-colonial era for which I feel the constant use of the term 'pre-colonial' is unproductive because I am trying to mobilise an imagination that draws from an ontology that is neither tethered to nor seeks to be in relation to coloniality. Thembinkosi Goniwe (2019) (South Africa) explained this poignantly when speaking about the black imagination and how we are liable to fall into the trap of prioritising whiteness, even when discoursing on blackness – he surmises that this is '[...] what colonial apartheid haunting is about. This white can never leave us free, and we don't allow it [...] to free ourselves'. He urges us to totally unhinge colonial or occidental references in spaces of black imagination, and it is on this basis that I prefer the term 'long-past' over 'pre-colonial'. Furthermore, the long-past is useful in outlining a much longer temporal boundary that extends as far back as possible, to a point where pre-colonial loses its relevance as a marker on this timescale. Now, I wish to momentarily put aside this tangent on language and link the second tangent, technology.

The application of modern technology takes effect in very specific ways in Africa. Here we can think about extraction (of raw materials), territories where the intellectual property of these technologies are held and by whom the data are owned. If data are the oil of the future, then we ought to re-evaluate how we hand over information about ourselves or allow our online lives to be accessed. Much has already been handed over – this cannot be reversed as it renders us unequipped agents in an extremely sophisticated digital economy in our attempt to 'catch up'. We do ourselves a disservice by being so unreflective of technology if we can only think about it in the narrow frame of smart cities, as an example. Achille Mbembe (Cameroon) complicates the mobile phone device and

its implications on African subjects in his Abiola lecture of 2016, titled 'Future knowledges', for the African Studies Association, where he posited (Mbembe 2016):

The mobile phone is not simply an object of use. It has become a portable storage (grenier) of all kinds of knowledges and a crucial device that has changed the way people speak, act and write, communicate, remember, imagine who they are and how they relate to themselves, to others and to the world at large. (p. 12)

Such considerations become particularly important if technology is expected to be of service to the needs of Africans. Policymakers, powerbrokers and decision-makers can be informed by these speculative accounts of technology in Africa. To support this, I will refer to the works of three practitioners, namely Enos Nyamor (2020a) (Kenya), Jean Katambayi Mukendi (2018, 2020) (Democratic Republic of the Congo [DRC]) and Joshua Chiundiza (2020) (Zimbabwe), who have proposed modes of thinking about technology from a different perspective, that is, a mode of thinking that de-centres the Western view that the field of technology by understanding it through binary systems of hardware and software when, in fact, we can think of indigenous forms of technology as yet another way in which technology could be 'tamed' and grounded in an African context.

This chapter therefore addresses these two tangents of language and technology from a unique perspective, that is, *mother tongues* and *transcendental technologies* viewed from the perspective of understandings of space and city-making. This is further unpacked, placing these concepts in the context of time, space, history and futurity; these are presented through a very particular lens, that of a specific case study area, its people and practices, that is, my home city of Durban, South Africa.

Lastly, I take a deliberate interdisciplinary approach in working with various artistic mediums in visualising and making audible and tangible a set of principles and ideologies relevant to Durban. In so doing, I am able to put forward a methodology that could be applied to other contexts, using the appropriate set of disciplines relevant to that enquiry. This approach is therefore replicable, and thus valuable, as an alternative to conventional models of inquiry that are better suited to African contexts.

I have found it liberating and incredibly useful to merge various fields of practice in order to create some effect. This approach of working across disciplines is justified on the basis that the challenges of our times are too complex to be resolved within a single field of specialisation. It has to be stated, if not emphasised, that these interdisciplinary approaches are not a given: they need investment, an appetite for risk and active nurturing.

■ Mother tongues

In many cultures, language is a potential access point to gain insight into a people and place, yet in eras when there were scant written records a rich folkloric, spoken word and ritualistic traditions provide fertile data which allow us to construct, by way of speculation, a semblance of that long-past, thus rendering it even more accessible in texts and other media. I aim to grapple with the form of language itself, the semantics contained in a language and the etymological aspects because only then can we access the universe that gave rise to the language of a people and the beliefs, values and culture which it expresses.

To work with the notion of the long-past is to encounter the tethered and multi-dimensional nature of time. The two entanglements of time that are of particular interest are history and futurity; both zones can be thought of from the perspective of the black subject in South Africa, with the potential for theoretical replication across Africa and other regions with similar histories. The work that is needed of us, as knowledge-makers, is to find the courage to engage with both the history of the long-past (where records are scant in written form) and futurity (a multi-dimensional future that has yet to become) from a speculative mode. The inability of formal Western modes of inquiry to engage with, accept and bring into the academic fold the multiple world cultures from around the globe does not make them any less significant or valuable in shaping the world as we know it today.

■ Transcendental technologies

I posit three degrees of technology: the screen-based algorithmic formation along with its techno-politics and techno-capitalism popularised by Suarez-Villa (United States of America [USA]) (2009). The author describes techno-capitalism as:

[A]n evolution of market capitalism that is rooted in technological invention and innovation. It can be considered an emerging era, now in its early stage, which is supported by such intangibles as creativity and new knowledge. (n.p.)

I will illustrate this proposition of an extractive digital economy that takes more from Africa than it does from any other environment by referring to Mukendi (2018, 2020).

The subsequent degree is one that emerges from, if not alongside, the mainstream science fiction tradition, and here I wish to refer to black and brown science fiction writers and theorists invested in that thinking type. I am referring to writers from the diaspora, such as science fiction writer Octavia Butler (1997a, 1997b, 1997c) (USA) and her series *Xenogenesis*,

which is of particular relevance, and proceeding to point to the theorist, writer, artist and co-founder of the Otolith Group, Kodwo Eshun (United Kingdom [UK]), and his work on *Afrofuturism* (2003), including the seminal film *The Last Angel of History* (George & Akomfrah 2013) by his long-time friend and colleague, John Akomfrah (UK). The recurring theme in these artists' works is the question of race (amongst other questions) and to what degree is the black person human, particularly in the West. To what degree, and how, is the black person an alien who also operates beyond the material conditions that they have been subjected to?

These artists deploy technology as an existential question as well as a coping mechanism for black people in the diaspora. Closer to home, we can point to writers such as Amos Tutuola (Nigeria), in his novel *Palm Wine Drinkard* (1952), and the late Sanusi Vusamazulu Credo Mutwa (1988) (South Africa), with his *Indaba, My Children*, who also concerned themselves with the humanity of blackness and the probable multiverse.

Linked to the above, I shall bring the artistic work of Chiundiza (2020) (Zimbabwe) and the writing practice of Nyamor (2019) (Kenya) as a way to build a scaffolding that holds together the aforementioned giants with a set of current-day emergent practices in transcendental technologies.

■ Place, people and context

Durban, my locality, is in the province of KwaZulu-Natal, found on the east coast of South Africa. Like every other city in the country, to some degree or another, it is a city shaped by a colonial imagination. It is shaped in equal measure, in tangible and intangible ways, by a resilient and staunch Zulu heritage. Apartheid spatial planning demanded and forced black labourers to come from the hinterland to serve the ambitious expansion of the empire. Having been born in the city, we often visited the countryside, eMzinga, where my family home is based, approximately four hours from Durban; this is where I first learnt about esoteric practices that I would later understand as science fiction. My fascination with language as form was also born there, and the idea that some parts of a language are not spoken and that not all knowledge can be learnt in conventional ways as there are other, usually unacknowledged, forms of knowledge transmission. Suffice it to say that this is a place where my Western frame of science was simply insufficient to fully comprehend the activities that took place in that region. These activities are what I (speculatively) call transcendental technologies.

I introduce a worthwhile digression that speaks to an important dynamic that adds more understanding to the topic – among Zulu society is a section of people called AmaBhinca, non-converts or those who did not adopt the missionary Christian religion. The etymology of the term

amaBhinca is traced back to a sartorial style, *ukubhinca*, which is to quite literally ‘cover up’, a unique style of dress among these people. At a time when Christian converts from rural areas (who were called *Amakholwa* [believer]) were dressed in a ‘Western’ style, AmaBhinca retained their traditional sartorial assemblance. I find it cynically relevant to refer to a socio-economic inquiry contained by the Historical Papers Research Archive (Johannesburg) of the Nquthu area (northern KwaZulu) which compared, among many other aspects of life, the cost of clothing between AmaBhinca and Amakholwa [Christian converts]. It revealed that a male who identified as *ikhola* [believer] spent ZAR49.35 per annum on clothing, whereas an *iBhinca* [non-believer] spent only ZAR5.40 per annum. A woman who identified as *ikhola* spent ZAR43.95 per annum whereas an *iBhinca* woman spent ZAR11.50 (Bernstein & Bernstein 1976, pp. 70-71).

It should be stated that AmaBhinca were also the people who constantly rebelled against early settler colonialists across KwaZulu or Natal – protest and pride in heritage took many forms, including dress forms, which are placed under the theme of ‘technology’ in this chapter. The most significant of these contestations would be the Bambatha Rebellion (1906)⁵ led by Bhambatha kaMancinza (South Africa, 1860-1906), who hailed from the Mpanza Valley of the Greytown district (eMsinga). AmaBhinca became the crucial vessel that retains and practises age-old traditions; it is thanks to these people that there is still a rich and elaborate history of the Zulu people.

It is because of AmaBhinca that I understood the city from a different perspective. In addition to encounters in my rural village, I again found these people in the Warwick Triangle area of the inner city of Durban. Warwick Triangle, a section at the periphery of the Durban central business district (CBD), emerges from apartheid spatial planning. It serves as a transport node for the black and Indian population in a persistent apartheid spatial condition. The Indian population that lived and traded in the area are a population that is today gradually being replaced by migrant workers and African nationals from other countries. The area has a high-density footfall of approximately 500,000 people who traverse this area per day, according to Asiye eTafuleni (Lees & Heneck 2020), an active non-governmental organisation (NGO) working with traders in the area. Within Warwick is the *muthi* market, a strip exclusively reserved for the sale of traditional medicine such as tree barks, roots of plants and other necessities essential for the spiritual needs of Africans in general and Zulu people in particular. Warwick is important here because this is where I encountered AmaBhinca, if not eMsinga. I would like to think of this place as an urban

5. See <https://www.sahistory.org.za/article/bambatha-rebellion-1906>.

antagonism: it teaches us about the distance that urban planning and architecture has yet to cover, because here you find people who are reluctant to call the city home, even under a new political dispensation. In other words, AmaBhinca antagonise the city as we know it. Warwick is symbolic for another reason – the *muthi* items traded in Warwick are mediums into the spiritual dimension, which can be understood as the ‘ether’, as it were. The spiritual and transcendental customs associated with *muthi* practices are part of what I consider indigenous forms of technology.

■ Artistic dialogue and the scope of the investigation

Presented here is the work of some artists and their projects which address these questions in elegant forms. I will also refer to my own artistic works which engage in a dialogue and harmony with the range of artists, topics and practices mentioned. It should be stated that these projects are experimental and speculative, only now starting to become legible; they are intellectual works, though falling outside of the realm of the conventional academic project while drawing inspiration from academic material; they should therefore be approached from that perspective. These are embryonic themes emerging from rich conversations taking place at roundtables, in exhibitions and in niche spaces of interpretive communities, online and offline, such as blogs and experimental convenings. Where my work is referenced, it will often centre quite strongly on the region of KwaZulu-Natal, of which I have knowledge and first-hand experience. It is also my main site of professional and artistic operation. This in no way represents the broad spectrum of blackness and Africa.

To further explore this topic of language and technology through the lens of context, time, people and place, I am interested in design practices of the long-past. As I embark on this journey, I ask: What might have been the design order that was disrupted by colonialism, and what might this have looked like at its height? Could we draw a line from the moment of rupture, sidestep colonialism and continue that line till the present? This thought experiment is not to romanticise the long-past as a utopia; in fact, it is to bring the tensions of the time into a process that might help us break out of the Cartesian design system that is unrelatable in its entirety to Africa. We can safely confirm that the inherited (Western-designed) systems of governance, economics and politics (among others) have been inefficient at addressing the urgent needs of African people. As a strategy to break out of this deadlock, we could turn to the etymology of indigenous words that form part of a growing vocabulary. They might offer some clues about social order, distribution of power and leadership. A modest set of words are used to showcase this proposition in its application. A wide

spectrum of technologies is also brought into the fold and explored by way of artistic postures and interpretations.

■ Democratising place-making through intellectual linkages and ‘triangulation’

I have explored a wide terrain, although in no exhaustive detail, to create linkages between what are seemingly disparate topics for the sake of democratising the topic of place-making and locating it outside the very particular and protected area of institutionalised knowledge-making. The chapter therefore contributes towards achieving and positively altering the relationship between black subjects and the city, a place that is only getting increasingly complicated as it is driven by advanced forms of capitalism and exploitative politics. Both forces (capitalism and politics) leave the proletariat under crippling conditions instead of providing for a more equitable form of existence. And I am asking us to not only relook but also to improve the various designed systems that affect the ‘spatial’; here, I am talking about economics, governance, housing, education and different forms of memorialising, including public art. All these processes have to be reimagined, in harmony as an orchestra, for some effective change on the continent.

The themes above (technology, language and the speculative) are not naturally held together by an obvious connective tissue, but I try to triangulate them in such a way that they help us realise the complexity of urbanity on the African continent and how one field (say, economics) affects another (say, politics). In other words, it is short-sighted of us to think of and within one field and not speak to another. Hopefully my triangulation of technology, language and the speculative (in spatial practice) makes a case for a much more integrated, multidisciplinary problem-solving approach that is not only needed but is absolutely crucial if we are seriously committed to untangling black life from struggle.

■ Language as a tool to rethink space and cities

To borrow from the words of the Kenyan writer Ngũgĩ wa Thiong’o (1987), who in his seminal book, *Decolonizing the Mind*, posits:

We Africans writers are bound by our calling to do for our languages what Spencer, Milton and Shakespeare did for English; what Pushkin and Tolstoy did for Russian; indeed what all writers in world history have done for their languages by meeting the challenge of creating a literature in them, which process later opens the language for philosophy, science, technology, and all other areas of human creative endeavours. (p. 29)

This excerpt eloquently articulates how language might function as a tool to rethink space and technology from the perspective of different cultures in general and, for me, isiZulu in particular. I am, in a practical sense, urging us to use language as a vehicle to mobilise the imagination. I use some examples from isiZulu to illustrate this point clearly.

In the case of a violently erased history and a folkloric language tradition, how might we assemble or imagine fragments of life in the long-past (of the Zulu people, as an example) when records, artefacts or objects and practices were erased, demonised and obliterated? I think closer scrutiny and an imaginative mapping of language help us understand more about the social order, power, relationship with objects and nature, as well as forms of governance of an era to which we cannot return.

One might rightfully ask: Why return to the long-past to answer the pressing problems of our cities? I argue that to attend to history is to attend to the future – it is Zimbabwean artist and thinker, Joshua Chiundiza (2020), who states that ‘to remember is to innovate’. Building on this notion, I believe that excavating the ruins of history gives us some fragments to speculate on what was, what might have been and what could be. Put in a different form, the ruins of history are access points to black ontologies, and it is these black ontologies that we do not see reflected in systems of governance and spatial planning. The following example is ripe enough to make this point. Let us take the essential reference book *Inqolobane yesizwe* (Nyembezi & Nxumalo 1966, pp. 37–43), which broadly documents the traditional isiZulu way of life and therein touches on spatial order. It mentions that the main entry into a household faces east, but it does not mention why. It proceeds into great detail about which dwelling stands adjacent to which (i.e. where is the first wife’s dwelling in relation to the visitors’ dwelling, etc.) and, again, it does not state the reasons for this. It is unclear why it does not go into this fundamental detail. To help us navigate this question, I think it is useful to draw from the academic work of Almita Cordelia T-M Mayekiso Nee-Qwana (1994) as a PhD candidate in South Africa, titled ‘Cultural and religious contrasts and symbiosis in DBZ Ntuli’s short stories’. In this PhD thesis, she (Nee-Qwana 1994) laments:

Documentation of empirical research on Zulu culture, and records, are yet unavailable, except what is found in books on sociology and anthropology, most of which have been compiled by foreigners. (p. 9)

She credits two important writers in the isiZulu literary tradition, Nxumalo-Nyembezi (South Africa) and CT Msimang (South Africa), who she says ‘have included more pictures to illustrate each aspect of Zulu culture than previous writers’. However, Msimang, in an interview with the author, Mayekiso Nee-Qwana (1994), fills the gap to our question as

to why Inqolobane did not explain the spatial logic of the homesteads when he states:

I could only describe the customs but could not explain them. For instance, I knew that if there is a slaughter, men are given the fore-leg but women the hind-leg, yet I could not explain the reasons behind this. I could describe the Nomkhubulwana ritual and tell people that only amatshitshi (young girls) participate in it but could not explain the reasons for excluding women of other ranks in this ceremony. (p. 12)

Msimang's words highlight an important point that in as much as he is counted among the important writers of the language, he too was working with limited knowledge of the practises and sciences of the AmaZulu. Msimang could speak the language but could not speak to the underlying principles of the practises. My fundamental question concerning language returns, who shall pick up this incomplete work, and what practices might be useful in reinvigorating this knowledge? I think the challenge lies with this generation of practitioners to urgently make visible the imagination behind the language. I am proposing that we use the little that we know to bring possibility to that which we (and the generation of Msimang) do not know. This is the dilemma that Wa Thiong'o is warning us against, that lest we do something radical and imaginative with language, all the things that give language its form will also be lost. Perhaps the university lecture hall could be one of the first places to prioritise this invitation. Then, those theorising in the university lecture hall must be matched with those practising knowledge outside of academia. This generation of scholars therefore become interlocutors - dialoguing between multiple communities of practice.

Let us return to the spatial question. We could argue whether the South African city works for or against the black subject, and I think we can safely agree that the black body encounters a series of daily inconveniences, micro-aggressions and resistance from 'inanimate objects' (public infrastructure and other pervasive built forms that do not reflect their sense of being) - and in some cases the use of these built forms has to be explained in didactic forms because they are premised on Euro-Western logic - so these built forms clash with the black person's world-making. In the same way, African design sensibilities will most likely fail to fully accommodate the complex demands of a European user.

I suspect that only at the point where black ontologies are reflected in design practices will we reach a critical juncture where the city and its built forms will speak to black South Africans at an intuitive level. When space is arranged in our mother tongues, we can *speak* to space and it can *speak* back, therefore creating resonance - *we can sound space*. I think this will fundamentally alter our relationship with the built environment in a significant and positive way.

As a cultural producer, I have found the speculative realm to be the most useful method for unpacking and building possibilities into language. Practitioners from other fields should bring their own methods, as long as they help bridge the spoken form to the built form across to other design systems.

Staying within the realm of language, I will now shift to translation. Noting that the act of translation is political and these translations are not meant to be direct (translations) but rather ‘transmissions of ideas’ from isiZulu to the English language. However, before venturing further, I refer to Phindile D Dlamini’s (2016, n.p.) (South Africa) PhD thesis, titled ‘Lost in Translation? An exploration of conceptual integrity in the translation of graded readers from English to isiZulu’. She makes an important offering to this question of isiZulu to English translation that is not so much textual as it is ideological; she refers to the principle of ‘conceptual integrity’. Her study ‘investigates translation process using linguistic, functional and ideological models’. Of particular interest to me is her application of conceptual integrity, which is, as she says, ‘a theory popular in the field of architecture. It is about the unity, coherence, functionality, simplicity and wholeness of a design’ (Dlamini 2016, p. 6). This is a useful citation to keep foremost in mind as we shift focus to the merits and shortcomings of translation – allow me to reinstate the idea that we want to engage not only with the word but also with the universe from which the word emerges. We can refer to Wa Thiong’o’s (1987) point about the use of our mother tongues in order to inject the values accounted for in Dlamini’s introduction of conceptual integrity.

Dlamini points out, although more positively than Mayekiso Nee-Qwana but with similar concern, ‘that her study contributes to the burgeoning research in the field of translation and specifically to the scarcely researched languages within the translation field, that is, South African indigenous languages’ (Dlamini 2016, p. 7). For the sake of comparison, Nee-Qwana stated that research on Zulu culture and customs was unavailable circa 1994, and Dlamini’s work, published in 2016, also makes a point of the scarcely researched South African indigenous languages. With acknowledgement to the claim, and in response, I do consider that these (my) translations are as yet one kind of ‘study’ in isiZulu, albeit non-academic.

