



## 2019

### South African Sweden University Forum (SASUF) Symposium

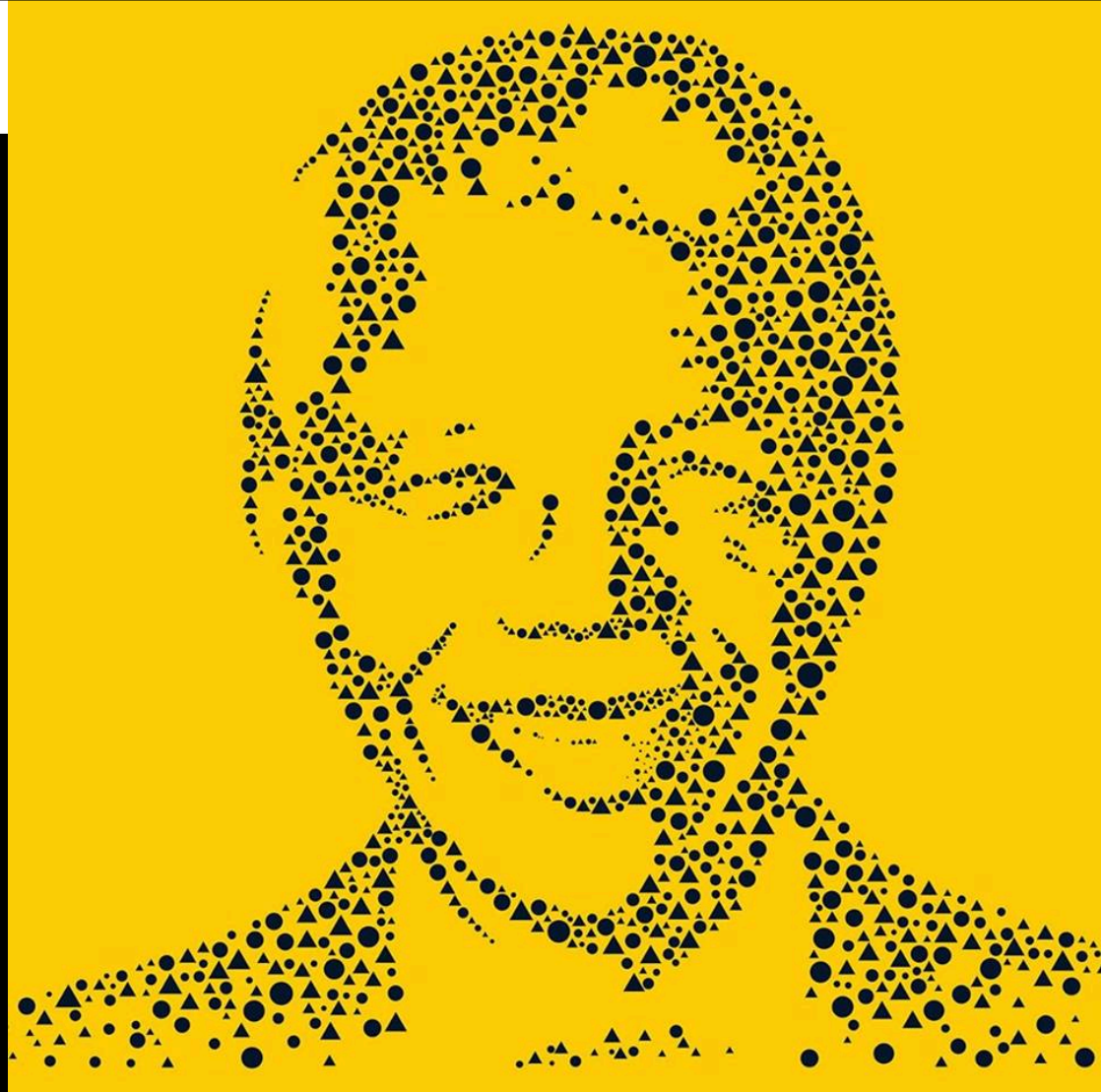
## 6 May 2019



**NELSON MANDELA**  
UNIVERSITY



<https://sasuf2019.mandela.ac.za/>



### **SYMPOSIUM THEME:**

Sustainable urbanization through research, innovations and partnerships

Book of Abstracts  
of the  
**South African Sweden University Forum (SASUF)  
2019 Symposium**

**Nelson Mandela University**, in collaboration with,  
**South Africa Sweden Universities Forum (SASUF),**  
**Department of Science and Technology, and**  
**Department of Human Settlements**

HOSTING

**Sustainable Urbanisation Symposium**

Nelson Mandela University, North Campus  
Goldfields Auditorium  
Summerstrand  
Port Elizabeth,  
South Africa

**6 May 2019**

**Symposium Theme:**  
**Sustainable urbanisation through research, innovation and partnerships**

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Printed in Port Elizabeth, South Africa.

**Notes about this Book:**

This book includes only the abstracts accepted for presentation at the SASUF2019 SYMPOSIUM. This book was completed and posted to <https://sasuf2019.mandela.ac.za> in April 2019.

**Requests for Edits:**

All abstracts in this book are unedited and published as submitted by the author(s) for peer review. It is the policy of the SASUF 2019 Symposium Committee that the abstracts will not be edited at a point of Book of Abstracts publication. If information is missing about an author, it may not have been provided when submitting the abstract. We do understand the importance of names; that paper titles change as time goes on; and authors are added or dropped. In these instances, any necessary changes for the final program should be sent to Charlene.dale@mandela.ac.za. Updates to this book are not made immediately.

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## CONFERENCE CHAIR

### Message from the Chairperson

**Prof Sijekula  
Mbanga**



The Nelson Mandela University in collaboration with the South African – Sweden Universities Forum (SASUF), the Department of Science and Technology, and the Department of Human Settlements is convening a SASUF 2019 Symposium, a Satellite Event that is part of the 2019 SASUF Research and Innovation Week taking place on 6 to 10 May 2019. The Symposium is held on 6 May 2019 in the Nelson Mandela University, North Campus, Goldfields Auditorium, in Port Elizabeth, South Africa.