Against this reality, I have consulted the resourceful *Inqolobane yesizwe* (Nyembezi & Nxumalo 1966) and the online database called ‘in different languages’ as a guide through some of the words and phrases that I have chosen below. I have been led by the essential meaning of these terms as contained in these sources and transposed them into the three fields of urban practice, contemporary artistic practice and technology. Therefore,

I am working from the essential definition of each word and exercising my creative license to situate them in my fields of interest.

I also take heed of the isiZulu phrase '*isiZulu asitolikwa*', which we could say approximately means 'one does not translate isiZulu' or 'one cannot accurately translate isiZulu', or simply 'isiZulu is untranslatable'. With that said, the following is a modest vocabulary that I have been working with as a way to demonstrate these preliminary ideas of translation mentioned above. In 2019 - under the guise of the Creative Producer International (CPI) programme - I initiated a project titled '*Umongo we dolobha: The Marrow of the City*', and the intention was to map Durban city centre from the perspective and from the memory of the senior citizens (my grandparents' generation) who arrived as cheap labour and still occupy that city, although under a different dispensation. I tried to understand what words were associated with which places in the city and why? And from these words, could I create the legend to a map based on these words? I attempted to create an intergenerational channel of thought between grandparents who lived under oppressive times and their grandchildren who occupy the same space with relative freedom. I could call this the 'black map', using language as a thread that holds a generation of yesterday and the current generation. I thought I was looking for old meanings (through the memory of my grandparents), only to find that the project led me to new meanings of Durban. I am still working through the process of connecting the memory of my seniors and my newly found meaning.

This alternative spatial mapping exercise is an attempt to extrapolate hidden meanings which have remained unacknowledged so far. To this point of new meanings, Finzi Saidi (2005) (Zambia) writes poignantly when he says, in his thesis, that:

1994 marked the end of the apartheid era and the beginning of the definition of a new era that would represent the new aspirations of all the people of South Africa. These fairly recent changes are important for the reshaping of the architectural profession as it seeks to interpret new meanings, views and aspirations of the new South African society in the built environment. (p. 1)

Reverting to my project of 2019, *Umongo* is the 'core' or the 'marrow'. Working from this basis, the title came to be *Umongo we Dolobha* [the marrow of the city]. In other words, what exists at the core of this place called Durban for black people? What is the essence of this place for my grandmother and for myself in the present? What can we work with when we de-centre a certain Sir Benjamin D'Urban, after whom the city of Durban is named? What emerges when I revert to the Warwick *Muthi* Market and meet AmaBhinca again, and how do I work with the prevalent vocabulary there? What does it tell me and where does it lead me? I wish to use the answers from these inquiries to inform a spatial practice that could better serve AmaBhinca in their entirety.

As John Dixon (Ireland) and Kevin Durrheim (South Africa) once stated, ‘questions of “who we are” are often intimately related to questions of “where we are”, an idea captured in the environmental psychological concept of place-identity’ (Dixon & Durrheim 2000). How could I recalibrate the question of ‘who is *iBhinca* in the city?’ and ‘how do I stamp the identity of *iBhinca* through Warwick *Muthi* Market’?

How could the everyday vocabulary of the *muthi* market be extrapolated to define a city that reflects the lives and concerns of a people, and their ancestors, who arrived here as cheap labour? The complicated relationship between amaBhinca and the city is evidenced by my grandparents’ generation’s view that they cannot build a ‘home’ in the city. Even after occupying the city for 40 or 50 years, many South Africans still refer to the rural regions as ‘home’. This strained relationship with the city determines how one relates to this place and how they invest in this place and feel assured in the environment. As much as I could, I tried to mute the urban practice ‘knowledge’ that I came up with through the project and tried to understand what is produced by the Warwick community and, in turn, how they produce themselves in Warwick? After a series of experiments in and around Warwick, the biggest insight is the need to grapple with language at a fundamental level. Another factor to consider is that a lot is ‘unsaid’ in Warwick but is gestured – gestures are yet another important language of Warwick. The gestures refer to how one walks and how one speaks about certain (u)*muthi* – which is, one cannot ‘point’, using an index finger, to certain (u)*muthi*. There are many other gestures at play in Warwick. My obsession with language emerges from this project, and I engage quite speculatively with the following terms.

Assembled here is a brief catalogue of terms and phrases that offer a local imagination that is available to us to think with and use to re-assemble Durban from the memory of the AmaBhinca or senior citizens of Warwick Triangle:

Komkhulu refers to the essential or the main home, typically referring to a ‘home’ in a rural area. The word suggests the ‘home of the forefathers’. The word is inextricably bound up with one of the ways in which ‘land ownership’ is understood in Zulu tradition. It could be said that land is not ‘owned’ as an asset class, as we have come to know in the free market system. A home or property is not ‘owned’ by the individual; we are custodians for the next generation. Another principle that is central to AmaZulu is the idea that ‘a man does not own a house until their spawn builds them a house’. There is an inherent notion of ‘paying it backwards and forwards’.

Ukwenana is a phrase that is slowly evaporating from everyday parlance, especially in the urban context. It is used when a neighbour

asks another for rations or food supplies. This word, however, is devoid of the credit and debt baggage we associate with lending and borrowing. It does not imply that the ration is expected back, nor does it imply that the receiving neighbour is indebted to the giver. One can obviously understand how such a word evaporates from everyday speech in the city, especially in a capitalistic state. Yet, this word is a lesson in social relations and how the past generations thought of resourcing and neighbourliness. This finds particular focus in Mvuselelo Ngcoya and Shauna Mottiar's (2016) publication, *Philanthropy in South Africa: Horizontality, ubuntu and social justice*.

Ukwefesa refers to a popular custom that survived up until the late 1990s. This was the act of extensively 'walking the city' looking for employment, typically walking from one factory gate to the next. I think of this as a form of map-making. A kind of 'epistemic walk' through which the walker mapped the city, felt the temperament of the city, cartographing it from their own imagination and introducing an entirely new legend and new markers to the city – a legend that the cartographers of Durban would need to contend with. I am still aggregating the map of this generation. It has been challenging to find an authoritative source to cite on this word [*ukwefesa*], but *Eyethu News KZN* is worth mentioning, as they reported on a case of three black men beaten up as they approached a commercial property seeking employment (Dube 2018). The article makes use of this word in its headline and repeatedly refers to it. This article also highlights the precarity and brutality of *ukwefesa*, to walk the city for days on end looking for employment. It is different from the undertaking of the *flâneur* or the *dérive*. *Ukwefesa* is a very particular experience applicable to very particular subjects who find themselves in the belly of the beast that is the city.

Inkaba yedolobha is a phrase that, if we think of the city as a dynamic agent, a living organism or a kind of functional body, is radiant. *Inkaba yedolobha* is used to refer to the 'centre of the city'. Linguistically, it means, approximate, the 'navel of the city' or, better said, the 'life force of the city'. This term informs us that black folk were building a rapport and making their own semblance of the organism that is the city. *Inkaba*, the navel, symbolises origin, life force and a vessel between two entities (mother and child). So much so that the elders ask the question '*ikephi inkaba yakho?*' That is, to ask, 'where is your essential home?' or, even better put, 'in which land was your umbilical cord buried at birth?'. The burial of the umbilical cord is a sacred custom among AmaBhinca. It can be understood as a binding between the human and the land or the homestead – this is how you become one with the land. In a traditional Zulu homestead, which is often a spacious site, what is called '*inkaba yekhaya*' [the centre-point of the home] is where the kraal for the cows is situated; it is also said to be the

place where the ancestors are gathered. There is a rich narrative to draw from *inkaba*, the navel, and how it came to be used to describe the centre of the city. If we take the symbolic meaning and relationship of *inkaba* [the umbilical cord] to space, what symbolic meaning could be applied or derived from '*inkaba yedolobha*', which translates to 'city centre' or the central place, perhaps better stated as the life force of the place (Nyembezi & Nxumalo 1966, p. 39).

Finally, what is a Zulu -or, more precisely, iBhinca - family's homestead without *umsamo*? In a spiritual dimension, one could draw a line of correlation between *inkaba* [umbilical cord] and *umsamo*. *Umsamo* is a designated place in the interior of the home, a kind of altar or shrine at the back end or corner of the room; it is the place where the family addresses their ancestors. This is to say, there is a force of material life and the afterlife that inhabits *inkaba* and *umsamo*. So, this is how I speculate towards knowledge-building through various dimensions of black existence (*AmaZulu*, in this case). I am attempting urban theory informed by local traditions.

For myself, I think of Warwick Junction as *Umsamo weTheku* [the spiritual place of Durban].

The history of Warwick during the bleak days of apartheid is registered as a transport node for black citizens and then morphed to become an important site of trade for traditional medicinal herbs, among other items required to engage with the afterlife and transcendental practices of Nguni peoples. It is a place that, in many ways, has its own code, manner of behaviour and rules to be observed. In other words, Warwick facilitated the material needs (of mobility) during the oppressive regime and since the 1990s adorns an expansive mural of Nomkhubulwane (the goddess of nature, rain and fertility) on its main arterial road, looking over her children. Above this main road and Nomkhubulwane is where the black body finds the ingredients [*imithi*] necessary for the transmission of messages to those in the afterlife. This is the Durban I come to find after I have de-centred Sir Benjamin D'Urban. My aforementioned project, *Umongo wedolobha* [the marrow of the city], was looking to undo history in this way and speculate upon it in order to arrive at a different interpretation of *inkaba yedolobha*.

I am using this vocabulary to formulate an urban theory built purely from isiZulu, without needing to borrow from the occidental world. This is but a small example of how I have started to engage with the city of Durban through the language of isiZulu. And if I could expand this vocabulary and engage with its fundamental meaning, could I shift my understanding of the place and space of Durban? In other words, if I heed Wa Thiong'o's (1987, p. 29) thoughts on the fertility of language and let isiZulu tell me how

the its imagination constructs place, could I apply it to Durban and aggregate this work with other thinkers and practitioners from other regions concerned with the same questions? To work at this level of nuance goes beyond the instructive function of language and speaks to people at a fundamental level, resonating at the intuitive and subtle place of one's identity.

I think that Ngũgĩ wa Thiong'o is urging us to rescue our languages so that they too are adequately equipped to maintain a conversation about urban theory or technology without needing to borrow from English. I now transition into the space of technology while holding the importance of language, although inviting a much more expansive network of ideas.

■ Technology in African history and traditions

If the zeitgeist of the present-future is technology, this field is poised to have the most fundamental and pervasive reach in human activities and most other living entities, such as plant life and animal life, given enough time. The question to African leaders and knowledge-makers, then, is: What does technology do for us, what does it take from us and what does the opportunity cost?

We need not rush to answer this question. In fact, before answering this question, it might be useful to start by looking for a definition and tangible traces of technology within the ambit of our own (African) history and traditions. This, however, requires us to think of technology beyond hardware and software. Our work as practitioners is to place a different set of demands on technology. The digital space is already colonised by a set of early arrivals on what was the neutral Internet. These colonising agents, within a very short space of time, have determined and laid the parameters of the Internet. They have also monopolised the currency that flows through the new empire. The temptation for African leaders to assimilate and move with the Silicon Valley (Los Angeles, California, USA) narrative is very tempting. However, we would be entering into a game where the rules were long established and often levelled to cripple and underserve us, if not outright exploit us in the rush to 'catch up' with the West, yet again. Let us look at the definition of digital colonialism offered by Danielle Coleman (2019) in his academic journal article 'Digital Colonialism: The 21st-century scramble for Africa through the extraction and control of user data and the limitations of data protection laws'. It starts with (Coleman 2019):

[E]arlier colonialists arrived on African shores to expand their empires by exploiting local labor to extract valuable natural resources and raw materials,

building critical infrastructure like railroads in the process to facilitate the import and export of these often-disposed goods [...] [T]oday's colonialists, however, are digital. They build communication infrastructures such as social media platforms and network connectivity for the express purpose of harvesting data, churning a profit, and/or storing the data as raw material for predictive analytics. (n.p.)

The signs are clear: we are at a scary precipice. The patterns of colonialism as defined earlier are the same, whether on land or through smart devices.

'Techno-capitalism', a term coined by Professor Luis Suarez-Villa early in the race, has already reproduced the patterns of racial bias where black faces have been alienated by machines that have not been programmed to recognise black faces. There have been growing concerns in the USA that bias algorithms provide skewed data based on users' residential address and their online acquaintances. An aggregation of these cautionary statements rings the alarm that we are already late. The current digital economy is one where Africans and the black diaspora are more consumers of 'content' than producers of it. Though this is slowly changing, we are still a long way from playing in the digital economy at some 'industrial' scale. The means of production and distribution are controlled in the West, with China and Russia also rapidly building momentum.

Furthermore, it would be short-sighted of us to think that the recent technology-led confrontations between the USA and China will not have implications for Africa, especially with the growing 'investment' by China across the African continent (Shepard 2019). In other words, unless we develop locally grown digital companies, build sophisticated policy frameworks and invest in our own infrastructure, it will be difficult to gain autonomy in the markets of the future.

Africa seems to book-end the value chain of technology. The main ingredients needed to build and house the hardware of mobile phones and laptops are mined around the region of the DRC. These are then distributed worldwide to retail at markedly higher prices. Once exhausted of their market value, the electronics are sent back to the e-waste sites scattered across the continent. The work of German documentary photographer Kai Loffelbein provides evidence of a heavily distorted world of technology operating undercurrent as he photographs e-waste dumpsites across Africa and India for his ongoing project, 'CTRL-X', a topography of e-waste (Loffelbein 2018).

Another artistic project, closer to home, does a wonderful job of problematising the relationship between raw materials deposited under African soil against the unmitigated ambitions of Silicon Valley. It is the work of Jean Katambayi Mukendi (2018) (DRC) with his project, *Grey and Green Speculation on the Accident and the Oxidant*, which shows in plain

sight the fallacy that technological advancement benefits everyone. The Senegalese French curator, Oulimata Gueye, lays the explosive terrain onto which Mukendi's work can best be understood (Gueye 2019). Mukendi works at the intersection of science and technology, futurology and the humanities and conceived the aforementioned project under the Digital Earth residency (2018–2019).

Mukendi sought to investigate the promise of the 'green future' and its environmental benefits purported by the Tesla company with its electric cars. What Tesla has conveniently ignored, however, is the negative environmental impact that recurs as hauntings of excavation projects in Africa. A 2017 paper by Makua M Pretty and Kola O Odeku (both from the University of Limpopo in South Africa), titled 'Harmful mining activities, environmental impacts and effects in the mining communities in South Africa: a critical perspective', highlights the ramifications of mining on South African communities. Other technology companies, such as Apple, have been subject to criticism for the working conditions in the mining plants that extract their raw materials and the daily terror that nearby communities have to endure while working on these mines. Just this one example demonstrates that, in fact, the technology tide does not lift all boats – or, at least, not all lifted boats glide over calm waters.

In writing on Mukendi's work, Gueye (2019) offers us the mode of thinking critically and productively about technology on this continent. It is to prioritise the needs of our contexts before satisfying the insatiable appetite of advanced capitalism, controlled by Western forces. Gueye (2019) writes:

[*Mukendi*] conducts complex research on the flow of physical or spiritual energies that govern the world and creates electrical systems from sophisticated calculations. His universe is nourished by the utopian origins of the Internet culture namely: the sharing of knowledge, the praise of DIY [*do-it-yourself*] and the intelligence of the margin [...] He develops sophisticated electrical mechanisms integrated in fragile and beautiful conceptual installations. These imaginary drawings and machines could be technological solutions to daily problems in Congolese society, if we accept to go beyond the usual and strictly rational framework of apprehension. (n.p.)

Speaking beyond the theoretical framework of the project, Gueye (2019) proceeds to say that:

[...] study involves research, as well as critical and speculative design, community design and performance. The central element of the project was the construction of a replica made of copper and recycled iron wires to the scale 1 of a Tesla, the most publicised symbol of the future electric car.

Its main activity is the extraction of copper, cobalt, zinc and uranium. It is uranium from the Shinkolobwe mine that would be used to make the first atomic bomb.

If the future of the electric car lies largely in the DRC, lies the future of Congo in the Tesla? Why the exploitation of resources such as copper, cobalt, coltan has not allowed the country to develop its own infrastructure, leaving foreign companies the monopoly on exploitation of its own resources? When will the Congolese ride in the famous electric cars?

One could see in this performance the symbol of a poetic, political and metaphorical attempt to break the infernal relationship that binds the Congo, supplier of raw materials, to the West, producer of haunting technologies that awake desire but which in fact only enslave the poorest part of the population that provides the labor of the mines. (n.p.)

We shall again depart from the overtly political grounds of techno-capitalism and ascend to a dimension beyond binary web codes and screen time. We shall meet technology in the spiritual and metaphysical world, an area that is of great interest to me and one in which I am also actively working.

How can we think of our ancestors and their ancestors, our ancients, as makers of technology? I think they are makers of a spiritual technology that operates beyond telecommunications, although communication systems are involved there too. However, I would think that these communication systems are transcendental and, at times, sacred. If this position sounds farfetched, then we could return to draw from the intellectual work of Zimbabwean musician and digital artist, Joshua Chiundiza (2020), who questions and answers himself on the contribution of Africa to the field of technology. He reaches to his ancestry and postures the humble, yet potent, *mbira* (a musical instrument of the Shona people of Zimbabwe) as a tool of technology, albeit not in the way that the music business might understand it (as a technology). More specifically, the *Mbira Dzevadzimu* [*Mbira* of the Ancestors] is the specimen that the Shona people play 'to remember, not just for the sake of memory, but out of a need to progress' as he puts it (Chiundiza 2020).

Implied here is the notion that 'recollection' – or 'memory', to use a technologically savvy term – is not only about our past but also our future. This can be understood in the ways in which some African people might think of a newly born baby as the return of a spirit or an elder, intimating a realm where time is not linear. Chiundiza (2020) reflects on his installation at the 2018 Fak'ugesi African Digital Innovation Festival exhibition in an article titled 'To remember is to innovate', describing it as:

[...] an installation art piece inspired by the *mbira*; synthesized *mbira* recordings exploring the connection between the living and the ancestors. This device, a technology that was created by the Shona to communicate with the spirit world, is more a mode of striking a balance between the functionality of life and of that which sustains it. Is that not the essence of science and technology? (n.p.)

African innovation finds its authentic voice in the expression of its rich oral traditions, innovations struck within the balance of the natural world and personified in the inventions of human creativity. Still, at each point, locating and acknowledging the ancestors. For example, hunting rituals for the Shona were strictly administered by chiefs and spirit mediums, with the mediums (in particular) giving instruction on which materials to use for making hunting technologies like bows and traps and what times to conduct the hunt. The emphasis is on creating technology and applying it in ways that are consistent in maintaining a balance between sustainability, functionality and harmony with nature.

Chiundiza (2020) continues to state that:

[S]cientists at the University of California (Riverside) modified the *mbira* to create a sensor. This *mbira* sensor detects harmful substances and fake medicines. Frequencies from the sound of a musical instrument are mainly influenced by the physicality of the instrument. So, by measuring the frequency of a note, one can learn more about the instrument's framework. By replacing the *mbira*'s metal tongs with a V-shaped metal tubing and filling the tubing with a liquid sample, plucking and recording the sound from the sensor (via mobile smartphone) enabled William Grover and his team to measure the density of the liquid sample by analysing the frequency of its sound (using a free software tool). The *mbira* sensor was able to successfully distinguish between diethylene glycol and glycerol – two chemicals that are often mistaken for each other in the manufacturing of medicine. (n.p.)

Chiundiza and Mukendi approach the topic of technology with starkly unique yet complementary methods, with one (Mukendi) problematising the global promise of a utopia based on the exploration of minerals from African soil for the incredible growth of Silicon Valley and China's technological industry, whereas Chiundiza transports us to consider the spiritual and ancestral realm where technology might also operate from what we consider 'basic' or 'crude' instruments of the 'past'.

At the crossroads of these two artistic postures, we find Kenyan thinker and writer Enos Nyamor, whose expansive and deep work in indigenous and digital systems brings these approaches into proximity with one another. In his piece, 'To speculate is to remember' (Nyamor 2020a), he begins:

[A] reimagination of what it means to have an African ontology, especially in the cyberage, must retrace steps back to this instant of cultural obliteration.

The discovery of electricity was one of the turning points. But electricity existed in nature and there was only a need for those involved to invent ways of harnessing this energy for practical purposes. But a question that was never asked was, 'Does electricity embody a non-human consciousness?' And if so, was it foreign to African consciousness? Answers to these questions lie in an understanding of African ontologies, and, in how things have always existed independent of humans.

Computers have become the new mediums, and this is the origin of the term media. In some African societies, mediums play a critical role. They communicate with the spirit world and then translate these messages into forms that humans can comprehend. The primary distinction between the use of mediums, and the use of computers, is that the mediating factor is that of human consciousness. In contrast, computers are intrinsically representative of non-human consciousness. And so, based on this analogy, the digital age is that in which the medium has gained a non-human consciousness, can be reproduced, and relates mainly to nature and matter, rather than the spirit world. (n.p.)

I now bring into focus another essay by Enos Nyamor (2020b), titled 'Towards New Metaphors of Consciousness':

The question of technology in Africa is charged with a sense of relentless speculative urgency. It is still entangled in and confined within the limits of economic growth, mainly as an indispensable tool in the continent's industrialization and modernization. If posed within this economic framework, speculation about the future Africa is restricted to technicians, economists, and policy analysts. Yet an unprecedented and increasing interest in digital arts from Africa, at home and internationally, is generating new metaphors for technology in the process of reimagining African nature and forms of being. (n.p.)

In this piece, Nyamor (2020b) draws from the *mbira* work of his peer, Chiundiza, and offers the following statement:

Using recorded samples of *mbira*, a traditional instrument from Zimbabwe, Chiundiza's project reclaimed a spatial relationship with the spiritual realm, reinventing cultural practices through a material, electronic medium accessible to younger generations.

This augmented reality installation, recreated the effect of taking *lboga*, dried roots used among the Bwiti tribe to induce hallucinations during communal ceremonies. It was a metamorphosis, an awareness of a lightness of being, that this work achieved and which presented a salient model of what technology, and digital arts in particular, can achieve in the process of reconfiguring communal values. (n.p.)

The appeal in the works of Enos Nyamor is his ability to provide a completely new terrain within which we could understand the fundamental relationship between technology and Africa.

At the tail-end of Nyamor's work, I would like to introduce my own film project, titled *Ifu Elimnyama: The Dark Cloud* (2019). This work was inspired by an earlier group project titled *Vernacular Algorithms* (2018), which was set to rethink the tradition of beadwork as a practice of technology. As a quick orientation, beadwork from the Southern African region is an age-old practice among women who weave intricate patterns, shapes and colours to 'code' messages at critical stages of a woman's life. These motifs and assemblage of styles through beads are quite regionalised, ranging from Kwa-Bulawayo (Zimbabwe) to KwaZulu-Natal and are further regionally specific in the province of KwaZulu-Natal. This is to say, the 'codes' in the

messages contained by these beadworks are not ‘transferrable’ from one region to the next. Given this relationship between ‘coded beadwork’ and software code, we sought to aggregate these vast styles of beadwork as an investigation to establish whether we could develop a coherent coded language of this tradition. And, if this were possible, how might we transpose this beadwork to an elaborate binary code on a screen? This is just one way in which a deeply specific practice of coding through beadwork and coding for screen had encountered each other, an embodied knowledge intersecting the ‘institutionalised’. I am hoping this helps us develop our own vernacular of ‘coding’ without needing to borrow from Silicon Valley and, furthermore, allows us to chart yet another pathway where Africa lays claim to technology on its own terms and where the conditions are in our mother tongues.

This work, *Ifu Elimnyama: The Dark Cloud*, led me to expand the field of focus from the *Vernacular Algorithms* (Faku’gesi 2018) project as I recalled folkloric narratives that my grandmother deposited in me as a child. It felt to me that my interest in the field of speculative fiction, Afrofuturism and advanced technology only led me back to the childhood stories of my grandmother. It was at this point that I understood that the future had long been invented in Africa, and that there are forms of technology that we have to familiarise ourselves with as young African people. Concepts such as time travel, cyborgs (the post-human), deep-time, manipulation of natural laws and coercion of weather systems are all very familiar practices, but it would be a disservice to our folklore for us to solely attribute these to science fiction when these can be made legible through our traditions. The film *Ifu Elimnyama: The Dark Cloud* set to recalibrate this distance between science fiction and Nguni folklore by way of utilising Zulu cosmology, mysticism and systems of transcendence. In the film, these practices are then placed within a digital framework. The film’s materials are figures such as the cryptid serpent called *inkanyamba*, *imincwi* (post-human forms composed of spirit and electric form), *Nomkhubulwane* (goddess of fertility and nature) and *ifu* (advanced, metaphysical digital cloud), all set in the kingdom of Mapungubwe in the year 1210.

This work continues to provide me with an ever-expanding terrain to rethink and situate technology within my people’s history and lineage. It also allows me to work across a wide spectrum of fields.

Lastly, we created an extended list of isiZulu words to describe technology terms, and these words are steeped in an isiZulu language order. Some of these words are:

- Global positioning system (GPS): *umkhombandlela*
- Network systems: *uchungechunge*
- Cloud: *ifu*

- Fourth dimension: *isigaba sesine*
- Post-human: *umuncwi*.

To conclude this section, I have attempted to triangulate Chiundiza's work (on the *mbira*), Nyamor's writing practice (on indigeneity and technology), as well as my own work in order to map a growing network of cultural workers making pathways into the future while using the (long) past as an important 'GPS' coordinate for this process. We then visited the issues caused by Tesla in the DRC through the curator, Gueye, and the artist, Mukendi. I think we will struggle to strike a productive relationship with technology as long as we perceive it as a Western invention that ought to be imposed onto Africa purely for capitalistic pursuits without an ontological basis. The moment of Western conquest disrupted these practices and erased their history and, therefore, their transmission to contemporary society. Some centuries later, we find ourselves in the entanglements of a digital world pregnant with the colonial ideology of the material world. Our embodied knowledge is a fertile ground of history onto which we radically reimagine technology and its politics. This fertile ground presents itself as a cartography of fractal traces, folklore and mythical figures and, indeed, indigenous language systems. The ruins of history offer a host of unresolved traces which, in some ways, enable us to think of the Global South as a site rich with pre-historic technologies. It is on this basis that we invoke a new system of thought that might allude to a more productive and equitable arrangement of technology, its tools and structures. A system that accounts for humanity's multi-dimensionality and proposes a new digital political economy.

■ Conclusion: Speculative dimensions

We have navigated the terrain of language and the work that remains for us to invent a taxonomy that elevates local languages so that we begin to talk about black urban subjectivity without needing to borrow from English. Maybe, just maybe, we might reconstitute the relationship between the black subject and the city.

What I have proposed here is two fields, language and technology, where I have intercepted both using a speculative method. Language, for me, is a pipeline to an erased history, and it mobilises a set of ideas that the makers of that language subscribed to and aspired towards. It becomes even more important to work with language when considering our folkloric form of knowledge transfer. This also valorises our knowledge system in a global order where Western thought is (over)valued beyond all else. Western knowledge has been enforced and has created a long runway in Africa and, till now, it has failed to solve problems for African people in

ways that are equitable, humane and sustainable, so another way has to be made possible. What could happen if this discourse might extend to other fields such as medicine and justice, for example? The question remains, how will we mobilise these ambitious ideas with a broken or ailing political structure that has little desire to implement novel approaches? This collaborative, speculative and interdisciplinary work is active in the cultural sector, but how do other fields connect with this web of production and constantly extend this work?

The topic of technology is a question about the future, but in Africa, it is also a question about the long-past. Yet, how does one access a pre-colonial (Southern) Africa or any other context (that suffered the disruption of colonialism) where the 'written' evidence of their history is so scant? One of the few methods is the speculative approach, which is to assemble seemingly unrelated particles from the ruins of history to model African futures. But this demands that we conjoin disparate fields of knowledge, which are typically not thought of in the same breath, in order for us to arrive at new propositions.

Embodiment is an episteme with strong and old roots in some parts of the continent, and we encounter this embodied knowledge through present-day sacred rituals while we speculate on the possibility of this embodiment through the field of technology. Counted among these are practitioners who work with the subtle healing qualities of plants, diviners and transcendentalists.

I have tried to enter this conversation from the perspective of an artist, not an academic. I have attempted to draw from other communities that are producers of knowledge rather than only referencing academic papers and established research. Such work comes with its challenges, as the references are not easy to verify, but this is exactly the kind of engaged practice that I feel builds bridges between institutionalised knowledge and decentralised repositories of wisdom. Our intellectual enquiries have to try harder at developing conversations with the knowledge that is situated in our localities and at the 'periphery'. I hope that these two seemingly disparate topics of language and (indigenous) technology have provided, perhaps not new ways, but another method to work speculatively in order to render new meanings to these common themes.

Section 3

Practice as theory

Care and well-being in the sustainable management of water systems in South African cities

Jody Paterson

NM & Associates Planners and Designers,
Cape Town, South Africa

Nisa Mammon^{a,b}

^aNM & Associates Planners and Designers,
Cape Town, South Africa;

^bAfrican Centre for Cities, School of Architecture, Planning and Geomatics,
Faculty of Engineering and the Built Environment,
University of Cape Town, Cape Town, South Africa

■ Abstract

This chapter explores an approach to managing water systems sustainably at various scales in the South African city context through the lens of professional practitioners in the urban planning and design fields. As water and land are inseparable, access to water through land planning and design is a crucial consideration as far as water resource and systems management are concerned.

How to cite: Paterson, J & Mammon, N 2023, 'Care and well-being in the sustainable management of water systems in South African cities', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 103-130. <https://doi.org/10.4102/aosis.2023.BK323.05>

The exploration uses Armatya Sen's freedoms approach and Ash Amin's 'good city' work as a theoretical framework to interrogate the sustainable management of water as a resource from a public good, care and well-being perspective. The chapter puts forward the proposition that water is presently crudely regarded as an infrastructural element with largely economic value rather than having an intrinsic value to human and other life forms in the South African urban context. It asks: what may be required of us as caring practitioners in the built environment to improve urban dwellers' relationship with water and ensure their well-being?

The chapter uses case studies to illustrate how a changed approach to managing water might help to build healthier cities and urban communities. While the case studies in this chapter do not cover the full range of socio-economic and development conditions, we acknowledge the varied nature of South African urban contexts from informal to formal areas, places of poverty to places of opulence and differing development contexts including compact urban centres and low-density suburban peripheries.

■ Introduction: Water, life and cities

When water flows from the high ground to the low ground, over land in streams and rivers and into the ocean in its natural role, it can be facilitated to serve societal needs. Of all the city flows (traffic volumes, human waste, information flows, etc.), water is the most important, particularly in its natural state. It not only evokes a sense of aliveness when experienced in flow but also supports life in all its diverse biological forms. We believe that water should be treated with much greater respect and reverence than as just an engineering service. Later in this chapter, we suggest that when rivers and other water features are permitted to shape and form their own boundaries, they can protect their intrinsic roles and their ability to allow human flourishing and support other life forms. Later on in this chapter, we suggest that when rivers and other water features are permitted to shape and form their own boundaries, they can protect their intrinsic roles and their ability to support other life forms. This is critical to support the making of more sustainable and healthy cities.

■ 'Politics of care': Sustainable drainage systems as a water management tool that embraces well-being

Sustainable drainage systems (SuDS), as a water management approach and concept in urban planning and design, is integral to the practice of spatial planning and design. Sustainable drainage systems helps us to view water as a critical resource through a new lens of respect. We therefore

believe that SuDS needs to be placed on the South African urban planning and design agenda so that professions in the built environment, institutions and regulators can ensure that SuDS is embraced as a city-making tool to not only manage storm water runoff but also to contribute to the strategic goals of urban policies such as the *Integrated Urban Development Framework* (COGTA 2016), which promotes spatial integration, inclusivity and access, economic growth and social well-being. The central focus of this chapter is that we should adopt an alternative ‘Politics of Care’ approach to ensure that water is managed and invested in for the greater public good.

In South Africa, municipalities’ investment in infrastructure still focuses largely on hard technical engineering services and transport and less frequently includes place-making and flood alleviation projects using parts of existing green open space networks. According to Woods Bollard et al. (2015, p. 6): ‘Sustainable drainage systems are designed to maximise the opportunities and benefits we can secure from surface water management’. As such, SuDS can play not only an essential infrastructural role but also contribute to the flourishing of human and other forms of life.

Furthermore, in the context of planning for climate change and urban resilience in local urban contexts, we argue that SuDS is a non-negotiable urban planning, design and management tool in our country. As noted in the *Daily Maverick* (Green et al. 2018):

[T]he big picture here is what climate scientists and geologists call ‘the Anthropocene’ - this era in which humans (‘anthropos’) change ecologies to such a level that they change Earth systems. (n.p.)

The case studies cited later on in the chapter begin to highlight the challenges pertaining to these issues and opportunities for managing water more wisely, more respectfully and with a view towards sustaining our urban conglomerations and the lives of the current and future generations they support.

■ The law versus citizens’ rights: Water management as an approach for inclusive cities

Here, the case is made for alternative water management approaches through the lens of theories that support more inclusive cities. Whereas Section 24 of The *Constitution of the Republic of South Africa Act 108 of 1996* (Republic of South Africa [RSA] 1996) is dedicated to the environment and protection thereof, Section 27 promotes the right to health care, food, water and social security. Section 27(1)(b) states that ‘everyone has the right to have access to sufficient food and water’. In terms of Sections

24–27 relating to rights associated with the environment, property, housing and health care, food, water and social security, ‘these sections often clash’ (Govender & Mammon 2020). The clash that the authors are referring to encompasses two kinds of clashes: clashes in terms of the law and often constitutional law, and clashes in terms of rights in law, that is, rights bestowed on citizens by the Constitution and other legal instruments of the country.

Both these clashes, in respect of law and in respect of citizens’ rights happen because we view society and the city through the lens of separateness; separate sections of the law, for example Sections 24, 25, 26 and 27 of the Constitution, separate rights, for example the right to access food and water from the right to access land and housing, yet to be well and whole as a people, we need access to food, water, land and housing among other things, as ecosystems that make us comfortable and whole – this is in direct opposition to aiming for, and residing in a survivalist mode, as the poor often do – and as our policies often dictate. Having access to these basic items and services may allow the individual to know what it means to be ‘free’ (Sen 1999).

Armatya Sen (1999) argues that there are two key reasons for the importance of individual freedom in considering development (as freedom). The first is that substantive individual freedoms should form the basis for evaluating a society’s success; the second is that substantive freedom is a key determinant of individual initiative and social effectiveness. Sen (1999, p. 18) reflects on the notion of ‘capabilities’ – citizens should be able to lead the kinds of lives that they value and have reason to value, which we believe is the author’s basis for freedom. These capabilities can be directly enhanced in our view by public policy that promotes the use and management of water at different scales in the city and the integration of land-use planning and design as a vehicle for doing so. While Sen’s focus is on individual freedoms, this chapter tends towards the collective value of access to water and argues for SuDS as an integrated land-water approach towards securing water, with ease, for all citizens as a component of collective freedom. As water and land are inseparable, access to water through land planning and design is a crucial consideration for an effective SuDS approach. The case studies further on in this chapter demonstrate the interconnectedness between land, water and housing.

Our expectation of the city is to give us access to what we need and to feel free, at least to some extent. It evokes a conception of the city as a ‘good city’ (Amin 2010, 2006) – a good container of human and other life and well-being where urban planning and design can play a major role in shaping city systems for public and societal benefit. But, like other water-related and infrastructural approaches, SuDS is not framed within a robust

theoretical framework that firstly embraces citizens' pursuit for wholeness, well-being and feeling cared for; and, secondly, acknowledges the need for water to flow more freely and naturally across our urban landscapes. In fact, SuDS, true to its origins in the scientific and engineering domain, is often framed or evaluated in terms of economic principles, rational logic and regulating lenses. This reduces SuDS to a set of fragmented, technically manipulated solutions that are unable to play the multi-functional roles that can add value to peoples' daily lives, address Sen's freedoms and allow citizens and communities to thrive.

The economic evaluation methods⁶ used across the world to quantify the monetary value of natural assets and ecosystem services are useful to state authorities responsible for the protection of the environment, as they elevate the role of natural areas, rivers and water bodies. These methods of calculating the economic value of ecosystem services address the historic resistance to protecting and investing in natural assets, especially those within urban areas. The Economics of Ecosystems and Biodiversity (TEEB) (2021) supports countries across the world, such as South Africa, to explore means of elevating the value of ecosystems. While acknowledging the limitations in putting a value to nature, it is clear that the objective is 'making nature's values visible'.⁷ The TEEB work is mostly focused on studies, assessments and analysis of ecosystems at the national and provincial levels and has not extended into the municipal sphere.

To test the economic evaluation method at the municipal level, the City of Cape Town (CoCT) undertook a financial evaluation of their environmental resources. Their study set out to prove that capital and operational costs to sustain natural areas within the city could be in the metropolitan authority's interest from not only an ecological point of view but also from an economic point of view. Environmentalists have often been seen as 'anti-development', but the study suggested that the role of natural areas could play a key infrastructural role, which in the long run would ensure citizens are serviced and safe from the effects of climate change, while also acknowledging the psychological and social value of natural areas. (Cartwright and Oelofse, cited in eds. Culwick & Bobbins 2016). The method informing the CoCT's evaluation is the World Bank approach, which required the following to be valued (Cartwright and Oelofse, cited in eds. Culwick & Bobbins 2016):

1. Natural hazard regulation (buffering function performed for flooding, fires and coastal surge/sea level rise).

6. Economic evaluation assumes that all costs and all benefits of a project, such as a SuDS intervention, can be quantified and translated into the same value measure.

7. See <http://teebweb.org/where-we-work/>.

2. Provision of natural characteristics that are conducive to tourism and recreation.
3. The improvement of water quality and the assimilation of waste.
4. Provision of space for globally important biota.
5. The aesthetics and sense of place provided by the natural environment.

The five roles identified above acknowledge the wide range of potential benefits of natural areas and systems within urban environments. The study entitled, *Investing in natural assets: A business case for the environment in the City of Cape Town* (De Wit et al. 2009) estimated that if 2%–4% of the asset value of existing ecological systems should be spent on maintenance annually, this could lead to savings in hard infrastructure solutions that are called for when built infrastructure systems fail (De Wit et al. 2009).

EThekweni is the only other municipality in South Africa that has undertaken studies of a similar nature. In the late 1990s, EThekweni used a mapping exercise with officials to reimagine the role of open space. Looking mainly at untransformed space, they applied values to the areas. Their finding was that ‘the services supplied by these green assets saved the city one-fifth of the annual municipal budget which was largely through avoided replacement costs’ (eds. Culwick & Bobbins 2016).

At a later stage, EThekweni undertook a cost-benefit analysis (CBA) to determine how to prioritise the implementation of climate change adaptation strategies *but* (eds. Culwick & Bobbins 2016):

[T]his demonstrated the inappropriateness of a monetary valuation process because it did not consider the number, the socio-economic context, or the people who would benefit from the various adaptation strategies. (p. 61)

In 2012, they did a further evaluation exercise to assess whether they could use desired ecosystem service levels to guide catchment planning. Participatory systems modelling was used to assess relative levels of service provision by habitat type. Indicative values versus monetary values were used to prioritise the ecosystem services using a human-benefit index which successfully managed potential conflicts by avoiding ‘the apportioning of blame or responsibility’. However, this often leads to inaction and the temptation to follow conventional paths.

The Urban Settlement Development Grant (USDG)⁸ supports the idea of greater funding coherence and integration across sectors. The USDG proposes that (COGTA 2016):

[C]onservation or restoration of ecosystems provides cost-effective options for climate change adaptation and disaster risk reduction. Healthy catchment areas

8. The USDG is a financial instrument that supports existing human settlement and built environment programmes.

outside cities and green open spaces within cities help to slow the flow of water and increase its infiltration. Furthermore, infrastructure should be constructed in a manner that makes communities less vulnerable to disasters and strengthens their resilience. (p. 74)

Between the IUDF and the USDG, as well as other legislation and policies, there is support for municipalities to consider approaching the delivery of services differently, taking into account the values of a good and caring city.