The Symposium presents a platform for researchers, professionals and general public to share multi-, inter- and trans-disciplinary research outputs and innovative case study projects aimed at systematically responding to the rapid urbanisation phenomenon. The event is convened under the Theme: '*Sustainable urbanization through research, innovations and partnerships*', with the subsidiary focus areas being: sustainable rural development interventions, urban renewal and re-design, peace and stability, citizen hope and universal happiness, urban economy and business development, nutrition and food security, public spaces and social inclusivity. Academic papers located within these topics have been subjected to a double-blind peer review process that will culminate in approved full papers for presentation in the Symposium, a Proceedings Publication (ISBN 978-1-928472-12-4). High quality papers will, at the cost off authors, be published, on negotiated page fees, in a Special Edition of the Journal for Public Administration. Case study innovative projects that are pursued through partnerships will be received. A portfolio of collaborative innovative projects will be assembled and their progress tracked in future SASUF Research and Innovation Seminars. A visit by Symposium delegates to an Enhanced Peoples Housing Process development in Walmer Airport Valley, Port Elizabeth, is planned as part of the Symposium Program. Under the guidance of a Scientific Committee, a multi-disciplinary ant internationally oriented Panel of Reviewers to consider academic contributions has been assembled. A total of 62 abstracts of between 150 and 300 words, responding to one or more of the selected topics have been received.

This Book of Abstracts of Symposium papers provides a summary of the diverse abstracts that have been submitted by authors, in response to the Call for Papers under the Symposium Theme: *Sustainable urbanisation through research, innovations and partnerships*. This Theme is an inter-disciplinary effort that investigates antecedents for transformation towards sustainable and environmentally friendly cities and human settlements. The theme invites immediate action from all role-players through providing tangible solutions to pressing questions that confront South African and Sweden cities, towns and villages. The Theme puts emphasis on the significance of partnerships in generating knowledge and innovations aimed at providing sustainable solutions that cities may explore in their endeavour to respond to rapid urbanisation and Climate Change. The Symposium is more inclined towards viewing the urbanisation phenomenon as presenting both challenges to be mitigated and opportunities to be explored by Cities of today to realise their medium and long-term prosperity and sustainability goals. Additional information about the Symposium can be accessed from the URL Link <https://sasuf2019.mandela.ac.za>.

We look forward to a successful SASUF 2019 Symposium.

**Prof Sijekula Mbanga, PhD**

Chairperson: SASUF 2019 Symposium Scientific Committee  
Nelson Mandela University  
**PORT ELIZABETH**  
6001  
Republic of South Africa

## CONFERENCE SECRETARIAT

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## SESSION CHAIRS & BIOGRAPHIES

Below

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Venue: Goldfields Auditorium, North Campus Track 1: Citizen hope and universal happiness		Prof Babatunde Agbola Mangosuthu University of Technology
		PARALLEL SESSION 2
Venue: The Theatre, Conference Centre, North Campus Track 2: Technology and innovation projects driven through partnerships		Dr Jeffrey Mahachi University of Johannesburg
	TIME: 13:30	PARALLEL SESSION 3
Venue: Venue 2, Conference Centre, North Campus Track 3: Sustainable peri-urban and rural development		Dr Sithembiso Myeni University of KwaZulu-Natal
		PARALLEL SESSION 4
Venue: Senate Hall, North Campus Track 8: Nutrition and food security		Mr Thomas Stewart University of the Free State
	TIME: 15:00	PARALLEL SESSION 5
Venue: Goldfields Auditorium, North Campus Track 4: Urban renewal and redesign		Prof Janet Cherry Nelson Mandela University
		PARALLEL SESSION 6
Venue: The Theatre, Conference Centre Track 5: Public spaces and social inclusivity		Dr Rosemary Hayangah University of KwaZulu-Natal
	TIME: 15:00	PARALLEL SESSION 7
Venue: Venue 2, Conference Centre, North Campus Track 6: Urban economy and business development		Prof Ronney Ncwadi Nelson Mandela University
		PARALLEL SESSION 8
Venue: Senate Hall, North Campus Track 7: Curriculum enhancement and system-wide capacity building		Dr Robert Mongwe University of the Fort Hare
	TIME: 15:00	PARALLEL SESSION 9
Venue: Goldfields Auditorium, North Campus Track A: Sustainable peri-urban and rural development		Dr Thomas Ramovha Department of Human Settlements
		Dr Elufemi Ojo-Fajura Nelson Mandela University
Venue: The Theatre, Conference Centre Track B: Urban renewal and re-design		Mr Pedro Mzileni Nelson Mandela University
	TIME: 15:00	SPECIAL SESSION
Venue: Venue 2, Conference Centre, North Campus Track C: Public spaces and social inclusivity		Dr Jeremy Gibberd Council for Scientific and Industrial Research
		Academic Advisory Panel on the Road Map for Science Technology and Innovations for Sustainable Human Settlements in South Africa
Opening and Welcome		
Purpose of the session		
Rad Map on STI4SHS Project		
Questions / Comments /Discussions		
A way forward		
Closure and Announcements		



## PARALLEL SESSION 1

### **Prof Babatunde Agbola**

Mangosuthu University of Technology

**Venue:** Goldfields Auditorium, North Campus  
**Track 1:** Citizen hope and universal happiness



Babatunde Samuel Agbola is an Urban and Regional Planner with lifelong interest in Human Settlement Development and how this has been affected by climate change. He holds a BSc Degree in Economics from the Ahmadu Bello University in Nigeria and an MCP, MA and PhD degrees from the University of Pennsylvania, Philadelphia. He was the Pioneer Director of Physical Planning at the University of Ibadan, Nigeria. He is currently the Chair of the Regional Committee for Africa (RCA) of the International Council for Science (ICSU) now merged with the International Social Science Council (ISSC) as International Science Council (ISC).

He was a past Chair of the Association of African Planning Schools (AAPPS), the Chair of the Nigerian Chapter of the Land Use, Land Cover Change Group of the International Geosphere-Biosphere Programme (IGBP). Prof Agbola was one of the Pioneer Members of what is today the Safer Cities Network of the UN-Habitat. He was a Visiting Professor of Planning at the University of Northern Iowa, Cedar Falls. He is the author of fifteen books, seventy-two Chapters in highly rated books published by reputable international publishers and over fifty three peer reviewed international and local journal articles. Most of these publications are in the area of Human Settlement Development and Management.