■ Integrating care politics with evaluation models: An alternative approach

While Sen's (1999) freedoms approach talks to individual freedoms as important means and measures for evaluating a society's success, Amin (2010) states why interventions in the 'urban unconscious (public space, infrastructure, services, technological and built environment, visual and symbolic culture)' (Amin 2010, p. 3) play an important role in regulating social responses to difference, in particular, how such interventions can bring together numerous different elements ('the distant and the proximate, the virtual and the material, the present and the absent') (Amin 2010, p. 4) into a single space. Recognising water as a system, SuDS works at different scales and can be adapted through careful planning and design to different contexts which is not the case in 'grey infrastructure' approaches. As stated earlier, unlike conventional engineering approaches to water management, we believe that SuDS can play an important role in supporting context-specific solutions that respond to specific environmental and societal needs in our cities.

Amin (2010) suggests that we cannot just hope for a politic of togetherness based on community cohesion, cultural legacy or shared sense of place any longer because our modern cities are so much more complex than this. What this means in practice is that we need to understand and work in the spaces where differences appear. Sustainable drainage systems once again provide the opportunity to use water as an element that can structure spaces and places where difference is welcomed. One way of doing this is by employing an ethic of care to not only understand specificity, context and relationships but to allow all citizens to shape urban spaces, places and life with a view to expanding human benefits and achieving a sense of freedom for urban citizens.

Amin's reference to a politic of togetherness can be expanded to include a 'Politics of Care'. This term refers to (1) the argument that: 'crises are created by the relations of systems that are in their own turn created by

human beings and that should be able to be solved by human beings through political means' (Dassler 2016, p. 1); and (2) an appropriate and caring response to the most pressing needs and crises of our time such as poverty, hunger, the impact of climate change, disease and importantly, pandemics such as coronavirus disease 2019 (COVID-19) that the world is currently dealing with. We suggest that SuDS, as a response to water management, can be a caring response to potential crises such as water shortages and a lack of access to water, particularly for growing food for poorer households, women and children.

However, adopting a 'Politics of Care' approach that acknowledges the values that are intrinsic to reasonable human beings and an integral part of human meaning-making should not only inform the process of planning and design of SuDS but be adopted as a general approach to city-making. At the heart of this approach is the concept of 'care' as an essential ingredient to life in all its forms.

Applied to the political realm and decision-making related to resource allocations, the term 'care' requires a shift in human behaviour from being based on individualism and self-interest to being based on compassion and serving the public interest as opposed to private sector interests, unless these interests take the form of partnerships with government where the broader public good is the direct focus of such mutual interests. In so doing, we understand there to be a conscious and genuine effort on the part of state institutions and politicians to address needs such as land and water systems which are intrinsically linked to poverty alleviation, upliftment of the unemployed, easier access to basic services, etc., thus calling on political decision-makers to act in the interest of the collective in its varied forms.

The case studies presented in this chapter illustrate the relevance of this new approach and the importance of embedding SuDS as a valuable and essential component of our ever-growing urban centres in municipal-level planning.

■ Contextualising sustainable drainage systems

Sustainable drainage systems are not new. They have emerged out of a global move towards the making of more resilient cities in the context of climate change. Sustainable drainage systems are used extensively in cities across the globe to ensure that biodiversity is sustained and water as a critical resource is protected. South Africa is behind and struggling to embed it 'institutionally', particularly at local government level. The CoCT seems ahead in the game with policies and bylaws that promote and

require that developers use the principles of SuDS to structure their sites and servicing strategies. However, the principles are weakly applied at larger scales that would utilise the metro-wide natural systems as a backbone. The following situate SuDS in the global discourse around water management, starting with green infrastructure, of which SuDS is a sub-component.

■ Green infrastructure

There is no single definition for ‘green infrastructure’ nor a theoretical framework locating it within a larger body of urban theory but it is suggested that this is its strength given the need to be contextually informed and relevant (eds. Culwick & Bobbins 2016, p. 20). According to the Gauteng City-Region Observatory (GCRO), ‘green infrastructure’ is (eds. Culwick & Bobbins 2016):

‘The interconnected set of natural and constructed ecological systems, green spaces and other landscape features. It includes planted and indigenous trees, wetlands, parks, green open spaces and original grassland and woodlands, as well as possible building and street level design interventions that incorporate vegetation. Together these assets form an infrastructure network providing services and strategic functions in the same way as traditional grey infrastructure.’ (p. 7)

The GCRO’s recent work has been useful in better understanding the concept of green infrastructure within the South African context. They believe a green infrastructure approach can be used beneficially to inform the thinking around how to deal with infrastructure and servicing demand, management of environmental features embedded in the urban domain and job creation (eds. Culwick & Bobbins 2016, p. 12).

The World Bank is committed to investment in green infrastructure in order ‘to align with the United Nations (UN) 2030 Sustainable Development Goals’ and ‘to transition towards a low emission and climate-resilient economy under the *Paris Agreement*’ (World Bank 2020). Furthermore, the World Bank has acknowledged that to deal with the global infrastructure deficit, the solution lies not in spending more but rather in ‘spending better’ (eds. Rozenberg & Fay 2019, p. 27), which includes investment in nature-based infrastructural solutions, including SuDS. This proposition responds to firstly, the reality that fewer people can pay user fees (*BusinessTech* 2020) and secondly, that operational costs associated with grey infrastructure (water and sanitation specifically) generally exceed capital costs (eds. Rozenberg & Fay 2019). It has been suggested that only 60% of utilities in low- to middle-income countries fully cover operational and maintenance costs associated with infrastructure through user fees (eds. Rozenberg & Fay 2019).

In South Africa, this has particular relevance as a large percentage of the population do not pay for services provided by the municipality. Aggregate municipal consumer debts amounted to ZAR191.5 billion as of 30 June 2020, up from ZAR181.3bn reported in the third quarter of 2019/20, approximately 70% of which was from households (*BusinessTech* 2020). Research using data from the South African Living Conditions Survey 2014/15 has highlighted that of the 83% of respondents who receive water from municipal water suppliers, only 35% pay for water usage (Akinyemi, Fashogban & Mushunje 2018).

■ Water-sensitive cities

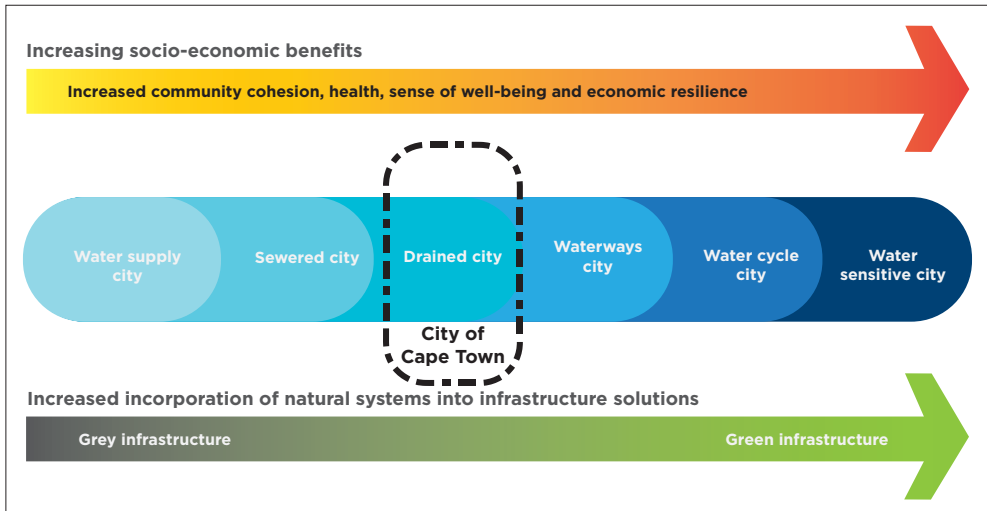
Water-sensitive design (WSD), which is an approach that is used to achieve 'water-sensitive cities' (WSCs), is another important concept that has been adopted globally to inform city infrastructure investment and planning strategies. The concept of WSCs is focused on holistic management of the water cycle as a single and integrated system. The concept is particularly relevant to drier regions such as Australia and South Africa. Large parts of South Africa are semi-arid to arid and have been experiencing drought conditions. According to the World Wildlife Fund South Africa (WWF-SA), South Africa is expected to face a water deficit of 17% by 2030 if one refers to the current usage trends, and this shortage will only be worsened by climate change (Akinyemi et al. 2018).

Notwithstanding the fact that temperatures in South Africa are rising faster than the global average: they are expected to be 3 °C to 6 °C higher by end of the century (Pasquini & Enqvist 2019), and that higher frequencies of flooding and drought events are predicted (Department of Environmental Affairs [DEA] 2018), our large metro areas are still predominantly managed with a focus on basic service delivery provision and issues of public health and flooding through significant investment in grey infrastructure. Based on Brown et al.'s (2008) water-sensitive transitioning framework, Cape Town presents as a 'drained city' with significant progress to be made towards becoming a more resilient urban system addressing a broader set of social and environmental challenges. This will require incorporation of green infrastructure solutions into citywide infrastructure networks (Figure 5.1).

■ Ecological infrastructure

Ecological infrastructure (EI) is another important concept or approach to the SuDS discussion. According to the South African National Botanical Institute (SANBI) (2020), EI refers to:

[N]aturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.



Source: NM & Associates Planners and Designers, Cape Town, South Africa, based on Brown, Keath & Wong 2008. Reproduced and published with permission from NM & Associates Planners and Designers, Cape Town, South Africa.

FIGURE 5.1: Cape Town's progress regarding transitioning towards water sensitivity.

It is the nature-based equivalent of built or hard infrastructure and can be just as important for providing services and underpinning socio-economic development. Ecological infrastructure includes healthy mountain catchments, rivers, wetlands, coastal dunes, and nodes and corridors of natural habitat, which together form a network of interconnected structural elements in the landscape. (n.p.)

'Ecological infrastructure' can be regarded as a sub-component of 'green infrastructure' but not the equivalent of green infrastructure as it does not include man-made and transformed green spaces and features. Regardless, both propose that green space should be valued for its potential infrastructural, social and economic role. What is important to note at this point is South Africa's commitment to protection of our natural environment at the very highest level in terms of the country's Constitution. Rehabilitation and protection of natural habitats is therefore often seen as a priority when planning SuDS.

■ Sustainable urban drainage systems

Sustainable urban drainage systems is a concept and an approach to managing the ever-increasing volumes of stormwater runoff from our urban areas with a focus on managing flood risk, addressing water quality while sustaining biodiversity and creating amenity. In the context of planning for climate change and urban resilience in local urban contexts, SuDS is a non-negotiable urban planning and management tool as it makes space in the city for 'soft green spaces' that mitigate against the 'Urban

heat island effect' and act as sponges, holding and releasing water more slowly than our hardened system of concrete conduits and engineered ponds. It allows for the celebration of water and enables a changed relationship between citizens and this critical resource to develop in time. It is clearly a sub-component of green infrastructure and sometimes, depending on its form, can be defined as EI. It is also essential as a tool to achieve a more 'water-sensitive city'. Water can be revealed in cities using SuDS as a planning and design tool.

Sustainable urban drainage systems can come in many forms but typically include vegetation of some form and shaped Earth to hold, slow down water flows and allow water to infiltrate into the ground. Sustainable urban drainage systems can include at-source systems that reduce stormwater runoff from individual sites, such as rainwater harvesting, roof gardens and rain gardens that allow water to soak away slowly. Sustainable urban drainage systems can also be continuous local and metro-wide systems comprised of river corridors, wetlands and *vleis*⁹. The local and metro-wide systems require combinations of individuals, communities and municipal authorities to play their part in not only the implementation but also the ongoing maintenance of the systems. Municipalities also have to sometimes request deviations from city policies, such as in the Liesbeeck Parkway example (CoCT 2020). Sustainable urban drainage systems is fundamentally related to the flows of water and therefore need to be conceived of as a set of spaces and linkages comprising systems at different scales. Critical concepts that inform the approach to implementing SuDS therefore include scale and connectivity (Cilliers 2019; eds. Culwick & Bobbins 2016; Hansen & Pauleit 2014). Multifunctionality is another critical concept that informs SuDS.

The potential for the multifunctionality of green open spaces, while allowing us to be more efficient with land, presents great challenges. This is especially the case where there is weak governance (O'Farrell et al. 2019), where there are high levels of informality, where socio-economic conditions are extremely different, there are extreme levels of poverty and deprivation and cultural preferences are varied (Cilliers et al. 2014; O'Farrell et al. 2019). O'Farrell et al. (2019) point out that:

[/]Issues related to social justice and the role that natural spaces and resources play in service provision that supports social upliftment and social cohesion are poorly integrated into social development discourse and planning. (p. 3)

9. *Vlei* (singular)/*vleis*, *vleie* (plural) (origin: Afrikaans): A term used in South Africa to describe different seasonal water bodies that vary in their extent and depth from large water bodies to marshy areas and pans. *Vleis* are most often defined as natural shallow lakes.

This is certainly evident in the case studies discussed later in the chapter.

Tensions already play themselves out as ‘anti-development’ versus ‘development’ arguments and, in some cases, social redress versus ecological sustainability arguments. This is not helpful and leads to further polarisation among the citizenry. As O’Farrell et al. (2019) suggest, it should not be an either–or situation. We should be seeking solutions that address both the climate change and developmental agendas in our cities simultaneously.

South African municipalities are under-resourced and have little capacity to cope with the process of seeking balanced solutions and buy-in to sustainable solutions that work for all stakeholders; they find it easier to follow the path of least resistance and technologies and design processes they know best, which typically results in ‘grey infrastructure solutions’. Thus, 40% of professionals in the private sector claim to have never considered ‘green infrastructure’ as part of spatial planning (Cilliers 2019). According to the same surveys within the broader African context, SuDS solutions are also still not considered ‘a necessity’ but rather a visual attribute. Planners interviewed were of the opinion that the budget should be spent on ‘more pressing needs’ (Cilliers 2019) such as the provision of basic services and housing.

There is no shortage, from a South African and global policy perspective, to support SuDS as a sub-component of ‘green infrastructure’, albeit in its different guises, for example, broadly under the banner of environmental protection, climate change adaptation, integrated planning and design, multi-functional open spaces and so on (RSA 1996, 2016, 2019). In our view, SuDS as a planning and design tool is no longer a luxury but a water management necessity, as demonstrated in the following case studies. What sets SuDS apart from conventional technical approaches is that it acknowledges the value-laden act of planning and designing infrastructure towards integrating and transforming cities. Sustainable urban drainage systems also acknowledges the interrelatedness of land, people, technology and the environment.

■ Sustainable drainage systems case studies in Cape Town

After introducing the Cape Town landscape and water flow context, we discuss projects in Cape Town that demonstrate the challenges in balancing and addressing the needs of various stakeholders through the scales and in various urban environments using SuDS as a tool to transform our divided and growing cities while addressing the impacts of climate change.

■ **Supporting systems that facilitate flow: Introducing metro-wide green-blue networks in Cape Town, South Africa**

Much of Cape Town is located on a flat sandy plain that was comprised of a mosaic of seasonally inundated marshes and dune systems with coastal *vleis* and estuarine deltas. In addition, the Cape Flats aquifer underlays a large extent of Cape Town's Cape Flats, the name given to the flat sandy plain located between the peninsula mountain chain and mountains defining the eastern edge of the metropolitan area. Over time this landscape has been transformed and all surface water redirected into a system of pipes and concrete canals that drain, via *vleis*, into the ocean (Brown & Magoba 2009). This canalised system that passes through residential, industrial and informally settled areas, receives pollutants, including raw sewage, chemicals, plastics and other solid waste. The pollution limits the extent to which these waterways can add value to people's daily lives and their ability to support any natural habitats.

The stormwater system put in place to create safe, developable areas has become a deadly playground. The CoCT warns parents not to let their children play in the canal water (Van Dyk 2017). Communities demand measures to prevent children from falling into the canals (Jacobs 2020).

These conduits of waste release their contents into the *vleis*, including Zeekoevlei, Zandvlei and Rietvlei, all of which are municipal nature reserves, one of which has RAMSAR status (the *Convention on Wetlands* is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources) (RAMSAR n.d.), all of which are open and accessible to the public for a variety of sporting and recreational activities. The *vleis* and beaches provide access to expansive landscapes in which citizens can seek relief from their home environments, many of which are highly dense and environmentally compromised. However, these have become polluted too (Abrahams 2020; Kotze 2020a, 2020b; Kretzmann 2019; Peoples' Post 2021). Even intermediate recreational activity (defined in the Department of Water Affairs and Forestry [DWA] *South African Water Quality Guidelines* in 1996 as activities such as water-skiing, canoeing, angling, paddling and even wading) is frequently restricted. These *vleis* not only fail to deliver amenities and recreational opportunities, they are also unable to perform essential green infrastructure functions.

The stormwater canals and channels are currently designed and managed in terms of quantitatively determined outcomes with little consideration for water quality and the potential for green-blue spaces to

play a more qualitative role. Liability issues and technical guidelines dictate what can occur in these spaces.

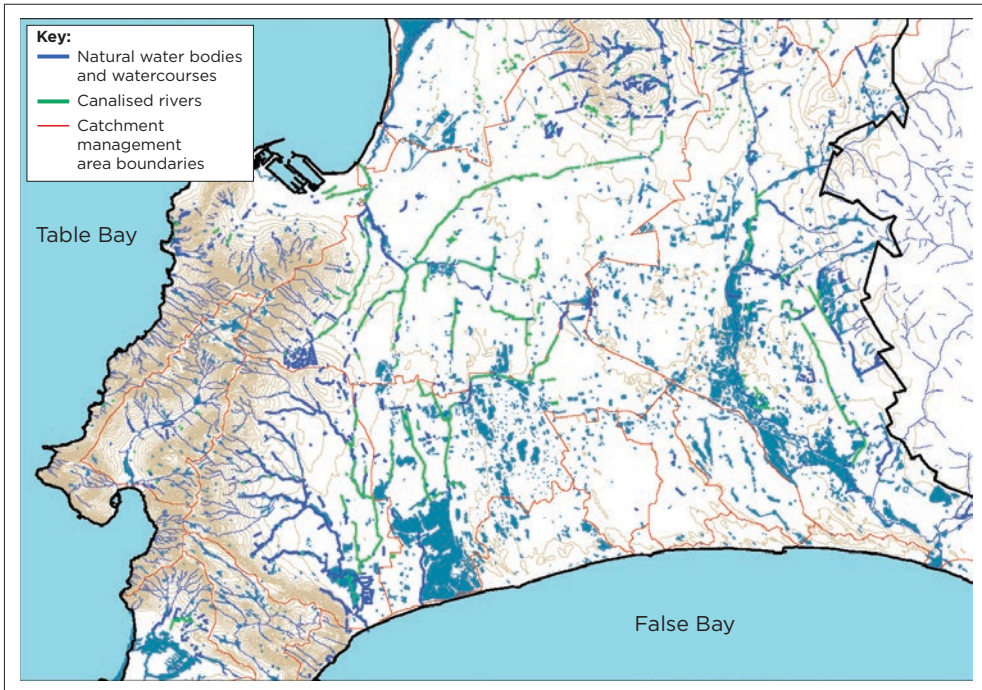
There have been limited attempts to replace the concrete with vegetated channels and do catchment management planning, through which stakeholders have been engaged to clean up and look after natural areas. However, there has been little proactive planning to enable the canals and rivers, some of the few urban features that Green et al. (2018) note cross the apartheid geographical divisions within our city, to knit together an extremely divided citizenry and heal the natural systems required to ensure urban resilience into the future. Figure 5.2 illustrates Cape Town's current drainage system comprising the canalised rivers, natural water bodies and watercourses along with the catchment areas used to manage drainage across the city.

Figure 5.3 shows all blue-green features including rivers, vleis, wetlands, canalised rivers and biodiversity areas together with the agricultural areas within the Cape Town metropolitan region as a set of opportunities to create an improved system of blue-green spaces servicing the social, economic and psychological needs of Cape Town's communities and integrating urban neighbourhoods. It also locates the case study sites so that these can be understood in the context of the larger Cape metropolitan blue-green systems.

■ Using our rivers and canals to transform the city – the case of Two Rivers Urban Park

Recent planning initiatives focused on the Two Rivers Urban Park (TRUP) in Cape Town provide insight into the resistance in the system and in people's minds to transform the current stormwater system. In 2015, our company was appointed as part of an integrated team of professionals, including water quality, freshwater and hydrological specialists, with landscape architects, town planners and urban designers by the Western Cape Government to look at proposals and measures that would be required to create an urban park to serve the people of Cape Town at the confluence of the Black and Liesbeek Rivers within the Salt River Catchment.