## PARALLEL SESSION 2

### **Dr Jeffrey Mahachi**

University of Johannesburg

**Venue:** The Theatre, Conference Centre, North Campus  
**Track 2:** Technology and innovation projects driven through partnerships



Jeffrey Mahachi is a registered professional engineer and registered construction project manager. Jeffrey obtained his qualifications from Wits University (PhD), University of Surrey (MSc) and University of Zimbabwe (BS Eng). He is also a recipient of an M.IT degree from University of Pretoria. Jeffrey is currently the Head of School of Civil Engineering and the Built Environment at the University of Johannesburg and lectures structural engineering.

He has previously worked for the National Home Builders Registration Council, where he held several executive positions, worked for the Council for Scientific and Industrial Research (CSIR) as a Research Engineer and lectured at Wits University. Jeffrey has also been involved in a number of construction projects including sustainable human settlements and the roll-out of innovative building systems. Jeffrey has contributed to the development of standards and is passionate about developmental engineering and promoting innovation in the construction industry.

He is currently serving as a Board Member of Agrément South Africa, Council for GeoScience, the Engineering Council of South Africa and the Clay Brick Association. He has authored and co-authored two books in structural engineering and several journal and conference papers.

## PARALLEL SESSION 3

### **Dr Sithembiso Myeni**

University of KwaZulu-Natal

**Venue:** Venue 2, Conference Centre, North Campus  
**Track 3:** Sustainable peri-urban and rural development



Sithembiso Myeni is a Lecturer in Housing and Planning at the University of KwaZulu-Natal (UKZN). Before this appointment, he was a former post-doctoral fellow with South African Research Chair Initiative in Applied Poverty Reduction Assessment at UKZN. Myeni is also a Cannon Collins Educational Trust and Ford Foundation Alumnus. He serves as a Principal Investigator for the Sustainable Human Settlements Decision Support Tools and the Municipal Innovation Maturity Index Research Projects. His research interests are gender and housing, Science, Technology and Innovation as well as rural development.

#### PARALLEL SESSION 4



**Mr Thomas Stewart**  
University of the Free State

**Venue:** Senate Hall, North Campus  
**Track 8:** Nutrition and food security

Thomas has been a housing practitioner since 1991. He developed a passion for human development and residential property development while studying towards his master's degree in town- and regional planning at the University of the Free State. During his student years he was involved in various community development initiatives, facilitating the engagement of students in the broader community, where he got exposure to the social dynamics of a developing South Africa.

Following his university studies, he spent time in Public Service as a Town Planner. He subsequently joined the Urban Foundations' Housing Policy Unit in 1991. The latter resulted in project managing one of the biggest (4000 units) Informal Settlement Upgrading projects in South Africa, i.e. Freedom Square in Bloemfontein.

His housing development involvement extended to various towns in the Northern Cape; Free State; and Eastern Cape, where a spread of Informal Settlement Upgrades; Greenfields Developments; Owner Managed (Peoples Housing Process); Social Housing Projects; and Retirement Villages has been structured and implemented by him, in his capacity as either development or project manager, employed by the New Housing Company (NewHco) and Inframax (1992 – 2007). He founded his own housing development management company, Hadedu Developments, in 2007. This allowed him an entrepreneurial space and exposed him to a wider range of opportunities and business initiatives.

On 1 August 2014, he joined the University of the Free State as lecturer in the Department of Urban and Regional Planning and is the main driver of an honours course in Spatial Planning, Specialising in Human Settlements. Other than teaching honours' and masters' students he also supervises several masters'-; mini-; and full research dissertations.

#### PARALLEL SESSION 5



**Prof Janet Cherry**  
Nelson Mandela University

**Venue:** Goldfields Auditorium, North Campus  
**Track 4:** Urban renewal and redesign

Janet Cherry is a South African social justice activist and academic. She is currently Professor and Head of the Department of Development Studies at the Nelson Mandela University in Port Elizabeth. She has a PhD in political sociology from Rhodes University. Her main areas of research are sustainable development, democratic participation, social and political history, labour, gender and human rights. She has published two books as well as a number of articles and chapters in books on South African history, labour and social movements, transitional justice and sustainable development.

#### PARALLEL SESSION 6



**Dr Rosemary Hayangah**  
University of KwaZulu-Natal

**Venue:** The Theatre, Conference Centre  
**Track 5:** Public spaces and social inclusivity

Rosemary Awuor Hayangah (Pr Pln) holds a Ph.D. in Planning (Wales); MA in Urban & Regional Planning BSc. (1<sup>st</sup> Class Hons) Nairobi. Dr. Hayangah is a renowned Urban & Regional Planner with over 20 years' experience in research and planning practice, Specialist in settlement planning, housing, place making and neighbourhood development with over 15 years' experience as a lecturer at the university level. She has supervised over 30 Masters and 4 PhD student research projects and published several papers.

She has a wide international urban and regional planning experience; has been team leader and project manager in a number of planning projects including long term and short term physical development plans;



social surveys; data management and a Web enabled GIS project and was in charge of IT training for programme for staff members in a Town & Regional Planning Department.

Dr Hayangah has over 15 years working experience with local government both as a practicing planner and Technical Consultant on physical planning and infrastructure development. She is a former Head of School for Architecture, Planning & Housing at the University of KwaZulu-Natal. She is currently a Programme Delivery Facilitator with the National Department of Human Settlements (South Africa) and practising professional planner.

## PARALLEL SESSION 7

**Prof Ronney Ncwadi**  
Nelson Mandela University



**Venue:** Venue 2, Conference Centre, North Campus  
**Track 6:** Urban economy and business development

Prof Ncwadi holds a PhD in Economics from Nelson Mandela Metropolitan University. His areas of specialization are Public Finance, Money & Banking, International Finance, Health Economics, Labour Markets, Macroeconomics, and Applied Econometrics. His research interest is in Public Finance, Policy Analysis and Entrepreneurship.