The TRUP is comprised of large areas of underutilised publicly owned land, a fragmented set of wetlands, rivers and water bodies that are largely inaccessible to the public, one of which is extremely polluted and a large highway bisecting the area in two. This area has the potential to play a transformative role by knitting together neighbourhoods that are separated by highways and river floodplains and contributing to the creation in time



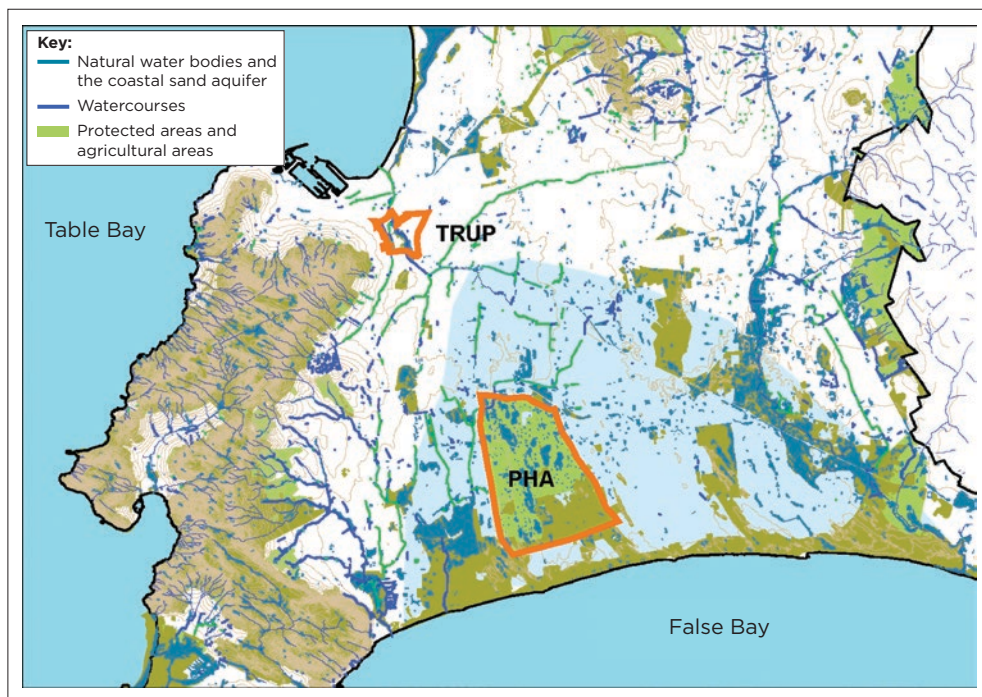
Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.2: Cape Town's drainage system, showing natural water bodies and watercourses, canalised rivers and catchment management area boundaries.

of a continuous green open space system linking a number of strategic publicly owned sites.

The Liesbeek River is in a reasonable ecological condition, but the Black River (see Figure 5.4) and Salt River canal (see Figure 5.5), which receive stormwater from high up in the Salt River Catchment and treated effluent from two wastewater treatment works, have compromised water quality, to the extent that the water is not suitable for recreational purposes. The rivers' cross sections have, over years, been deepened, hardened and in places are annually dredged and cleared in preparation for the increased water levels and flows through winter. Litter traps along the Black River have ineffectively managed the litter that ends up impacting natural systems and water quality.

Paarden Island, downstream of TRUP (along with other areas upstream of TRUP), is also frequently at risk from flooding. The brief for the TRUP consultants was to explore measures to address the water quality of the Black River and flooding downstream of the TRUP site. Figure 5.6 shows the TRUP in the context of the Salt River Catchment and the 1 : 20, 1 : 50



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.3: Cape Town's blue-green features as a set of opportunities including natural water bodies and the coastal sand aquifer, watercourses, canalised rivers and protected areas and agricultural areas.

and 1 : 100 year local floodlines compiled by SRK Consulting for the CoCT in 2012. As can be seen in the map, large areas downstream of the TRUP site and upstream of the site are prone to flooding.

Several measures and design solutions to create a more people-friendly and ecologically healthy watercourse were explored. Other measures to mitigate the flooding downstream of TRUP were tested. Stakeholders agreed that the 'river needed room' to revert to its natural form and role. As Betsy Pearson reminds us, 'it's important that the river is given space to build its own "edges and a foundation - what we call stream banks and a stream bed"' (Pearson 2021, para. 5). Only if the natural 'river boundaries' (Pearson 2021) remain intact can the integrity of the river be maintained. This is imperative to ensure that the river can continue to play its natural role managing silt and natural water flow regime.

Development scenarios for TRUP and the area downstream, where the Salt River flows out into Table Bay, were formulated to help stakeholders imagine a set of larger-impact urban possibilities. Co-design workshops facilitated a process whereby stakeholders could develop the scenarios;



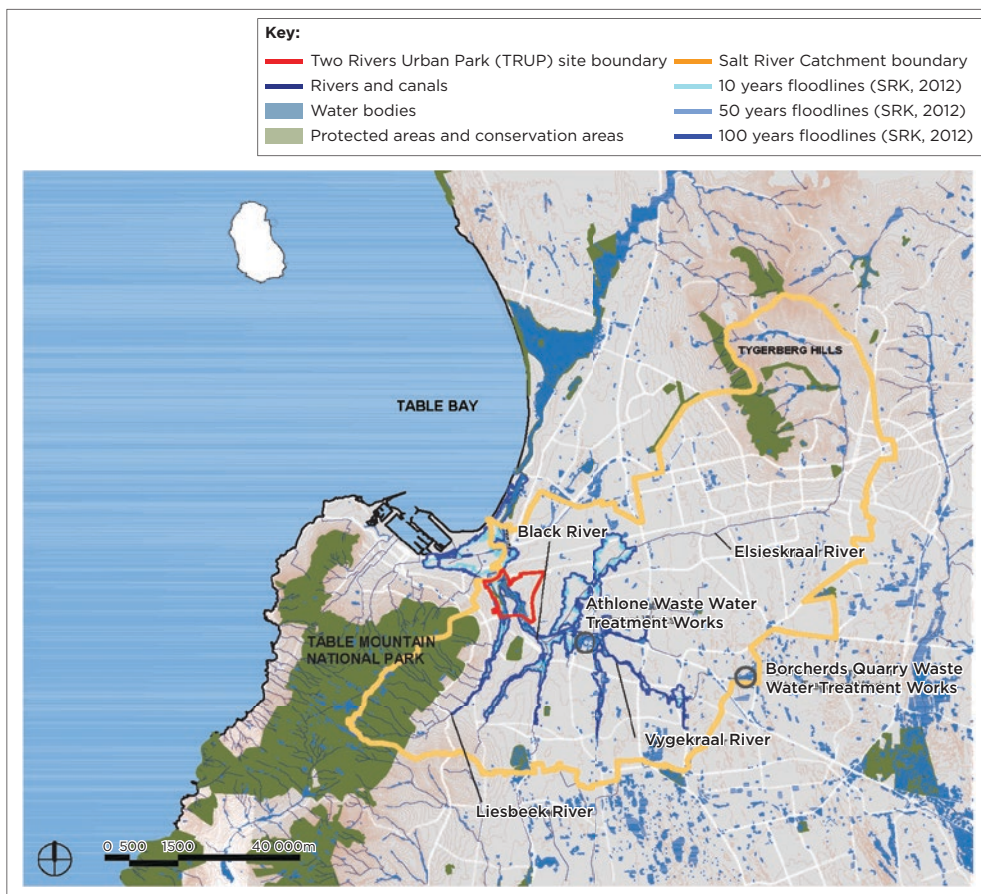
Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.4: Photograph of a litter trap on the Black River.



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.5: Photograph of a section of the Salt River canal.



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

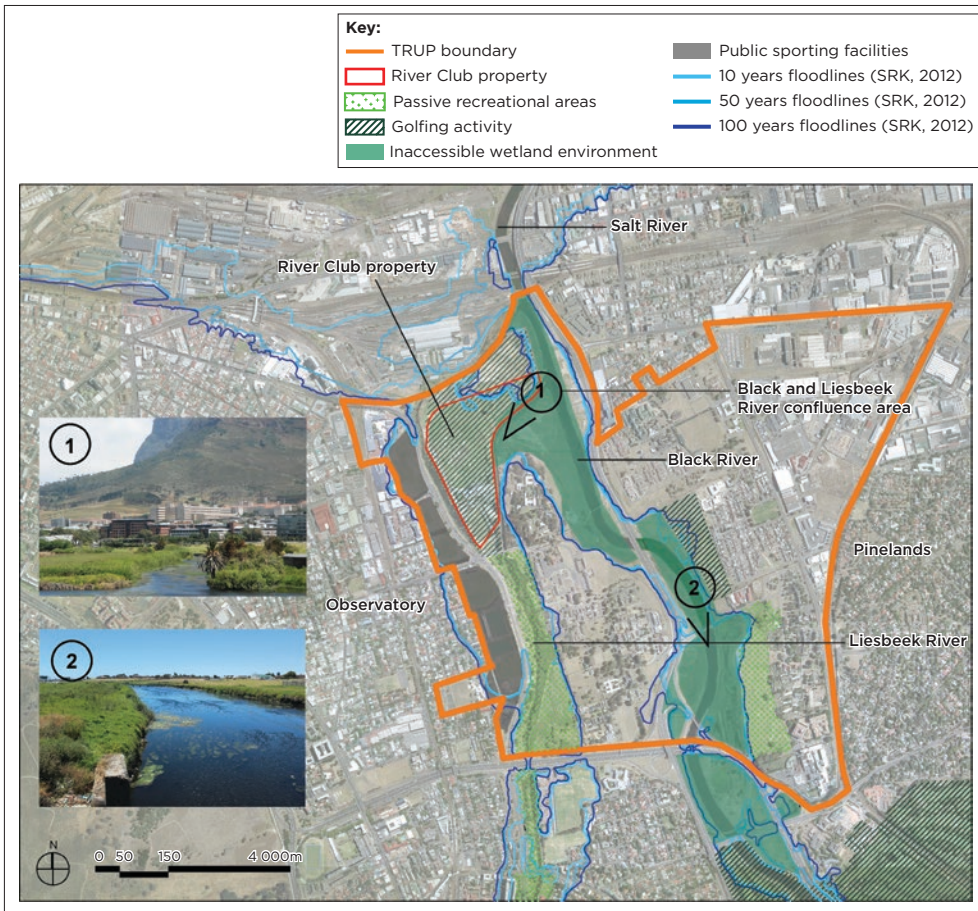
FIGURE 5.6: The Two Rivers Urban Park mapped in the context of the Salt River Catchment.

however, there was little interest in the possibilities conceptualised for the broader area and attention reverted to the site. There are a number of reasons why, one of which is that citizens are generally focused on their properties and immediate surrounds, whereas planners engage in forward planning at a larger city scale. Furthermore, planners are obliged to consider the city systemically in the interest of the public good and not through a myopic lens.

The challenges became more intense once discussions began to focus on management. The rigidity of the institutional structures and the budgetary frameworks were dictating that the status quo remain – that the river and the floodplain remain under the management of the CoCT’s Department of Roads and Stormwater and the wetlands remain under stewardship of the CoCT and other state environmental authorities. The wetlands were to remain inaccessible to the public in order to protect them.

Use of the river for recreation was discouraged by the CoCT because of water quality issues. A techno-scientific approach was giving shape to the park without much consideration for place-making measures including the importance of creating accessible and connected green open space. Figure 5.7 shows the TRUP site in relation to the 2012 floodlines and existing categories of green open space. This figure highlights the fragmented nature of the open space and inaccessibility of the river, being the potential focal point of a new peoples' park.

To add to the challenges, neither flooding, the status of the ecological habitats, nor the need to make a valued park for the people of Cape Town can be addressed through onsite solutions alone. A paradigm shift and



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

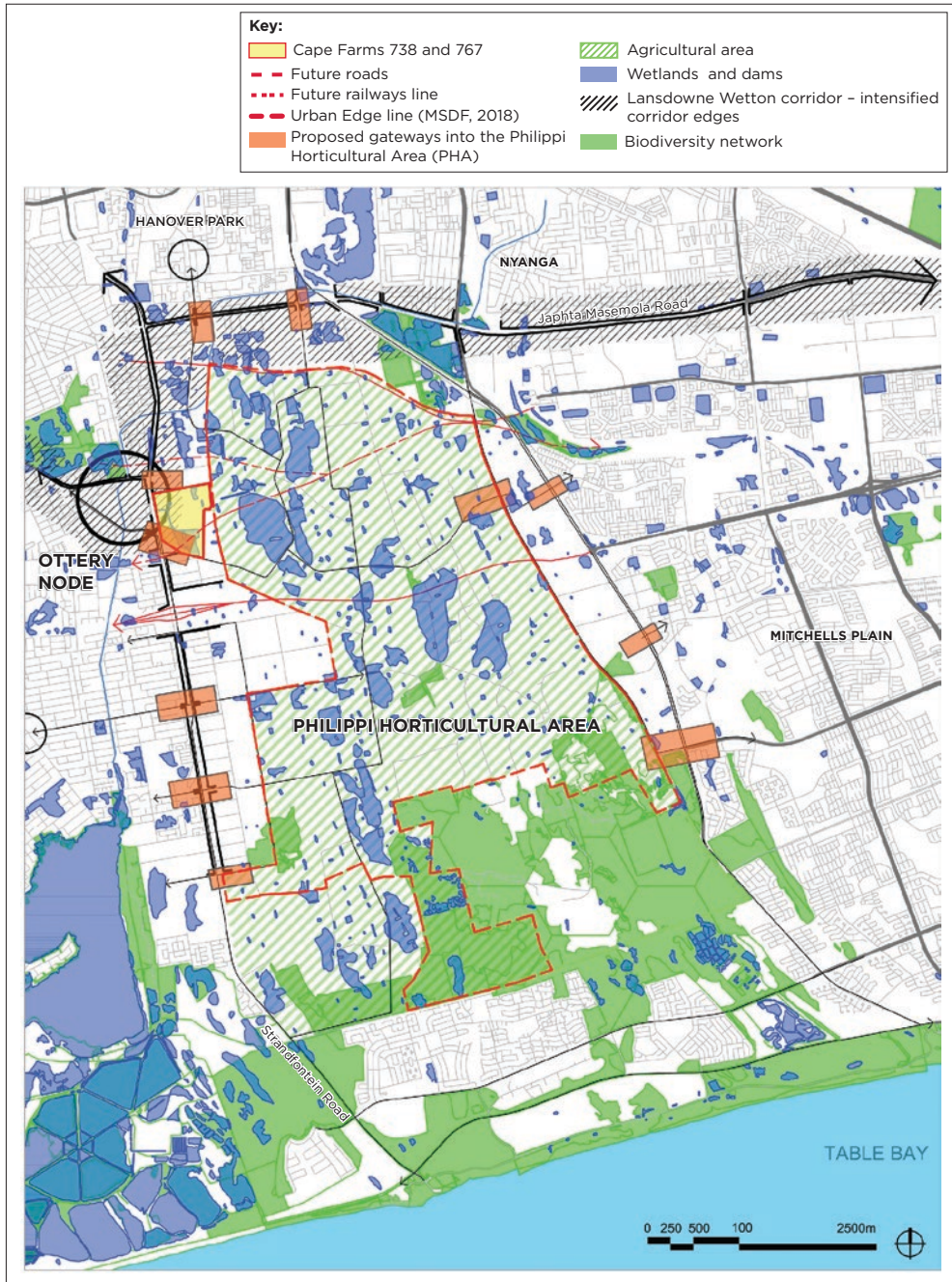
FIGURE 5.7: The mapped Two Rivers Urban Park site depicting flood lines and green open space.

commitment to multiscale thinking, interdisciplinary and transdisciplinary working methods, as put forward by Rietveld et al. (2014) as a more effective way to approach urban water management, but which is not possible within the current institutional arrangements, was required. For the TRUP to play its part in creating resilience into the future and improving the citizen's connection to water, the institutional structure and relationships would need to change. City and provincial management need to care more about managing water in the public interest.

While this complex set of discussions and workshopping was taking place, a mixed-use development of approximately 150,000 m² on the largest piece of private land within the TRUP area was being planned. Figure 5.8 shows the location of the River Club property within the 1 : 20, 1 : 50 and 1 : 100 year floodplain. The site of 14.8 ha currently accommodates a conference centre and golfing facilities but is largely open and green and flooded through wetter periods. The local communities perceive it as an important part of the existing blue-green network, notwithstanding that it is not a designated 'public open space'.

This site has the potential to serve as green relief space and part of the future urban park in an increasingly dense inner city and also be part of a solution to relieve flooding in the Salt River Catchment. The Provincial Department of Environmental Affairs and Development Planning (DEADP) authorised the development in August 2020. The CoCT approved the development in September 2020. Both authorisations were appealed by a large number of local stakeholders, interested and affected parties at different times through the authorisation process.

The CoCT regards the development of the River Club as a major potential contributor to the local economy. In the report prepared by the CoCT (2020) for the Municipal Planning Tribunal, the CoCT's Department of Roads and Stormwater indicated that the development would not 'significantly increase local flood risk'. The development was approved on the basis that the proposed development would be lifted above the 1:20 floodplain to align with the floodplain policy. The CoCT's Catchment, Stormwater and River management branch did not mention the potential for the site to be used as part of a catchment scale flood mitigation strategy. Local residents have been extremely vocal in their responses as they see the development as a threat to the safety of their properties which have historically been flooded. They also value the space as a green amenity and its role as part of an ecological network. Other powerful lobby groups have fought it on the grounds that it should be providing more than the 6,000 m² allocated for affordable housing, because of its strategic location close to the city centre. The CoCT's own environmental management branch has



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.8: Cape Farm 738 and 767, Philippi: Planning context.

contested the environmental authorisation as it is not aligned with their climate change policy.

Without a strong commitment to a 'Politics of Care', this critical piece of the river corridor belonging to the largest river catchment in the Cape Town Metropolitan Area may well be developed at the potential expense of the safety and well-being of the catchment communities and broader metro population. Looking at the site and its potential role through the lens of care politics, this approach may have resulted in a solution that prioritised the needs of the collective in the context of climate change, growing inequality and social divisions.

We contend that this disconnect between existing policy and practice, driven by economics, is an unsustainable means to shape our future cities. A more human-centric and compassionate approach to city-making can help to ensure that cities can not only 'protect life' but facilitate human flourishing.

■ **Using urban development and sustainable drainage systems related measures to achieve urban integration – the case of Philippi**

Our company was appointed in 2016 by Finishing Touch Trading (Pty) Limited to consolidate and create a spatially integrated development on two properties owned by this company, namely Cape Farms 738 and 767, Philippi, Cape Town. Bearing in mind that the properties are located within the Philippi Horticultural Area (PHA), within a part of the Cape Flats aquifer but also on the edge of an urban corridor, namely Strandfontein Road, as defined in local policies, the proposal needed to ensure rights embedded in the Constitution (access to land, housing, food security, water, protection of the environment, etc.) were reasonably balanced. An integrated spatial solution, including water management, protection of an onsite wetland and an element of farming, was therefore explored.

The location of the sites is interesting from a planning and design perspective. While the sites have inherent environmental value in the form of the groundwater aquifer, albeit contaminated as it stands, and a large wetland that requires rehabilitation, they also have excellent urban development potential in that they are located on a future bus rapid transport route and are located adjacent to the well-established Ottery commercial node. Furthermore, the sites have the potential to contribute to the making of a legible gateway into the PHA and protective edge to the farmed areas, which are becoming increasingly vulnerable to crime and invasion by those seeking well-located land for housing. PHA farmers face the threat of illegal land occupation, as epitomised by the emergence of

nine informal settlements within the PHA, which have expanded from 867 residential units in 2011 to 3,321 informal residential units in 2016 (Indego Consulting 2018, p. 66), representing a growth of 283% over just five years. Cape Farms 738 and 767 themselves have been the victim of theft of livestock, produce, infrastructure and equipment, which has had detrimental effects on the viability of farming, resulting in only a small portion of the 36 ha being actively farmed at present.

The proposal for the site demonstrated that the site's roles going forward could include sustainable water and environmental management, food security using agricultural land and sustainable planting and growing methods and a mix of housing with small-scale retail to respond to a large demand for residential space in the area. Figure 5.8 shows the site as part of a densified urban edge and gateway into the PHA from the Strandfontein Road public transport corridor.

We stated earlier in the chapter that clashes, in respect of law and in respect of citizens' rights, only occur because we still view society and the city through the lens of separateness as we did during apartheid. Murphy (2017) so aptly states that:

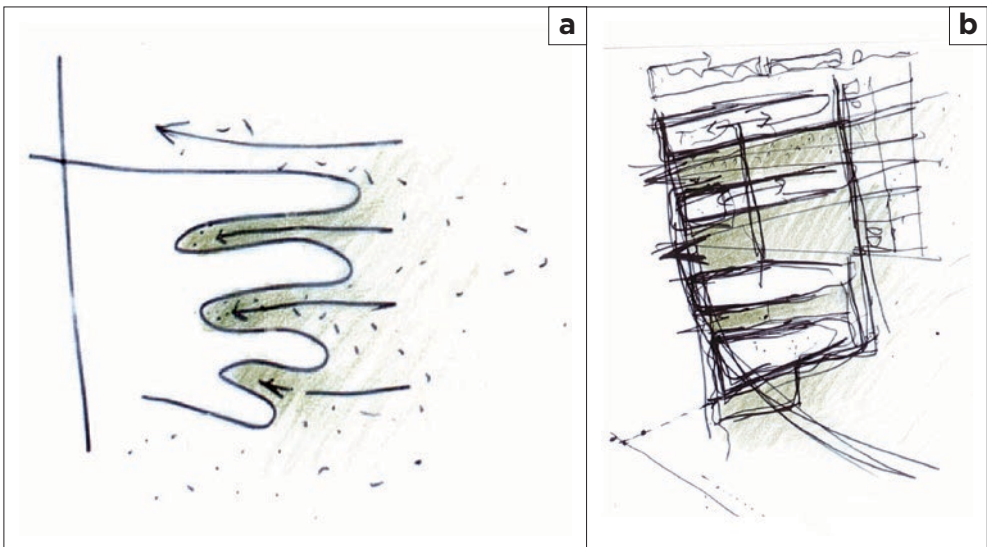
The PHA dilemma is not unique to other development challenges that South Africa faces. The City of Cape Town is under pressure to provide affordable housing; particularly around the PHA area. The nexus between affordable housing and agricultural development/food security becomes a difficult area to navigate. On one hand, 14 million South Africans live without adequate access to food, and on the other hand, millions more reside in poor living conditions, displaced from economic opportunity. This is a catch-22 situation that highlights the residual complexities stemming from centuries of racial oppression. It also calls attention to the detriment of understanding social issues in a vacuum. Food security, access to land and development are interconnected. When implementing interventions, it is vital to take cognisance of the interconnectedness of these issues. Human rights are indivisible, interdependent, and interrelated - therefore mechanisms to promoting the right to food should reflect this. (n.p.)

The concept plans and urban design approach proposed a split in land uses across the sites to retain the eastern portion of the sites for agricultural purposes and ensure the safeguarding of what is seen as an important part of Cape Town and the local area's cultural heritage. The extent of the area retained for agriculture is approximately 24 hectares and includes a portion for the purposes of accommodating the 23 families who currently reside on the sites.

The western portion of the site is intended for residential development in the form of lower- to middle-income housing and is complemented by a small retail component, which responds to the increase in residents on Cape Farms 738 and 767, as well as the thresholds that will be generated by the forthcoming public transport on the Strandfontein Road urban

corridor adjacent to the site. The western portion is also supported by a community facility and a sports field along the southern development interface with the large wetland, forming a consolidated amenity zone. The concept is based on the idea of interlocking fingers, allowing glimpses of the agricultural landscape from Strandfontein Road eastwards, as can be seen in the concept sketches in Figure 5.9.

In the concept, a network of green fingers reflects the current landscaping pattern of east-west orientated windbreaks. These fingers are edged by residential developments that act as larger windbreaks. This layout facilitates a more intimate and direct visual connection between the new residents and farming activity which in turn enables increased surveillance over the farmed land. This arrangement of the development footprint also enables the stormwater generated by the hardened surfaces to drain via a set of landscaped swales towards the existing wetland. The vegetated swales were intended to ensure that the water remains visible to be enjoyed as an amenity by those residing on the site. The generously wide swales were intended to ensure that by the time the water reached the wetland, it would be clean. The swales would also allow for infiltration to replenish the aquifer directly. Lastly, the new surface water features were intended to be reminiscent of the small wetlands and *vleis* that are part of the PHA landscape.



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

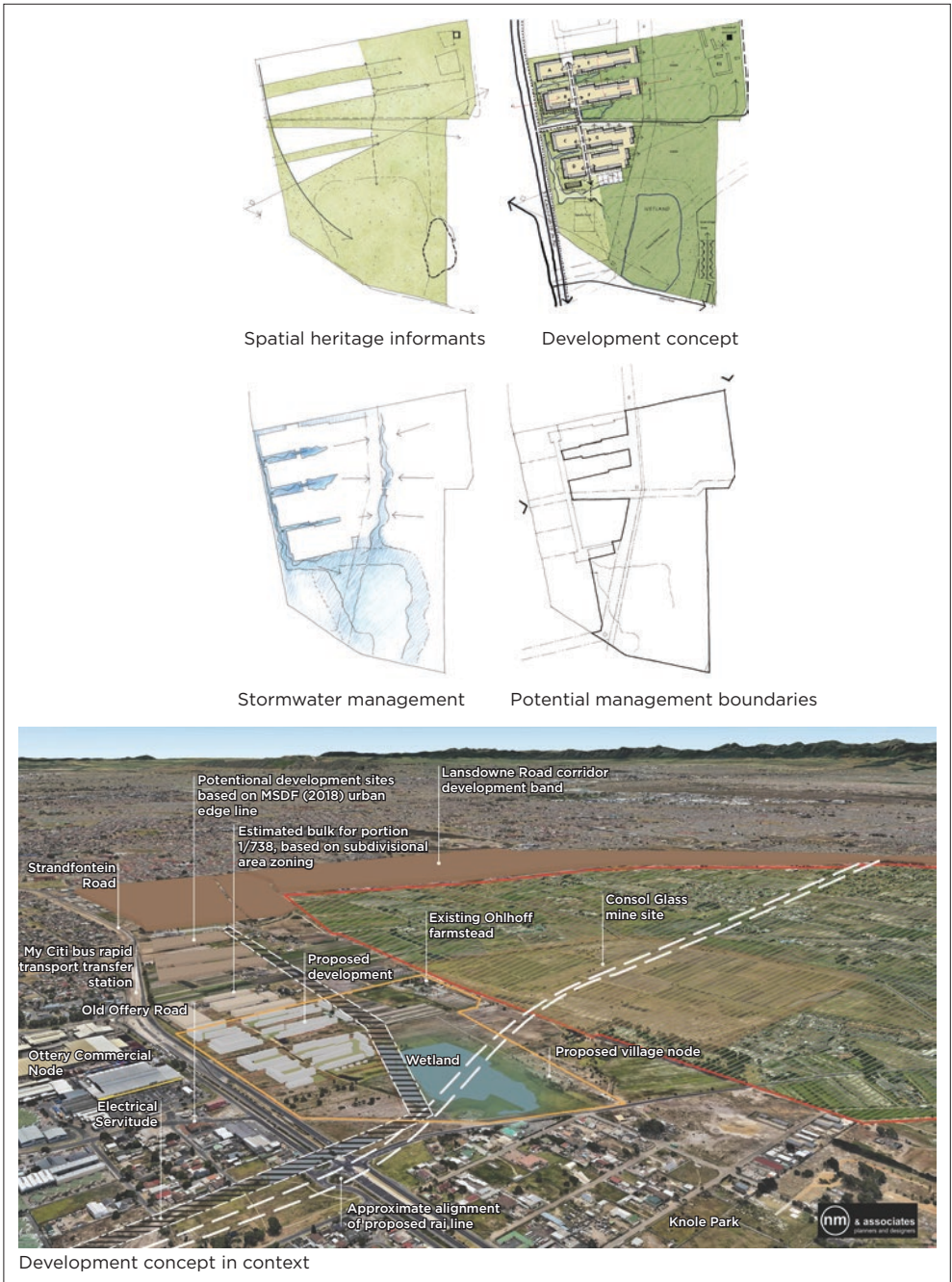
FIGURE 5.9: Concept of (a) interlocking fingers and (b) application of the concept to the site.

Figure 5.10 explains the proposed scheme as a set of independent and interrelated layers and shows the development concept in context, mediating between the urban corridor edge and the PHA.

We did not ultimately procure the development rights for this integrated scheme where water management, land, housing, urban agriculture, environment and crime were addressed in a single scheme which was also economically viable. In fact, the application to obtain rights to the CoCT was never submitted. The main reasons for this, among others, are that both the Western Cape Provincial Heritage Authority and the Western Cape DEADP turned the applications for heritage and environmental authorisation down on the strength of objections from the public stakeholders and their policies to retain the PHA as a whole for horticultural, mining and food security purposes.

While this position may sound rather noble, it does not, however, resolve the water, land, housing, crime, informal, illegal settlement and other urban issues. Furthermore, the authorities do not offer any practical ways and means of caring for the PHA land, the people who reside there and the farmers who are doing their utmost to sustain Cape Town's so-called food basket. There is no regard for the role that investment in urban development can play in solving water and other land-related issues in the interest of the broader public. For example, the water management approach to the scheme, which is the CoCT's own policy, would have had a direct benefit for rehabilitating the wetland on the properties concerned as well as the aquifer, which the wetland feeds. Furthermore, there is a small community of 23 families (123 persons) living on the farm for whom the disposal of the land without an integrated development plan being implemented may mean losing their homes. The proposal included them in the future proposal for the site within the 'village node' on the location of a historic farmstead, identified in Figure 5.10.

In retrospect, during the era of a pandemic that we find ourselves in as we write, it seems reasonable to have housing and small-scale mixed-use development located cheek by jowl with productive agricultural land. It makes sense for lower- to middle-income households to have access to land, grow food and live wisely, healthily and close to urban markets during depressed and regular periods. It is time that the authorities exercise wise and caring approaches and make more creative decisions instead of hiding behind and interpreting the law in terms of the old ways that promote unsustainable urban living patterns and retain fragmentation in our cities.



Source: Image produced by NM & Associates Planners and Designers, Cape Town, South Africa. Reproduced and published with the appropriate permissions from NM & Associates Planners and Designers.

FIGURE 5.10: Cape Farms 738 and 767 development concept in context.

■ **Conclusion: Systems and transdisciplinarity in working with water in cities**

Through the above case studies, we have highlighted the importance of firstly, thinking of the city at a systemic level, secondly, the need to work in a transdisciplinary and interdisciplinary way towards achieving balanced solutions that are appropriate to local contexts, thirdly, the imperative to acknowledge the complexity of integrating urban systems at different scales and lastly to focus on looking after the public interest. We have presented SuDS, as part of larger green-blue systems that can provide a range of benefits necessary for urban and social transformation and achieving resilience.

We have demonstrated that relying on conventional engineering models tends to perpetuate spatial separation, fragmentation and the outcomes tend to be short-term and fragmented. We have encouraged the engineering and built environment professions to consider SuDS, implemented across the scales, as an integrated planning, design and implementation tool to address citizens' capacity to explore what it means to live in a 'good city' and to begin to contribute to making cities that truly embrace difference by looking after the public interest. This approach has, at its core, compassion for all life forms.

Implications of the planning and implementation of SuDS are that planning and design processes will take longer as solutions will be conceptualised by teams comprising a broader set of professionals. The size and type of team will be dependent on the scale and location of the intended intervention. Stakeholders will play an important role in informing how SuDS interventions come to be realised on the ground. The municipality will need to focus on their mandate to protect the integrity of the larger green-blue systems. They will need to be more proactive in managing catchments in a more holistic manner. In the process, it is likely that new forms of knowledge will be developed and that a transformation of institutional structures, procedures and decision-making processes will be required.

Sustainable drainage systems has the potential to capacitate individuals, communities and built environment professionals to work together and build relationships with the authorities around infrastructure, allowing us to develop a healthier and more beneficial relationship with water which we believe is imperative for society's well-being.

Conclusion

The journey to reclaiming the narrative on cities

Geci Karuri-Sebina^{a,b,c}

^aWits School of Governance, University of the Witwatersrand, Johannesburg, South Africa

^bSouth African Cities Network, Johannesburg, South Africa

^cAfrican Centre for Cities, University of Cape Town, Cape Town, South Africa

Amira Osman^{a,b}

^aDepartment of Architecture and Industrial Design, Faculty of Engineering and the Built Environment, Tshwane University of Technology, Pretoria, South Africa

^bSARChI: DST/NRF/SACN Research Chair in Spatial Transformation (Positive Change in the Built Environment), Pretoria, South Africa

We have taken the reader on a journey of exploration into different ways of looking at the built environment, from the heritage of communities in localities across the world to policies and new ways of thinking. In that way, the book has achieved its intention to study space, people and technology and has contributed to a reclaiming of the narrative on cities. This journey has taken us outside of current mainstream literature on the built environment, allowed us to combine different levels of expertise and allowed for different lenses through which to understand the complexities of the built environment.

This connection between the built environment and economic development in the West has been further explored, and a different theoretical framework has been developed which is better suited to the

How to cite: Karuri-Sebina, G & Osman, AN 2023, 'The journey to reclaiming the narrative on cities', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 131-134. <https://doi.org/10.4102/aosis.2023.BK323.06>

contexts of the study. Countries with emerging economies have, again, been reconceptualised. This is seen as another iteration of many future endeavours planned for this book series to keep exploring the concept in a deeper and more meaningful way.

Cities, space and power (vol. 1, 2020) and *Space, people and technology: Reclaiming the narrative on cities* (vol. 2, 2022) are presented as part of an ongoing conversation that will unfold and evolve in the future volumes of the book series, 'The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation'.

Theoretical and conceptual perspectives as well as practical applications and innovative approaches to infrastructure are presented in this volume. The philosophical is balanced by the practical in the case studies selected. We invited the authors to reflect on the role of narrative in shaping space, influencing people and making decisions about technology. It is argued that by changing the narrative and methods of representations, new imaginaries can be generated and the scope of what is possible is significantly broadened. Contextualised narratives and vocabularies and metaphors can evoke new thinking and new practice. We are interested in interventions at various scales and intensities, from localised solutions to large-scale transformative programmes, thus elevating our understanding of the concepts of people-centredness, participation and co-production or co-creation by shifting the debate from the esoteric to the applied and contextual. Through the development of our own philosophies, emerging from and rooted in context, we may shift thinking and practice toward people, community and care.

The three sections of the book lead the reader from narratives and history into decolonial directions and conclude with practice as theory. In this journey, the conceptual, philosophical underpinning is presented as a worldview and as a normative positioning, whereby innovative and unexpected interpretations may emerge. The editors have therefore carefully compiled an integrated narrative from the fragments - different contexts, perspectives and texts - presented by the various authors. This has indeed been a journey of discovery, as we have engaged with each of the contributions and considered how they relate to each other and which part of the puzzle they solve toward offering something unique and fresh.

In Section 1, 'Narrative and history', Chapter 1 by Karuri-Sebina and Osman sets the scene for the volume and links its intentions with those of volume 1 in the series. The chapter is not only an overview of the rest of the volume but also presents a reflective piece that aims to unpack the concepts presented and to relate the content of the first and second volumes to the

intentions of the book series. In Chapter 2, Jia studies how developers and institutions, as ‘small powers’, shape the built fabric in the high-density and high land-price conditions of Hong Kong from the perspective of morphological studies rather than development studies or economics. As such, this chapter alludes strongly to the idea of ‘economies’, using the lens of the impact on form and space. Chapter 3, by Gibberd and Osman, presents the lives of real South Africans in a non-fiction, semi-narrative form. This form of expression and narration in an academic text could be tested further in the future.

In Section 2, ‘Decolonial directions’, Hlongwane’s contribution is a unique one which should become a staple on academic reading lists. It argues that, as post-colonial ‘Africans’, we should relearn how cities and spaces can still emerge organically, or ‘intuitively’, from ourselves and what matters to us. Hlongwane is interested in more fundamental post-colonial questions rather than immediate ‘solutions’.

In Section 3, ‘Practice as theory’, Paterson and Mammon present an approach to addressing environmental and social challenges. Where others have attempted to connect theory to practical application, Paterson and Mammon do the reverse in a kind of ‘Practice as Theory’ model. In other words, the authors here seek to develop practice-based theory premised on current institutional models. It is highly commendable that the authors theorise their practice by developing a coherent ethical and theoretical position. The built environment in South Africa (and globally) would be better served if more of its practitioners were engaged in this way. The challenge in this chapter is that the ‘practice as theory’ model is also always going to be subject to the interests and intentions of the projects’ clients, as built environment professions at large rely on client commissions for their existence. This is an existential question for the profession at large. And in this question between professional values and the policy and governance structures within which we work, more reflection needs to happen in the future.

This collection of authors and chapters could not have been planned or imagined in advance of the actual making of this volume. What has emerged is a vast and nuanced tapestry of transformative studies and narratives about space and technology in the Global South which centres people and praxis. We have critiqued perspectives and trajectories that have failed to contextualise their analysis beyond stereotypes and universalist approaches. The chapters in this book offer different starting points or frames for contemplating city-ness and city-making. They demonstrate the value of those alternative starting points, and while being bold and creative, they are not essentialist.

The chapters oscillate from the poetic to the pragmatic and from the technical to the humanitarian. The authors have each made a unique contribution and have opened doors for similar applications across different countries while also inviting different disciplines to participate in this dialogue going forward.