Professor Ncwadi is a former Deputy Dean of the Faculty of Management and Commerce at Fort Hare University and also a Director of Macroeconomic Analysis Unit at the Eastern Cape Provincial Treasury. He has also been a Head of Department of Economics at Nelson Mandela University. He is currently a Full Professor of Economics and a Director of the School of Economics, Development and Tourism at Nelson Mandela University. Prof Ncwadi is a co-chair of Pan African Entrepreneurship Research Council Editorial Committee in USA. He is a member of BRICS Academic Think-Tank and Athens Institute for Education and Research.

## PARALLEL SESSION 8

**Mr Robert Mongwe**  
University of Fort Hare



**Venue:** Senate Hall, North Campus  
**Track 7:** Curriculum enhancement and system-wide capacity building

Robert Mongwe holds a Master's Degree in Anthropology from the University of Stellenbosch (MPhil Anthropology), a BHons (Development Studies), and BA (Politics) from the University of the Western Cape. Robert's interests are in the areas of Housing Studies, especially informal settlements upgrading, housing politics and citizenship, culture, development, and land.

In his current position Robert has supervised postgraduate (at Masters Level) in the areas identified above. Robert attends national and international conferences. Currently he is involved in a research project funded by the National Institute of Social Sciences & Humanities entitled ***"Imagining the Future of Land Reform in Post-apartheid South Africa"***. Robert is also the Convenor and Head of department and part of team who developed the Bachelor of Social Science in Human Settlement at the University of Fort Hare.

## PARALLEL SESSION 9



**Dr Thomas Ramovha**  
Department of Human Settlement

**Venue:** Goldfields Auditorium, North Campus  
**Track A:** Sustainable peri-urban and rural development

Dr Thomas Ramovha is currently the incumbent of the position of Director Technical Capacity Development in the National Department of Human Settlements of the Government of South Africa. His educational Qualifications are: (i) National Diploma in Organisation and Work Study (factories) from Technikon RSA; (ii) Diploma in Municipal Governance from Rand Afrikaans University; (iii) Bachelor of Technology degree in Management Services from Technikon Witwatersrand; (iv) Advanced Programme in Organisational Development from UNISA; (v)

Master of Commerce degree in Leadership from University of KwaZulu-Natal; and (vi) Doctor of Philosophy (DPhil) in Engineering Management from University of Johannesburg.

He worked for organisations in private sector (i.e. AECL, Gencor Mining, and SAPPI), the public sector (i.e. Provincial department of Local Government & housing in Limpopo, Boksburg local Municipality, Ekurhuleni Metropolitan Municipality & the National Department of Human Settlements) and the State Owned Entity (i.e. ESKOM). His responsibilities were in the areas of Productivity Improvement, Organisational Effectiveness, Organisational Development, Change Management, Process Engineering and Capacity development.

## PARALLEL SESSION 10



**Dr Elufemi Ojo-Fajura**

Nelson Mandela University

**Venue:** The Theatre, Conference Centre

**Track B:** Urban renewal and re-design

Dr. Ojo-Fajura, Joseph Olufemi was born about 56 years ago in Ado-Ekiti, Ekiti State, Nigeria. He holds a Higher National Diploma in Town and Regional Planning (YCT, Yaba Lagos, 1987); Post Graduate Diploma in Urban and Regional Planning (FUT Akure, 2004); Master in Environmental Management (UNAD, Ado-Ekiti, 2005); Master of Technology in Urban and Regional Planning (FUT Akure, 2010); and Doctor of Philosophy in Town and Regional Planning (UKZN, Durban, 2018).

He joined Yaba College of Technology in 2005 and he is now a Senior Lecturer in Urban and Regional Planning Department of the Institution. His research areas cut across urban and rural landscape planning; green landscaping and green growth; urban design and development; environmental impact assessment; livelihood strategy and liveability enhancement; promotion of socio-economic and environmental sustainability, strengthening climate adaptation, disaster mitigation and vulnerability reduction, building resilience in communities; environmental planning, design and management for sustainable human settlement development. He has published articles in learned journals and chapter contributions to textbooks and has presented many papers at conferences. He is currently a Research Fellow in the Department of Building and Human Settlement of the Nelson Mandela University, Port Elizabeth, South Africa.

He is a member of the Nigerian Environment Society Nigerian Institute of Town Planners (NITP) and a registered Town Planner with the Town Planners Registration Council (TOPREC) in Nigeria. Having acquired cognate academic and professional qualifications, he has been involved in various aspects of Urban and Regional Planning practice, consultancy and academia.

## PARALLEL SESSION 11



**Mr Pedro Mzileni**

Nelson Mandela University

**Venue:** Venue 2, Conference Centre, North Campus

**Track C:** Public spaces and social inclusivity

**Pedro Mzileni** is a lecturer in the Department of Sociology at the Nelson Mandela University, a researcher in the Chair for Critical Studies in Higher Education Transformation, an Editor of the Perspectives Online Journal, a columnist for the Herald newspaper and the Mail and Guardian. Before his current job he was a Senior Manager of Living and Learning Programmes at the Premier Student Accommodation (Pty) Ltd. He is also the former Speaker of Student Parliament (2014), and a former SRC President (2016/17) at the Nelson Mandela University. He completed his Bachelor of Arts degree (2015), BA Honours in Sociology (2016) and Master of Arts in Sociology (2018) at Mandela University. He is currently enrolled for a PhD in Sociology with the Nelson Mandela University where he is examining the "Infrastructure responses of selected South African universities post the #FeesMustFall protests." His first book entitled "#FeesMust Fall in Mandela University" will be published in November 2019. He co-authors the book with Siyabulela Mandela who is also a PhD candidate in Political Science at Nelson Mandela University, South Africa.

**Dr Jeremy Gibberd**

Council for Scientific and Industrial Research, South Africa

Opening and Welcome  
Purpose of the session  
Rad Map on STI4SHS Project  
Questions / Comments /Discussions  
A way forward  
Closure and Announcements



Dr Jeremy Gibberd is an Architect, Teacher and Research Scientist. He has worked on a wide range of innovative projects in the UK, the USA, South Africa, Botswana, Zambia, Tanzania and Sierra Leone that redefine how built environments are planned, designed, built and operated to become more inclusive and more sustainable.

These projects include inclusive schools and TVET colleges, self-build housing and sustainable neighbourhoods, high performance office buildings and PPP projects, master planning for eco estates and universities, design guidelines, policy, legislation and training, water resilience, climate change and building regulations research as well as sustainability policies and bylaws for African cities. This work has been distilled in a number of books, papers and tools which have been published.

Jeremy is currently working on digital ecosystems, water resilience, building regulations, circular economy and housing projects and is an editorial board member of Building Research and Information (BRI) journal and the Coordinator of the Smart and Sustainable Built Environment (SASBE) working group of the CIB.

## ABSTRACTS

### PAPER 3

**Title:** *Creation of knowledge cities for South Africa. A case of Nelson Mandela Bay*

**Authors:** *Roseline Karambakuwa and Ronney Ncwadi*

**Author keywords:**

Keywords - Urban development

Knowledge management

Creative urban regions

The objective of the study is to investigate the different development approaches for creative urban regions in South Africa with a case on Nelson Mandela Bay. The study also aims to come up with recommendations for urban administrations planning for knowledge-based development of creative urban regions in South Africa. Knowledge-based economy has scaled up due to the rapid advances in information and communication technologies during the last two decades that established the necessary infrastructure. The economy of a knowledge city creates high value-added products using research, technology, and brainpower. This study adopts a new development paradigm of knowledge-based urban development (KBUD) which pertains processes of knowledge production, and their reflection on the urban form and functions, providing a new perspective for the development of creative urban regions. KBUD, involves contemporary understanding and management of value dynamics, capital systems, urban governance, development, and planning, leading to sustainable urban and economic development. The KBUD framework is applied qualitatively to assess the different development approaches for creative urban regions in South Africa. KBUD framework specifies that there are four development domains of knowledge, namely economic, socio-cultural, enviro-urban, and institutional. Further, a review of literature and examination of global best practice experiences is carried out to determine how other cities worldwide are engineering their creative urban regions thereby establishing a base for knowledge city formation in South Africa. This paper is of significance to South Africa and other developing countries since it provides important insights and discussion on the vital role of planning for knowledge-based development of creative urban regions in a developing country perspective. The paper comes up with recommendations for urban administrations planning for knowledge-based development of creative urban regions. This paper produces a wealth of inspirational information for cities preparing themselves for the knowledge era.

### PAPER 4

**Title:** *Public Spaces and the Quest for Urban Integration in South Africa*

**Authors:** *Sanele Mbambo, Samuel Agbola and Olorunfeni Olojede*

**Author keywords:**

Public spaces

Inclusivity

Urban Integration

This paper is about the role of public spaces as fundamental instruments to attain integration in the post-democratic urban environments in South Africa. It assesses the effectiveness of urban public spaces in promoting social integration and responsiveness to urban fragmentation. Furthermore, evaluates public involvement in the planning, development and management of these spaces and the sociality of public spaces. The study uses existing literature and policies on urban public spaces including cases and perspectives to gather secondary data. It uses Collaborative Planning Theory which, according to Healy (2003) views planning as an interactive process and a governance activity, as an anchor for the paper. This takes place in a complex and dynamic institutional environment shaped by various social and economic forces. In addition, planning also involves policy initiatives concerned with maintaining and enhancing the qualities of space. This is in line with the South African urban planning policy framework that advocates for inclusive multi-stakeholder planning to respond to various dynamics that includes social fragmentation. Preliminary findings show that projects that followed joint stakeholder partnerships have been successful in meeting the envisaged objectives of social cooperation. However, planning policy intensions in South Africa have not been reflected in practice as envisaged and this may be due to low institutional capacity to implement such policy goals. It could also be that policy design fails to fit existing contemporary conditions. The paper concludes that public spaces in South Africa have become spaces of contestation than cooperation due to dynamics that include social inequality.

As a result, this has prolonged the quest for urban integration and has undermined the potential for public spaces to promote social integration.

## **PAPER 5**

**Title:** *One three on Child Programme as a strategy towards contributing to household food and nutrition security: The case study of O.R. Tambo District Municipality*

**Authors:** *Nomakhosazana Meth, Siphemathi Madlulela and Henry Jacob Festus Ssekibuule*

### **Author keywords:**

Food and nutrition Security

Household

Program

Food and nutrition security is a serious challenge affecting many regions across the world. Improving household food and nutrition security is an important gateway for any government to improve the standard of living for its citizens. This article forms part of the One Tree One Child program by the O.R. Tambo District Municipality as an innovative way to make contribution to food security by engaging children and communities in tree planting activities. This program was initiated by the office of the Honourable Executive Mayor councillor Nomakhosazana Meth aimed at making valuable contribution to the improvement of global climate challenges for improved food security, livelihood and secure future generations in the district. The program believes that sustainable community development and improved household food security does not depend on individuals, instead it rest upon a collective effort. Thus, this project is jointly supported by several stakeholders both from the public and the private sector, including the Department of Agriculture, Forestry and Fisheries who is the custodian of greening in the country, Department of education, Traditional authorities, Councillors, Schools, SAPPI, ECRDA and the five local municipalities that are within the geographic borders of the ORTDM, namely: Ingquza Hill Local Municipality, King Sabatha Dalindyebo, Mhlontlo, Nyandeni and Port St Johns Local Municipality. Each of the stakeholders has played a great role in establishment and sustaining of this project through provision of land, skills, labour, expertise, trainings and funding. The schools and children are the primary drivers and beneficiaries from the program through indigenous tree planting for greening purposes and the distribution of fruit trees to plant at home for food and nutrition security. The program carry's the notion that planting trees with children have long lasting effects including economic, environmental and social benefits and it further promote a strong relationship between a child and the nature.