References

Chapter 1

- African Union (AU) n.d., *Agenda 2063: The Africa we want*, viewed 08 October 2022, <https://au.int/Agenda2063/popular_version>
- Akomolafe, B 2017, *These wilds beyond our fences: Letters to my daughter on humanity's search for home*, North Atlantic Books, Berkeley.
- Andreani, S, Kalchschmidt, M, Pinto, R & Sayegh, A 2019, 'Reframing technologically enhanced urban scenarios: A design research model towards human centered smart cities', *Technological Forecasting and Social Change*, vol. 14, pp. 15-25. <https://doi.org/10.1016/j.techfore.2018.09.028>
- Asian Development Bank 2020, *Liveable cities: Post-COVID-19 new normal*, viewed 25 September 2021, <<https://www.adb.org/sites/default/files/institutional-document/624566/guidance-note-livable-cities-post-covid-19.pdf>>
- Brotchie, J, Newton, P, Hall, P & Nijkamp, P (eds.), 2017, *The future of urban form: The impact of new technology*, Routledge, Abingdon.
- Clarke, M 2018, 'Global South: What does it mean and why use the term?', University of Victoria, viewed 18 April 2023, <<https://onlineacademiccommunity.uvic.ca/globalsouthpolitics/2018/08/08/global-south-what-does-it-mean-and-why-use-the-term/>>
- Dados, N & Connell, R 2012, 'The Global South', *Contexts*, vol. 11, no. 1, pp. 12-13.
- Florida, R, Rodríguez-Pose, A & Storper, M 2020, 'Cities in a post-COVID world', *Papers in Evolutionary Economic Geography*, vol. 20, p. 41.
- Hamdi, N 2010, *The placemaker's guide to building community*, Routledge, London.
- Hollands, R 2008, 'Will the real smart city please stand up?', *City*, vol. 12, no. 3, pp. 303-320.
- Inayatullah, S 2004, *The causal layered analysis (CLA) reader: Theory and case studies of an integrative and transformative methodology*, Tamkang University Press, Taipei.
- Karuri-Sebina, G 2020, 'Urban Africa's futures: Perspectives and implications for agenda 2063', *Foresight*, vol. 22, no. 1, pp. 95-108. <https://doi.org/10.1108/FS-07-2019-0056>
- Karuri-Sebina, G & Govender, T 2021, *Playing in the gap: Re-futuring African cities*, ICLEI: RISE Africa, s.l.
- Kummitha, RKR 2020, 'Why distance matters: The relatedness between technology development and its appropriation in smart cities', *Technological Forecasting and Social Change*, vol. 157, p. 120087. <https://doi.org/10.1016/j.techfore.2020.120087>
- Long, VX & Holmén, M 2021, *Technological change and industrial transformation*, Routledge, Oxon.
- Mahler, AG 2018, *From the tricontinental to the Global South: Race, radicalism, and transnational solidarity*, Duke University Press, Durham.
- Mapungubwe Institute for Strategic Reflection (MISTRA) 2014, *The concept and application of transdisciplinarity in intellectual discourse and research*, MISTRA, Johannesburg.
- Mohanty, SK, Franssen, L & Saha, S 2019, *The power of international value chains in the Global South*, International Trade Centre, Geneva.
- Ngwane, T 2021, *Amakomiti: Grassroots democracy in South African shack settlements*, in Wildcat, Pluto Press, London. <https://doi.org/10.2307/j.ctv1g6q904>
- Osman, A (ed.) 2020, *Cities, space and power*, in *The Built Environment in Emerging Economies (BEinEE): Cities, space and transformation*, vol. 1, AOSIS Books, Cape Town. <https://doi.org/10.4102/aosis.2020.BK159>

- Osman, A 2021, 'Crisis is an opportunity to heal South Africa's divisive spatial geographies', *Mail and Guardian*, 17 July, viewed 13 September 2021, <<https://mg.co.za/opinion/2021-07-17-crisis-is-an-opportunity-to-heal-south-africas-divisive-spatial-geographies/>>
- Paterson, J & Mammon, N 2023, 'Care and well-being in the sustainable management of water systems in South African cities', in A Osman & G Karuri-Sebina (eds.), *Space, people and technology: Reclaiming the narrative on cities*, The Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series, vol. 2, AVARSITY Books, Cape Town, pp. 103-130. <https://doi.org/10.4102/aosis.2023.BK323.05>
- Perez, CC 2019, *Invisible women: Data bias in a world designed for men*, Abrams Press, New York.
- Roe, J & McCay, L 2021, *Restorative cities: Urban design for mental health and well-being*, Bloomsbury Visual Arts, London.
- Santos, BDS 2014, *Epistemologies of the South: Justice against Epistemicide*, Paradigm Publishers, Boulder.
- Scharmer, O 2018, *The essentials of Theory U: Core principles and applications*, Berrett-Koehler Publishers, Oakland.
- Surico, J 2021, 'How cities can rethink housing after COVID-19', *The City Fix*, 25 August, viewed 22 October 2022, <https://thecityfix.com/blog/how-cities-can-rethink-housing-after-covid-19/?fbclid=IwAR0ie0NrI0PN8G4xClhTE1wRc9wwxCrjZLuTxLeep_K_WI2PRaUfimMVEKQ>
- Turan, M (ed.) 1990, *Vernacular architecture*, Gower Publishing Group, Aldershot.
- United Nations (UN) 2017, *New urban agenda*, viewed 15 September 2021, <<https://uploads.habitat3.org/hb3/NUA-English.pdf>>
- Weaver, J 2020, 'Design has an empathy problem: White men can't design for everyone', *UX Collective*, viewed 24 June 2022, <<https://uxdesign.cc/design-has-an-empathy-problem-white-men-cant-design-for-everyone-4eef12f0f2bc>>

Chapter 2

- Barron, W & Steinbrecher, N 1999, *Heading towards sustainability: Practical indicators of environmental sustainability for Hong Kong*, The Center of Urban Planning and Environmental Management, The University of Hong Kong, Hong Kong.
- Caniggia, G 2001, *Architectural composition and building typology: Interpreting basic building*, Alinea Editrice, Firenze.
- Census and Statistics Department 1999, *Hong Kong monthly digest of statistics*, Census and Statistics Department, Hong Kong.
- Conzen, MRG 1960, *Alnwick, Northumberland: A study in town plan analysis*, Institute of British Geographers, London.
- Conzen, MRG 2004, *Thinking about urban form: Papers on urban morphology, 1932-1998*, Peter Lang, New York.
- Habraken, NJ 1983, *Transformation of the site*, Awater Press, Cambridge.
- Habraken, NJ 2002, 'The uses of levels', *Open House International*, vol. 27, no. 2, pp. 9-20.
- Hong Kong Transport and Housing Bureau 2017, *Public transport strategy study*, Hong Kong Transport and Housing Bureau, Hong Kong.
- Jia, B 2000, 'Homeostatic balance, urban ecology, and objectives of housing sustainable development in high density', *Conference Proceedings: Megacities 2000 Conference-Towards sustainable building development in Hong Kong*, February, The University of Hong Kong, Hong Kong.
- Kropf, K 2011, 'Morphological investigations: Cutting into the substance of urban form', *Built Environment*, vol. 37, no. 4, pp. 393-408.

- Shi, W, Jia, B & Wee, HK 2018, 'Relationship between the changing urban open spaces and increasing density in Mong Kok since the 1970s', *Modern Environmental Science and Engineering*, vol. 4, no. 5, pp. 476–486.
- Shi, W, Jia, B & Wee, HK 2019, 'The transformation of open urban space and increasing building density in Hong Kong since the 1970s', *The Journal of Public Space*, vol. 4, no. 2, pp. 9–28. <https://doi.org/10.32891/jps.v4i2.1202>
- United Nations (UN) 1996, *Habitat Agenda and Istanbul Declaration*, Department of Public Information, United Nations, New York.
- Wang, H & Jia, B 2019, 'Urban tissue of traditional Chinese and Southeast Asian Port cities: The influence of maritime trade', *Journal of Chinese Architecture and Urbanism*, vol. 1, no. 1, p. 841. <https://doi.org/10.36922/jcau.v1i1.841>

Chapter 3

- African Child Policy Forum (ACPF) 2014, *The African report on children with disabilities*, viewed 22 October 2022, <<https://app.box.com/s/q9d36kela8pzgl5mr0miv62bh0fbv36d>>
- African Union (AU) n.d., *Agenda 2063: The Africa we want*, viewed 08 October 2022, <https://au.int/Agenda2063/popular_version>
- Batavia, AI & Beaulaurier, R 2001, 'The financial vulnerability of people with disabilities: Assessing poverty risks', *Journal of Sociology and Social Welfare*, vol. 28, no. 1, pp. 139–162.
- Beg, F, Bickford, G, Denoon-Stephens, ST, Harber, J, Jitsing, A, Moosajee, R & Schmidt, D 2014, *How to build transit-orientated cities - Exploring possibilities*, South African Cities Network, Johannesburg.
- Berghs, M 2017, 'Practices and discourses of ubuntu: Implications for an African model of disability?', *African Journal of Disability*, vol. 6, a292. <https://doi.org/10.4102/ajod.v6i0.292>
- Buzzi, F 2017, 'Human, all too human: A critique on the modulator', *Failed Architecture*, 25 May, viewed 08 October 2022, <<https://failedarchitecture.com/human-all-too-human-a-critique-on-the-modulator/>>
- Cameron, C 2016, 'Disability arts: The building of critical community politics and identity', in R Meade, M Shaw & S Banks (eds.), *Politics, power and community development*, Policy Press, Bristol, pp. 199–216.
- Currie, I & De Waal, J 2013, *The Bill of Rights handbook*, Law Society of South Africa, Cape Town.
- Finkelstein, V 2001, *A personal journey into disability politics*, Leeds University Centre for Disability Studies, viewed 23 October 2022, <<http://www.independentliving.org/docs3/finkelstein01a.pdf>>
- Finkelstein, V 2005, *Reflections on the social model of disability: The South African connection*, viewed 23 October 2022, <<https://disability-studies.leeds.ac.uk/wp-content/uploads/sites/40/library/finkelstein-Reflections-on-the-Social-Model-of-Disability.pdf>>
- Flynn, E, Moloney, C, Fiala-Butora, J & Vicente Echevarria, I 2019, *Access to justice of persons with disabilities*, Final report, Centre for Disability and Policy and Institute for Lifecourse and Society, University of Galway, Galway.
- Gauteng Provincial Government 2020, *Gauteng Government's Plan (GGP), Strategic Plan 2020–2025*, Gauteng Provincial Government, Johannesburg.
- Gibberd, AE 2021, 'Universally accessible public transport systems: Experiences with implementation in the thirteen integrated public transport network municipalities in South Africa', MA thesis, University of Pretoria, viewed 14 July 2022, <https://repository.up.ac.za/bitstream/handle/2263/78921/Gibberd_Universally_2021.pdf?isAllowed=y&sequence=1>

References

- Hanass-Hancock, J & Deghaye, N 2016, *Elements of the financial and economic costs of disability to households in South Africa*, Technical Report, March 2016, viewed 23 October 2022, <https://www.researchgate.net/publication/298410460_Elements_of_the_Financial_and_Economic_Costs_of_Disability_to_Households_in_South_Africa>
- Holmes-Seidle, J 1996, *Barrier-free design*, Routledge, London.
- Holness, W & Rule, S 2014, 'Barriers to advocacy and litigation in the equality courts for persons with disabilities', *Potchefstroom Electronic Law Journal*, vol. 17 no. 5, a1906. <https://doi.org/10.4314/pelj.v17i5.04>
- Imrie, R 1996, *Disability and the city, international perspectives*, Paul Chapman Publishing, Ltd., London.
- Kett, M & Deluca, M 2016, 'Transport and access to inclusive education in Mashonaland West Province, Zimbabwe', *Social Inclusion*, vol. 4, no. 3, pp. 61-71. <https://doi.org/10.17645/si.v4i3.502>
- Lifchez, R 1987, *Rethinking architecture: Design students and physically disabled people*, University of California Press, Berkeley.
- Lucas, K, Mattioli, G, Verlinghieri, E & Guzman, A 2016, 'Transport poverty and its adverse social consequences', *Proceedings of the Institution of Civil Engineers - Transport*, vol. 169, no. 6, pp. 353-365. <https://doi.org/10.1680/jtran.15.00073>
- Mandela, N 1964, *Rivonia trial speech*, viewed 23 October 2022, <http://db.nelsonmandela.org/speeches/pub_view.asp?pg=item&itemID=NMS010&txtstr=prepared%20to%20die>
- Oliver, M 1990, *The politics of disablement*, Macmillan, Basingstoke.
- Oliver, M 2013, 'The social model of disability: Thirty years on', *Disability & Society*, vol. 28, no. 7, pp. 1024-1026. <https://doi.org/10.1080/09687599.2013.818773>
- Osman, A & Gibberd, A 2000, *Housing for special needs: Physical interior design to accommodate special needs*, viewed 08 October 2022, <https://www.researchgate.net/publication/236144009_Housing_for_Special_Needs_Physical_Interior_Design_to_Accommodate_Special_Needs>
- Palmer, M, Williams, J & McPake, B 2016, *The cost of disability in a low-income country*, SSRN, viewed 23 October 2023, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2856285>
- Perez, CC 2019, *Invisible women: Data bias in a world designed for men*, Abrams Press, New York.
- Rahemtulla, A 2021, *Accessibility in architecture: A new Modular Man, in 'unsustainable'*, 10 July 2010, viewed 08 October 2022, <<https://www.unsustainablemagazine.com/accessibility-in-architecture-a-new-modular-man/>>
- Rickert, T 2017, *Mobility for all, accessible transportation around the world*, Access Exchange International, viewed 23 October 2022, <<https://www.independentliving.org/mobility/mobility.pdf>>
- Shoot, B 2017, 'The 1977 disability rights protest that broke records and changed laws', *Atlas Obscura*, 09 November, viewed 23 October 2022, <<https://www.atlasobscura.com/articles/504-sit-in-san-francisco-1977-disability-rights-advocacy>>
- Todes, A 2013, 'The impact of policy and strategic planning', in P Harrison, G Gotz, A Todes & C Wray (eds.), *Changing space, changing city, Johannesburg after apartheid*, WITS University Press, Johannesburg.

■ Policy Documents

- Department of Basic Education (DBE) 2001, *Education White Paper 6 on Special Needs Education, Building an Inclusive Education and Training System*, viewed 22 October 2022, <https://www.vvob.org/files/publicaties/rsa_education_white_paper_6.pdf>

- Department of Public Service and Administration (DPSA) 2021, *Guideline, Improving geographic access to government service points*, 2021 edn., viewed 19 October 2022, <https://www.dpsa.gov.za/dpsa2g/documents/service_access/Guideline%20On%20Improving%20Geographic%20Access%20To%20Government%20Service%20Points%20-%202021.pdf>
- Department of Social Development 2013, *Disability Rights: Towards a National Policy Framework to uphold, promote and protect the rights of persons with disabilities*, Discussion Document, September 2013, Department of Social Development, Pretoria.
- Department of Transport (DoT) 1999, *Moving South Africa (MSA), Towards a transport strategy for 2020*, Government Printing Works, Pretoria.
- Department of Transport (DoT) 2007a, *Public transport strategy*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/dotpt-strategy170420070.pdf>
- Department of Transport (DoT) 2007b, *Public Transport Action Plan; Phase 1 (2007–2010) Catalytic Integrated Rapid Public Transport Network Projects*, Government Printing Works, Pretoria.
- Department of Transport (DoT) 2009, *National Land Transport Act No. 5 of 2009*, viewed 09 November 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/32110413.pdf>
- Department of Transport (DoT) 2012, *White Paper on National Transport Policy*, viewed 22 October 2022, <<https://www.gov.za/documents/national-transport-policy-white-paper>>
- Department of Transport (DoT) 2016, *Minimum Requirements for the Preparation of Integrated Transport Plans 2016*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201607/40174gon881.pdf>
- Department of Transport (DoT) 2020, *Public Transport Network Development Grant (2010–2020: Schedule 5)*, viewed 23 October 2022, <<https://vulekamali.gov.za/datasets/frameworks-for-conditional-grants-to-municipalities/2020-21-public-transport-network-grant-framework>>
- Republic of South Africa (RSA) 1996a, *The Constitution of the Republic of South Africa Act 108/1996*, viewed 22 October 2022, <<https://www.gov.za/documents/constitution-republic-south-africa-1996>>
- Republic of South Africa (RSA) 1996b, *National Education Policy Act, No. 27 of 1996a*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/act27of1996.pdf>
- Republic of South Africa (RSA) 1996c, *South African Schools Act, No. 84 of 1996b*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/act84of1996.pdf>
- Republic of South Africa (RSA) 1997, *Integrated National Disability Strategy (INDS), White Paper*, viewed 08 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/disability2.pdf>
- Republic of South Africa (RSA) 1998a, *Employment Equity Act, No. 55 of 1998*, viewed 22 October 2022, <<https://www.labour.gov.za/DocumentCenter/Acts/Employment%20Equity/Act%20-%20Employment%20Equity%201998.pdf>>
- Republic of South Africa (RSA) 1998b, *Skills Development Act 97 of 1998*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/a97-98.pdf>
- Republic of South Africa (RSA) 1999, *Skills Development Levies Act, No. 9 of 1999*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/a9-99.pdf>
- Republic of South Africa (RSA) 2000a, *Promotion of Equality and Prevention of Unfair Discrimination Act (PEPUDA) 4 of 2000*, viewed 08 October 2022, <<https://www.justice.gov.za/legislation/acts/2000-004.pdf>>
- Republic of South Africa (RSA) 2000b, *National Rehabilitation Policy*, Department of Health, Pretoria.

References

- Republic of South Africa (RSA) 2004, *National Health Act No. 61 of 2003*, viewed 08 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201409/a61-03.pdf>
- Republic of South Africa (RSA) 2006, *Framework and strategy for disability and rehabilitation services in South Africa, 2015–2020*, Government Printing Works, Pretoria.
- Republic of South Africa (RSA) 2008a, *National Building Regulations, an amendment of: Department of the Prime Minister, 1977, National Building Regulations and Building Standards Act, No. 103 of 1977 amended in 2008*, Government Printing Works, Pretoria.
- Republic of South Africa (RSA) 2008b, *National Treasury, Neighbourhood Development Partnership Grant (NDPG)*, Government Printing Works, Pretoria.
- Republic of South Africa (RSA) 2009, *National housing code*, viewed 23 October 2022, <<http://www.dhs.gov.za/content/national-housing-code-2009>>
- Republic of South Africa (RSA) 2011, *National Development Plan 2030: Our Future-make it work*, viewed 12 January 2020, <https://www.gov.za/sites/default/files/gcis_document/201409/ndp-2030-our-future-make-it-workr.pdf>
- Republic of South Africa (RSA) 2013, *Guidelines for the implementation of the Integrated City Development Grant in 2013/14*, viewed 23 October 2022, <<https://csp.treasury.gov.za/Projectdocuments/ICDG%20Guidelines%20v6.pdf>>
- Republic of South Africa (RSA) 2015a, *Estimates of national expenditure*, viewed 23 October 2022, <<http://www.treasury.gov.za/documents/national%20budget/2015/ene/fullene.pdf>>
- Republic of South Africa (RSA) 2015b, *Draft National Disability Rights Policy, Call for comments, Notice 129 of 2015*, viewed 23 October 2022, <https://static.pmg.org.za/150216/bationaldisabilityrightspolicy_2.pdf>
- Republic of South Africa (RSA) 2016a, *White Paper on the Rights of Persons with Disabilities (WPRPD)*, viewed 08 October 2022, <https://www.gov.za/sites/default/files/gcis_document/201603/39792gon230.pdf>
- Republic of South Africa (RSA) 2016b, *Consumer Protection Act no 68 of 2008*, viewed 22 October 2022, <https://www.gov.za/sites/default/files/32186_467.pdf>
- Republic of South Africa (RSA) 2016c, *Integrated urban development framework. A new deal for South African cities and towns*, viewed 22 October 2022, <https://iudf.co.za/pdf_downloads/2016-integrated-urban-development-framework/>
- Republic of South Africa (RSA) 2018a, *South Africa's 3rd climate change report*, DEA, Pretoria, viewed 13 January 2021, <<https://www.environment.gov.za/sites/default/files/reports/SouthAfricas-3rd-climate-change-report2017.pdf>>
- Republic of South Africa (RSA) 2018b, *2018–19 Human settlements development grant*, viewed 23 October 2022, <<https://vulekamali.gov.za/datasets/frameworks-for-conditional-grants-to-provinces/2018-19-human-settlements-development-grant-framework>>
- Republic of South Africa (RSA) 2018c, *Integrated Public Transport Networks (IPTN) plan development, technical guidance, Version 4*, viewed 23 October 2022, <<https://csp.treasury.gov.za/csp/DocumentsProjects/Consolidated%20IPTN%20Guidance%20V4%20Jan%202018.pdf>>
- Republic of South Africa (RSA) 2019a, *Draft national spatial development framework*, viewed 12 January 2020, <<https://www.dpme.gov.za/keyfocusareas/gwmeSite/The%20PME%20Forum%202018/FINAL-DRAFT-NSDF-September-2018-B-1.pdf>>
- Republic of South Africa (RSA) 2019b, *National Treasury 2010–2020*, viewed 22 October 2022, <<https://data.vulekamali.gov.za/dataset/9658d868-11a5-4e3c-840e-629d466ec1ec/resource/a523fda6-f416-42fe-9ca2-a441fa615d5b/download/2020-21-public-transport-network-grant.pdf>>
- Republic of South Africa (RSA) 2021, *Universal Design and Access Framework*, viewed 09 November 2022, <https://www.gov.za/sites/default/files/gcis_document/202110/45328gen606.pdf>

- South African Bureau of Standards (SABS) 2011, *South African National Standard, The application of the National Building Regulations, Part S: Facilities for persons with disabilities, supersedes SABS 0400:1990 (first revision) and SABS 0246:1993 (edition 1)*, Government Printing Works, Pretoria
- South African Human Rights Commission (SAHRC) 2002, *Towards a barrier-free society: A report on accessibility and built environments*, viewed 23 October 2022, <https://www.sahrc.org.za/home/21/files/Reports/towards_barrier_free_society.pdf2002.pdf>
- South African Human Rights Commission (SAHRC) 2012, *Human Rights of Persons with Disabilities – Human Rights Council Resolution 19/11*, 31 July 2012, viewed 23 October 2022, <<https://www.ohchr.org/sites/default/files/Documents/Issues/Disability/SubmissionWorkEmployment/CivilSociety/SouthAfricanHRCCommission.pdf>>
- South African National Road Agency (SANRAL) 2016, *Annual Report 2015/16, Government Printing Works, Pretoria*.
- United Nations (UN) 2006, *United Nations Convention on the Rights of Persons with Disabilities*, viewed 09 November 2022, <<https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html#Fulltext>>
- United Nations (UN) 2015, *Sustainable development goals*, viewed 09 November 2022, <<https://sdgs.un.org/goals>>
- United Nations (UN) 2016, *Convention on the Rights of Persons with Disabilities (CRPD)*, viewed 08 October 2022, <<https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>>
- United Nations (UN) 2017, *New urban agenda*, viewed 15 October 2021, <<https://uploads.habitat3.org/hb3/NUA-English.pdf>>
- Zero Project Report 2018, *Accessibility, International study on the implementation of the UN convention on the Rights of Persons with Disabilities – ‘For a World without Barriers’*, viewed 22 October 2022, <https://zeroproject.org/fileadmin/root_zeroproject/Downloads/Publications/Zero-Project-Report-2018-on-Accessibility.pdf>