## **PAPER 6**

**Title:** *Food insecurity and transactional sex among female students. A case at the University of Fort Hare, South Africa.*

**Authors:** *Mongameli Goso, Olwethu Matinise and Jabulani Gilford Kheswa*

### **Author keywords:**

Food insecurity

Transactional sex

Sexually transmitted infections

University female students

Literature highlights demographics and socio-economic factors as associated with transactional sex among university female students. In sub-Saharan countries such as Kenya, Zimbabwe and South Africa, where there is high rate of unemployment in black communities, female students tend to engage in transactional sex due to food insecurity and lack of money to pay fees and for accommodation. In turn, such youths become susceptible to contracting sexually transmitted infections and unwanted pregnancy owing to multiple sexual partnerships. In determining the effects of transactional sex among university female students, the researchers opted for Emmerson's social exchange theory and Ajzen's Problem-Behaviour Theory (PBT) as theoretical frameworks. A contextual, qualitative research design was adopted to purposively interview fifteen female students, aged 18 to 21 years, from the University of Fort Hare (Alice Campus) in the Eastern Cape, South Africa. Ethical considerations such as informed consent, anonymity and confidentiality were maintained throughout data collection. After a thorough process of coding the themes as suggested by Lincoln and Guba, the participants mentioned father absence, lack of parental emotional support, poverty and peer pressure as leading factors to transactional sex. Therefore, intervention programmes from various stakeholders, namely; university management, community leaders and student representatives are imperative to curb transactional sex since the government experiences financial loss due to attrition rate as a result of unwanted pregnancies and to cater for students living with HIV/AIDS.



## **PAPER 7**

**Title:** *Modelling the household unit size with respect to time – A critical literature review output*

**Authors:** *Emmanuel Kizito Kabundu, Brink Botha and Sijekula Mbanga*

### **Author keywords:**

Housing affordability

Housing tenure

Household

Housing affordability and tenure change prediction and forecasting is very important for urban economists, because urban areas are quite complex with unique problems. Central to this cause is the big challenge of modelling the changes in the household unit, whose characteristics with respect to time lie at the core of any kind of meaningful analysis of the general affordability and tenure status trends of an entire urban area. This is important, given the fact that South Africa is already highly urbanized, with the rate of urbanization still increasing.

**Purpose:** This research will provide a comprehensive identification of a systematic technique of modelling likely changes in household sizes per given age ranges with respect to time. The household will be treated as a unique entity which is born at a certain point in time, and dies after a given period. The unit also is subject to emigration, immigration, and mortality effects at each age group for any year or period of analysis.

**Design:** The design will be based on examination or reviewing of existing literature that is relevant to housing affordability and housing tenure of choice changes.

**Research Limitations/ implications:** The research scope will be applicable to any typical urbanized environment like most South African urban areas. The research will also concern itself only with the review of the existing relevant literature, and drawing conclusions or implications from it.

**Implications:** Because one of the major factors affecting housing affordability, and therefore tenure change is the household size, it is important to consider in detail the theoretical principles governing changes in household sizes with respect to time. These will act as a guide in formulating proper mathematical models, as an aid in forming a practically working affordability and tenure change prediction tool, as an aid for decision making in the housing sector.

**Response to the conference theme:** The aim of this research is partly to contribute towards the determination of housing affordability and tenure changes with respect to time. It is recognized that non-systematic and poor planning in the housing sector within urban areas (for example due to ineffective policies or improperly setting the right values of housing market statistics like down payment and borrowing interest rates) can lead to urban area problems like homelessness and therefore crime. This has an impact on urban area peace and quality of life. On the other hand to move the housing market to be proportionally predominantly biased towards owner occupation or rental occupation cannot be done by chance or trial and error. A properly working model must be used first to simulate the likely outcomes.

This research is considered very relevant to the following conference sub-theme(s):

- Urban economy and Business development
- Peace and stability
- Cutting innovation projects driven through partnerships

## **PAPER 8**

**Title:** *Sustainable Development in Metropolitan Cities: New Urbanism Perspective*

**Authors:** *Themba Lukhele*

### **Author keywords:**

Sustainable Development

Metropolitan Cities

New Urbanism

### **EasyChair keyphrases:**

metropolitan city (50)

sustainable development (50)

Sustainable Development Goal number eleven calls for the formation of inclusive and sustainable cities in terms of the provision of quality and resilient housing, safe and adequate basic services, upgrading of slums, accessible transport systems, and reducing adverse environmental impact. In order to realize this goal, a balanced and comprehensive approach in terms of ecological, social and economic development is critically important. Noticeably, the agenda towards the realization of sustainable development in large cities, particular in developing countries, has been hampered by the trade-offs in favour of economic growth over the social

wellbeing and ecological viability aspects. Against this background, this paper seeks to highlight the plight in the context of social and environmental development factors in a developing country. Methodologically, the study applies a Descriptive Statistical Analysis on secondary data which is based on social and ecological development factors published by the Statistics South Africa in 2017. The paper further applies the principles of New Urbanism to discuss the findings thereof. The key finding of the study is that a noticeable proportion of households in the metropolitan cities of South Africa are still living in informal dwellings; have poor quality of the subsidised housing; have substandard sanitation facilities; and are experiencing environmental problems such as littering, water and air pollution, land degradation, and excessive noise. These results suggest that most of the metropolitan cities in developing countries, South Africa in particular, have a backlog in terms of delivering on the social wellbeing and ecological viability aspects of inclusive and sustainable cities. Thus, development planning in the metropolitan cities should equally pay attention on the social and environmental aspects of sustainable development in order to improve the quality of life of the people comprehensively.

## **PAPER 9**

**Title:** *A critical review of practices of inclusion and exclusion in resolving Durban University of Technology student protests*

**Authors:** *Thandile Bob and Washington Tsokota*

### **Author keywords:**

Inclusion

Exclusion

Student Protest

Communication

Conflict Resolution

### **EasyChair keyphrases:**

student protest (60)

According to Durban University of Technology (DUT) management statement dated 06 February 2019, “the university management learnt through various social media platforms that students had planned and executed total shutdown of all universities in the KwaZulu-Natal Province. The reasons for the shutdown, according to the posters that were circulating, mainly revolved around issues relating to NSFAS funding and student housing.” Based on this, there has been much debate about the issue of resolving student protests which raged over the last decade. In addition, the usage of various communication platforms such as formal management communiqué, grapevine and social media platforms has been identified as a key area of challenges in addressing continuing disparities in the resolution methods of student protests at DUT. It is therefore crucially important to consider a critical review of practices of inclusion and exclusion in resolving DUT student protests. The present paper therefore aims to contribute to the goal of transforming the inclusiveness and eliminating anticipated exclusionary practices. The paper starts with some definitions and a brief analysis of inclusion and exclusion systems, with emphasis on a number of key conflict resolution processes, legislation's, risk management, business environment, anti-corruption systems and initiatives associated with DUT management activities in bringing inclusive institution. Furthermore, student challenges at DUT will be analysed and lastly recommendations. The literature review will include analysis of studies that document the inclusive, exclusivity, perceptions and experiences of stakeholders in resolving conflict. The study adopted a qualitative research sampling method for interviewing students from different levels of academic discipline at DUT. The paper recommends for DUT management to undertake the following measures, among others, aimed at combating the anticipated exclusion in the resolution of student's protest: (i) improving anti-corruption enforcement's (ii) implementing robust monitoring and evaluation communication systems that promotes inclusion and (iii) Review the Student Representative Council mandate and operations. The discussion concludes that DUT stakeholders need to reflect seriously on the recommendations and go to the drawing board to counter these challenges.

## **PAPER 10**

**Title:** *Challenges of Public Participation in the Implementation of Portable Toilets in South Africa: A case study of Makhaza Area in Cape Town, Western Cape Province (2011-2015)*

**Authors:** *Thandile Bob and Msuthukazi Makiva*

### **Author keywords:**

Public Participation

Community

Challenges

Portable Flush Toilets

Communication

**EasyChair keyphrases:**

public participation (80),

portable flush toilet (47)

This paper sought to investigate Public Participation Challenges prior to the Implementation of Portable Flush Toilets in South Africa: A case study of Makhaza Area in Cape Town the Western Cape Province (2011-2015). The research utilized both qualitative and quantitative methodologies and for that reason seized to adopt the case study. The sample used consisted of a purposive random since participants chosen that had a unique connection with the phenomenon under research, adequate and significant living knowledge of public participation, but lack dynamic participation in the process of public participation methods. The main results discovered from the study showed that indeed public participation challenges were encountered prior to the installation of these portable flush toilets due to factors such as unsatisfactory of the toilets, human rights to privacy and dignity, health effects, favourism of committee members, government promises, as well as non-accountability of representatives that led to the uncontrollable protest of Poo Wars. Thus, emanated from the lack of community recommendations towards improved public participation to deliver informed decision-making due to lack and ineffective implementation of public meetings, duties of street and ward committee members, communication/awareness about the availability of public participation method. These challenges bounded the researcher to recommend for serious interventions of capacitating the street and ward committee members, development of the public participation platform, the inclusion of roles and responsibilities of all structures involved in public participation, improvement of communication, better co-ordination between community structures, and municipal visibility and encouragement for government to live up to its promises among other things.

## **PAPER 11**

**Title:** Community-driven upgrading for self-reliance in South Africa: The Isulabantu Project in Durban

**Author:** *Claudia Luisa Teresa Loggia and Maria Christina Georgiadou*

**Author keywords:**

Informal settlements

Self-building

Self-organisation

Co-production

Grassroots approaches

Durban

Spontaneous and self-built neighbourhoods, often called informal settlements, represent one of the most complex challenges worldwide, mostly due to migration and rapid urbanization in developing countries. Characterised by lack of basic services and infrastructure, poorly performing building materials and often located on illegal and hazardous land, unplanned settlements are home to over half the urban poor in African cities (UN-Habitat, 2013). This paper presents preliminary lessons learned from an ongoing collaborative project called ISULabantu (<http://www.isulabantu.org/>) funded by the Economic and Social Research Council (UK) and the National Research Foundation (SA). The project is led jointly by the University of Westminster (UK), the University of KwaZulu-Natal (SA) and, together with University College London (UK), an NGO uTshani Fund (SA) and the eThekweni Municipality (SA). The overarching aim is to uncover the benefits and challenges of moving towards a participatory, incremental approach focusing on construction management and integrated environmental management systems in three selected case studies in Durban metropolitan area, which can enhance quality of life, livelihoods and, ultimately, community resilience and self-reliance. ISULabantu seeks to enhance skills, explore indigenous knowledge and share lessons between communities and local/national authorities and research institutions. The core vision is to re-examine informal settlements through the lenses of the community by co-producing inclusive approaches for the upgrading of informal settlements. ISULabantu is framed around the holistic view that informal settlement upgrading is not about physical housing per se but rather a socio-technical approach that delivers social capital, livelihood development, empowerment and skills to local inhabitants. To meet the research goals, an action research based methodology is employed to 'co-produce' knowledge with residents and community researchers in three selected case studies in the Durban metropolitan area. The research recognises grassroots approaches as key strategies to build sustainable and resilient cities. The findings seek to build capacity for both local communities seeking to improve their quality of life and for local authorities seeking to enhance their upgrading planning programmes, plans and policies.

References: UN-Habitat (2013). State of the World's cities 2012/2013 e prosperity of cities. New York: Routledge. Available at: <https://sustainabledevelopment.un.org/content/documents/745habitat.pdf> [Accessed 14/04/2019]

About the project: ESRC – NRF project: ISULabaNtu – [www.isulabantu.org](http://www.isulabantu.org), 2016 – 2020 / UK PI: Dr Maria Christina Georgiadou, University of Westminster, London / SA PI: Dr Claudia Loggia, University of KwaZulu-Natal, Durban

## **PAPER 12**

**Title:** *Effectiveness of happiness mechanisms in Students' suicide prevention at Durban University of Technology: A student's perspective*

**Author:** *Candice Sanelisiwe Cebekhulu and Washington Tsokota*

### **Author keywords:**

Suicide  
Happiness  
Students  
University  
Prevention

### **EasyChair keyphrases:**

Happiness mechanism (40)