Chapter 4

- Bernstein, H & Bernstein, R 1976, 'A study of Bantu homelands', in Collection number A3299, *Historical Papers Research Archive (Johannesburg) of the Nquthu area (northern KwaZulu)*, University of the Witwatersrand, Johannesburg, pp. 70–71, viewed 14 January 2021, <http://www.historicalpapers.wits.ac.za/?inventory_enhanced/U/Collections&c=271511/R/A3299-G1-2-2>
- Bhagat, H & De Greef, E 2020, *'Long past', African fashion?*, African Fashion Research Institute, Cape Town.
- Butler, O 1997a, *Dawn*, Warner Books, New York.
- Butler, O 1997b, *Adulthood rites*, Warner Books, New York.
- Butler, O 1997c, *Imago*, Warner Books, New York.
- Chiundiza, J 2020, The hand that feeds you: GPS Projects 2019, October 2020, viewed 19 January 2021, <<https://www.goethe.de/ins/za/en/kul/kuf/gps/g19/htf.html>>
- Coleman, N 2019, 'Digital colonialism: The 21st century scramble for African through the extraction and control of user data and the limitations of data protection law', *Michigan Journal of Race and Law*, vol. 24, p. 422. <https://doi.org/10.36643/mjrl.24.2.digital>
- Dixon, J & Durrheim, K 2000, 'Displacing place-identity: A discursive approach to locating self and the other', *British Journal of Social Psychology*, vol. 39, p. 27. <https://doi.org/10.1348/014466600164318>

References

- Dlamini, PD 2016, 'Lost in translation? An exploration of conceptual integrity in the translation of graded readers from English to isiZulu', PhD thesis, University of KwaZulu-Natal, Durban.
- Dube, S 2018, 'Abalisa abathathu bashayelwe ukufesa', *Eyethu News KZN*, 13 June, viewed 15 January 2021, <<https://eyethunews.co.za/48275/abalisa-abathathu-bashayelwe-ukufesa/>>
- Eshun, K 2003, *Further considerations on Afrofuturism, in the New Centennial Review*, vol. 3, No. 2, *global cities, possibilities of the globe*, Michigan State University Press, East Lansing.
- Faku'gesi 2018, *Vernacular algorithms pop up project- ISEA 2018, Durban, Faku'gesi*, 21 June, viewed 18 October 2020, <<https://fakugesi.co.za/vernacular-algorithms-pop-project-isea2018-durban/>>
- George, E & Akomfrah, J 2013, 'The last angel of history', *The Chronic*, December 2013, viewed 19 January 2021, <<https://chimurengachronic.co.za/the-last-angel-of-history/>>
- Gueye, O 2019, 'No Congo, no technologies', *Digital Earth*, 22 November, viewed 14 July 2022, <<https://medium.com/digital-earth/no-congo-no-technologies-163ea2caec0a>>
- Heaven, WD 2020, 'Predicting policing. Algorithms are racist, they need to be dismantled', *MIT Technology Review*, 17 July, viewed 17 January 2021, <<https://www.technologyreview.com/2020/07/17/1005396/predictive-policing-algorithms-racist-dismantled-machine-learning-bias-criminal-justice/>>
- Hlongwane, BR 2019, *Ifu Elimnyama: The dark cloud*, viewed 18 December 2020, <<https://findingctrl.nesta.org.uk/ifu-elimnyama-the-dark-cloud/>>
- Kelly, A 2019, 'Apple and Google named in US lawsuit over Congolese child cobalt mining deaths', *The Guardian*, 16 December, viewed 15 January 2021, <<https://www.theguardian.com/global-development/2019/dec/16/apple-and-google-named-in-us-lawsuit-over-congolese-child-cobalt-mining-deaths>>
- Lees, J & Heneck, S 2020, 'Reoccupation of public spaces', *Asiye etafuleni*, 03 July, viewed 20 October 2022, <<https://aet.org.za/reoccupation-of-public-spaces/>>
- Loffelbein, K 2018, *Kail Loeffelbeine*, viewed 05 February 2021, <<https://kailoeffelbein.com/book>>
- Makua, P & Kola, O 2017, 'Harmful mining activities, environmental impacts and effects in the mining communities in South Africa: A critical perspective', *Environmental Economics*, vol. 8, no. 4, pp. 14-24. [https://doi.org/10.21511/ee.08\(4\).2017.02](https://doi.org/10.21511/ee.08(4).2017.02)
- Mbembe, A 2016, 'Future knowledges, African Studies Association', *Abiola Lecture 2016*, Section 5, Afro-computation, viewed 18 April 2023, <<https://wiser.wits.ac.za/system/files/seminar/Mbembe2017.pdf>>
- Mutwa, C 1988, *Indaba, my children: African tribal history, legends, customs and religious beliefs*, Kahn & Averill, London.
- Nee-Qwana, AC 1994, 'Cultural and religious contrasts and symbiosis in D.B.Z Ntuli's Short Stories', PhD thesis, University of Durban, Westville.
- Ngcoya, M & Mottiar, S 2016, *Philanthropy in South Africa: Horizontality, Ubuntu and social justice*, HSRC Press, Pretoria.
- Nyamor, E 2020a, *To speculate is to remember, Goethe-Institut the hands that feed you*, October, viewed 18 January 2021, <<https://www.goethe.de/ins/za/en/kul/kuf/gps/020.html>>
- Nyamor, E 2020b, *Towards new metaphors of consciousness, Contemporary & América Latina*, October 2020, viewed 18 January 2021, <<https://contemporaryand.com/magazines/towards-new-metaphors-of-consciousness/>>
- Nyembezi, S & Nxumalo, O 1966, *Inqolobane yesizwe*, Shuter and Shooter, Pietermaritzburg.
- Saidi, F 2005, 'Developing a curriculum model for architectural education in a culturally changing South Africa', unpublished PhD thesis, University of Pretoria, Pretoria.
- Shepard, W 2019, 'What China is really up to in Africa', *Forbes*, October 2019, viewed 18 January 2021, <<https://www.forbes.com/sites/wadeshepard/2019/10/03/what-china-is-really-up-to-in-africa/?sh=552a054a5930>>

- Suarez-Villa, L 2009, *Technocapitalism: A critical perspective on technological innovation and corporatism*, Temple University Press, Philadelphia.
- Thembinkosi Goniwe, T 2019, 'Session 2: Living histories – Black memory as performing archives of the imagined new', *The Imagined New*, online audio, May 2019, viewed 18 April 2023, <<https://www.mixcloud.com/theimaginednew/session-2-living-histories-black-memory-as-performing-archives-of-the-imagined-new/>>
- Tutuola, A 1952, *The Palm-wine drinkard*, Farber and Farber, London.
- Wa Thiong'o, N 1987, *Decolonising the mind, the politics of language in African literature*, James Currey Ltd, New Haven.

Chapter 5

- Abrahams, R 2020, 'Sewage spills threat to vlel', *Southern Mail*, 14 October, viewed 02 February 2021, <<https://www.southernmail.co.za/news/sewage-spills-threat-to-vlel-7617d320-0119-4470-92bb-aa20732d92fd>>
- Akinyemi, B, Fashogban, A & Mushunje, A 2018, 'Factors explaining household payment for potable water in South Africa', *Cogent Social Sciences*, vol. 4, a1464379. <https://doi.org/10.1080/23311886.2018.1464379>
- Amin, A 2006, 'The good city', *Urban Studies*, vol. 43, nos. 5/6, pp. 1009-1023. <https://doi.org/10.1080/00420980600676717>
- Amin, A 2010, 'Cities and the ethic of care for the stranger', Joseph Rowntree Foundation/ University of York Annual Lecture, 03 February 2010, viewed 12 January 2021, <<https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/cities-and-the-stranger-summary.pdf>>.
- Brown, C & Magoba, R 2009, *Rivers and Wetlands of Cape Town: Caring for our rich aquatic heritage: Report No. TT 376/08*, Water Research Commission, viewed 02 November 2021, <<https://southernwaters.co.za/publication/item/104-rivers-and-wetlands-of-cape-town.html>>
- Brown, R, Keath, N & Wong, T 2008, *Transitioning to water sensitive cities: Historical, current and future transition states*, viewed 22 November 2021, <<https://www.semanticscholar.org/paper/Transitioning-to-Water-Sensitive-Cities%3A-Historical-Brown-Keath/1ab8b49029ed54efc4e42c5a74d51b88624f02ff>>.
- BusinessTech 2020, *South Africa has another big problem – People aren't paying for municipal services*, 20 August, viewed 12 January 2021, <<https://businesstech.co.za/news/government/427508/south-africa-has-another-big-problem-people-arent-paying-for-municipal-services/>>
- Cilliers, EJ 2019, 'Reflecting on green infrastructure and spatial planning in Africa: The complexities, perceptions, and way forward', *Sustainability*, vol. 11, no. 2, a455. <https://doi.org/10.3390/su11020455>
- Cilliers, EJ, Timmermans, W, Van Den Goorbergh, F & Slijkhuis, JSA 2014, 'Designing public spaces through the lively planning integrative perspective', *Environment, Development and Sustainability*, vol. 17, pp. 1367-1380. <https://doi.org/10.1007/s10668-014-9610-1>
- City of Cape Town (CoCT) 2020, *Ward 57: Application for rezoning, approval of council and deviations from city policies in terms of the Municipal Planning By-law, 2015: Erf 151832, 6 Liesbeeck Parkway (bounded by Liesbeeck Parkway and Observatory Roads)*, Observatory, Item no. MPTNW 60920, City of Cape Town, Cape Town.
- Culwick, C & Bobbins, K (eds.) 2016, *A framework for a green infrastructure planning approach in the Gauteng City-Region*, GCRO Research Report No. 4, Gauteng City-Region Observatory, Johannesburg, viewed 01 December 2020, <<https://www.gcro.ac.za/research/project/detail/green-assets-and-infrastructure/>>
- Dassler, T 2016, 'From care ethics to care politics: Towards a political notion of care', MA thesis, The Arctic University of Norway, Tromsø, viewed 05 May 2020, <<https://munin.uit.no/bitstream/handle/10037/9351/thesis.pdf?sequence=2&isAllowed=y>>

References

- Department of Cooperative Governance and Traditional Affairs (COGTA) 2016, *Integrated Urban Development Framework (IUDF)*, COGTA, Pretoria.
- Department of Environmental Affairs (DEA) 2018, *South Africa's 3rd climate change report*, Chapter 2, DEA, Pretoria, viewed 13 January 2021, <<https://www.environment.gov.za/sites/default/files/reports/SouthAfricas-3rd-climate-change-report2017.pdf>>
- Department of Water Affairs and Forestry (DWAF) 1996, *South African water quality guidelines*, 2nd edn., vol. 7, Aquatic Ecosystems, DWAF, Pretoria.
- De Wit, M, Van Zyl, H, Crookes, D & Blignaut, JN 2009, *Investing in natural assets: A business case for the environment in the City of Cape Town*, viewed 01 August 2021, <https://www.researchgate.net/publication/284724522_Investing_in_Natural_Assets_A_business_case_for_the_environment_in_the_City_of_Cape_Town>
- Govender, T & Mammon, N 2020, 'A clash of rights: The case of the Philippi Horticultural Area', *Journal for Juridical Science*, vol. 2021, viewed 18 April 2023, <<https://www.nmassociates.co.za/publications/research-and-publications/%E2%80%98clash-rights-case-philippi-horticultural-area%E2%80%99>>
- Green, L, Petrik, L, Solomon, N, Ojemaye, C & Romero, S, 2018, 'Sewage flowing into Kuils River creates a health hazard for all of Cape Town', *Daily Maverick*, 05 December, viewed 02 February 2021, <<https://www.dailymaverick.co.za/article/2018-12-05-sewage-flowing-into-kuils-river-creates-a-health-hazard-for-all-of-cape-town/>>
- Hansen, R & Pauleit, S 2014, 'From multifunctionality to multiple ecosystem services? A conceptual framework for multifunctionality in green infrastructure planning for urban areas', *AMBIO*, vol. 43, pp. 516-529. <https://doi.org/10.1007/s13280-014-0510-2>
- Indego Consulting 2018, *Building the City of Cape Town's resilience and adding to regional competitiveness: Philippi Horticultural Area: Socio-economic agricultural plan*, Indego Consulting, Somerset West.
- Jacobs, K 2020, 'Community protests over missing girl who fell into canal', *Capetown etc*, 12 July, viewed 02 February 2021, <<https://www.capetownetc.com/news/community-protests-over-missing-girl-who-fell-into-canal/>>
- Kotze, K 2020a, 'Zandvlei riddled with *E-coli*', *Falsebay Echo*, 22 October, viewed 24 September 2021, <<https://www.falsebayecho.co.za/news/zandvlei-riddled-with-e-coli-41c4c6bc-7baa-4456-876a-cda537dcd8c5>>
- Kotze, K 2020b, 'City ignores call to close Zandvlei', *Falsebay Echo*, 29 October, viewed 24 September 2021, <<https://www.falsebayecho.co.za/news/city-ignores-call-to-close-zandvlei-12c20dbb-966c-45e2-827d-77d04034d1d1>>
- Kretzmann, S 2019, 'City of Cape Town pollutes its own nature reserve, monthly water tests reveal', *News24*, 17 December, viewed 12 February 2021, <<https://www.news24.com/news24/SouthAfrica/News/city-of-cape-town-pollutes-its-own-nature-reserve-monthly-water-tests-reveal-20191217>>
- Murphy, K 2017, 'Inserting food security into the land debate', *Politicsweb*, 16 May, viewed 04 November 2020, <<https://www.politicsweb.co.za/news-and-analysis/inserting-food-security-into-the-land-debate>>
- O'Farrell, P, Anderson, P, Culwick, C, Currie, P, Kavonic, J, McClure, A & Wong, G 2019, 'Towards resilient African cities: Shared challenges and opportunities towards the retention and maintenance of ecological infrastructure', *Global Sustainability*, vol. 2, e19. <https://doi.org/10.1017/sus.2019.16>
- Pasquini, L & Enqvist, J 2019, *Green infrastructure in South African cities*, African Centre for Cities, viewed 25 November 2020, <https://www.africancentreforcities.net/wpcontent/uploads/2020/01/CSP_green-infrastructure_paper_LPasquini_JEnqvist_11.pdf>
- Pearson, B 2021, *Why we don't want to care (and what a relief to find we're right)*, viewed 15 April 2021, <<https://like-a-river.com/>>

- Peoples Post 2021, 'Urban water cycle's stories told', *Peoples Post*, 02 February, viewed 15 October 2021, <<https://www.news24.com/news24/community-newspaper/peoples-post/urban-water-cycles-stories-told-20210201>>
- RAMSAR n.d. *The convention on wetlands – Intergovernmental treaty*, viewed 22 October 2022, <<https://www.ramsar.org/about-the-convention-on-wetlands-0>>
- Republic of South Africa (RSA) 1996, *The Constitution of the Republic of South Africa Act 108/1996*, Government Printing Works, Pretoria.
- Rietveld, L, Siri, J, Chakravarty, L, Arseno, A, Biswas, R & Chatterjee A 2014, 'Improving health in cities through systems approaches for urban water management', *Environmental Health*, vol. 15, suppl. 1, p. 31. <https://doi.org/10.1186/s12940-016-0107-2>
- Rozenberg, J & Fay, M (eds.) 2019, *Beyond the gap: How countries can afford the infrastructure they need while protecting the planet*, Sustainable Infrastructure Series, World Bank, Washington DC.
- Sen, A 1999, *Development as freedom*, Alfred Knopf, New York.
- The Economics of Ecosystems and Biodiversity (TEEB) 2021, *Approach*, viewed 16 April 2021, <<http://teebweb.org/about/approach/>>
- Van Dyk, G 2017, 'Warn kids of Canal water', *News24*, 09 May, viewed 02 February 2021, <<https://www.news24.com/news24/SouthAfrica/Local/Peoples-Post/warn-kids-of-canal-water-20170508>>
- Woods Bollard, B, Wilson, S, Udale-Clarke, H, Illman, S, Scott, T, Ashley, R & Kellagher, R 2015, *The SuDS manual*, CIRIA Report 753, vol. 6, Construction Industry Research and Information Association (CIRIA), London.
- World Bank 2020, *Infrastructure data*, viewed 01 December 2020, <<https://www.worldbank.org/en/data/datatopics/infrastructure/about>>

Index

C

care politics, 109, 125
cities, 3-4, 6-10, 12-14, 16-19, 23, 25-26, 28,
37, 39, 41-42, 44, 56, 58, 61-62, 68,
70, 72-73, 77-78, 84-85, 103-106,
108-110, 112, 114-116, 118, 120, 122,
124-126, 128, 130-134
compassionate approach to city-making, 125

D

disability rights, 10, 12, 41-42, 44, 46, 48,
50, 52, 54-56, 58, 60, 62, 64, 66,
68, 70, 72, 74

E

economy, 4, 6, 8, 11, 24, 39, 78, 80, 93,
99, 111, 123

H

Hong Kong, 5, 10-11, 17-25, 27-28, 30, 34,
39-40, 133

I

indigenous, 79, 83, 87, 96, 99-100, 111

L

language, 13-14, 45, 77-81, 83-89, 91-92,
98-100
long past, 13, 77-78

N

new imaginaries, 10, 12, 15, 18, 132

P

people, 3-4, 6-10, 12-14, 16-17, 20-21, 24, 26,
31, 33, 41-59, 61-67, 69-70, 77, 79-83,
85-86, 88-89, 92, 95, 98-99, 103, 106,
108, 111-112, 115-117, 119, 122, 128, 131-133
public finance, 51, 53

S

space, 3-4, 6-10, 12-20, 22, 24, 26, 28, 30,
32, 34, 36-38, 40-45, 49, 52, 56-57,
67, 73, 77-80, 82, 84-86, 88, 90-92,
94, 96, 98, 100, 103, 105, 108-109, 113,
118-119, 122-123, 126, 131-133

T

technology, 3-4, 6-10, 12-14, 16-17, 41-42,
77-85, 87, 92-100, 103, 115, 131-133
transformation, 3, 7-9, 11, 17-18, 26, 28, 34,
41, 63-64, 77, 103, 130-132

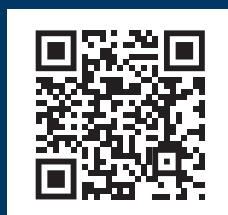
U

universal design, 42, 49, 55, 57, 60, 63,
65-66, 68-70, 73-74
urban morphology, 25

The **Built Environment in Emerging Economies (BEinEE): Cities, Space and Transformation Book Series** focuses on the connection between the built environment and economic development in the Global South, aiming to present unique perspectives and develop alternative theoretical frameworks for the study of the built environment better suited to the respective contexts. In so doing, it aims to contribute to advancing knowledge and skills that lead to producing equitable, dignified and functional human settlements through a collection of writings from non-traditional perspectives and actors.

Volume 2 explores how changing the lenses and methods of representation can enable the generation of new imaginaries and significantly broaden the scope of what is possible for prosperous and contextual urban futures. The book gently departs from the typical theoretical and technocratic focus on the form and image of the techno-city, moving on to engage in a deep and textured way with the contextualised stories, intelligence and processes of urban places.

With authors from Africa, Asia and Europe, the book draws inspiration and perspectives from a diverse range of disciplines, texts and experiences. Yet, even in this diversity, the book represents a scholarly discourse, as it is a book written by scholars for scholars, indicating new tributaries for thought, conversation and practice.



Open access at
<https://doi.org/10.4102/aosis.2023.BK323>



ISBN: 978-1-991269-01-0