Happiness is known as a subjective feeling towards positive emotions. Weeransinghe and Tepperman (1994) posit that suicide seems to express the most extreme unhappiness. According to the World Health Organisation (WHO), "nearly 800,000 people commit suicide around the world every year". The South African Depression and Anxiety Group and the WHO have said, "The state of youth and mental health in the country are in a crisis. Young adults battling to settle into the tertiary environment after leaving school fared no better, with one in four university students having been diagnosed with depression". Reports from the University of Pretoria have pointed to high levels of attempts at suicide by students. In 2016, reports of two students at Durban University of Technology (DUT) who committed suicide surfaced. This proves that despite various established student-centred resource mechanisms at DUT, student depression, conduct disorder, alcohol and drug abuse; earlier suicide attempts and anxiety continue to be major a challenge blurring happiness among students. Self-destruction student suicidal act is proof of weakness in university student support systems and eloquent psycho-social wellbeing of students. The aim of this study is therefore to give a theoretical view of the social dynamics of student happiness at DUT. This article will consist of a multi-step critical review of appropriate literature on a number of sources among others secondary and primary. A critical review of existing theoretical frameworks, happiness potential ways, processes, systems and risks control mechanisms to combat student suicide will be accounted for. Fifty DUT registered students and student-centred staff will be recruited in this cross-sectional survey. A thematic qualitative approach will be used to analyse open-ended questions, secondary data and the findings are anticipated to reveal the effectiveness of happiness mechanisms for DUT students' suicide prevention based on the perspective of students. The Chi-square test for independence will be used to signify the association between the coded variables. In conclusion, both scientifically and educationally, this research is anticipated to fit well with the current emphasis in positive happiness mechanisms which aim to improve the positive elements on DUT student's wellbeing proactively rather than retroactively.

## **PAPER 13**

**Title:** *Engaging nonviolent men in tackling violence against women: an action research project in Harare*

**Authors:** *Washington Tsokota*

### **Author keywords:**

Bystander  
Nonviolent  
Behaviour  
Engaged  
Empowerment

### **EasyChair keyphrases:**

Gender based violence (63)  
Action research (40)

According to Zimbabwe Demographic Health Survey (ZDHS) 2013, Violence against women and children occurs at a staggering rate in Harare community, Zimbabwe. Most efforts to tackle violence against women in Harare community focus on the male perpetrator or the female victim and ignore the vast majority of men who do not perpetrate abuse. The main focus area of this research was to construct strategies to reduce levels of Gender based violence (GBV) in Harare by engaging non-violent men in tackling violence against women. The purpose of this action research was to present a sustained behavioural and attitude change on nonviolent men's passivity against gender based violence. Bystander Effect Theory, Conflict Transformation and Theory of Planned Behaviour were reviewed in this study. This qualitative methodology study was conceived to be an action research that involved nonviolent men mediators to provide solutions and workshops, design comprehensive programs, using multiple strategies, settings and levels on non-violent measures to other violent men. The action research part of the study engaged nonviolent men mediators to plan, implement educational, communication and other change strategies and evaluate training workshops in the fight to reduce gender based violence. The contribution to knowledge is therefore the methodological processes of how to move beyond dominant informative Gender Based Violence practices and facilitate innovation with change. The author argues the need for specific opportunities to engage nonviolent men in action-focused initiatives, applying theoretical framework which will identify techniques and strategies to the challenges and resistance that has been faced in the movement to engage men in ending violence against women.

#### **PAPER 14**

**Title:** *Dimensions of Informal Sector Activities and Public Space Contestation in Downtown Areas of Cities: The Paradox in Ado-Ekiti, Nigeria and Port Elizabeth, South Africa*

**Authors:** *Dr Olufemi Ojo-Fajuru and Prof Sijekula Mbanga*

##### **Author keywords:**

Space contestation  
Central business district  
Informal sector  
Livelihood strategy  
Green landscaping  
Urban inclusivity  
Sustainable settlements

The rapid rate of urbanization and population growth resulting from rural-urban migration in developing countries are the banes of cities, which are challenged with increasing spatial requirements for human activities that exert pressure on limited land resources. In Ado-Ekiti, Ekiti State capital, Nigeria and Port Elizabeth, a major city in the Eastern Province, South Africa, people's response to livelihood strategies culminate into public space contestation in downtown areas. This paper aims to investigate the causes and effects of informal sector encroachment on public spaces, and examine the effects of such space conflicts in central area of the cities. The study utilizes a research methodology hinged on secondary data sourcing to build literature, and compliment multi-stage sampling technique of digital socio-economic baseline data gathering from the field. Findings reveal that the cities developed from different socio-political settings, and there are quantitative and qualitative inadequacies of public spaces in Ado-Ekiti, compared to the abuse of some public spaces in Port Elizabeth. It is established that while the people meet their livelihood needs, the high level of space contestation undermines the inclusivity of public spaces, depletes green infrastructure and degrades the environment in the city cores. The study reproduced for Port Elizabeth, the Urban Greenery Intervention Model developed for Ado-Ekiti (Ojo-Fajuru, 2018). These models form the bases for the formulation of public space reclamation and greenery revitalisation programs geared towards urban re-naturalisation to attain conducive and inclusive CBDs in the cities. The paper concludes that people's participation is germane to the meaningful socio-economic integration of the informal sector into the greening program to strengthen green growth, propagate biodiversity, guarantee urban comfort and inclusivity. The paper argues that the Model can be replicated in Global South cities having similar socio-economic challenges, to provide cutting-edge solutions to sustainable human settlements.

#### **PAPER 15**

**Title:** *Innovation culture: examining how Zimbabwe Tourism Companies are thriving in the digital age*

**Authors:** *Washington Tsokota*

##### **Author keywords:**

Innovation  
Transformation



Collaboration  
Digital age  
Empowerment  
**EasyChair keyphrases:**  
Tourism Company (40)

It is widely recognized that innovation is of critical importance for the competitiveness and growth of firms, so understanding its determinants is a critical research question. The purpose of this study is to analyse the current state of the Zimbabwean Tourism Companies with regards to the integration and the use of information and communications technology (ICT) as well as examining the perceptions of tourists about mechanism processes that can improve the use of ICT. Beyond the 'traditional' innovation determinants identified by previous relevant research, there has been extensive theoretical literature on the potential of information and communication technologies (ICT) to drive innovation; however limited empirical investigation of it has been conducted. The methodology that will be adopted is a multi- case study approach with the use of exploratory research focusing on five different types of tourism companies. The data indicates that there is a widespread view that transformation to put ICT innovation at the core isn't necessarily easy – particularly for those with long-established processes, legacy technology and a fixed vision of their customers. In particular, it shows that the contribution of ICT to the improvement of enhancing tourism processes is higher in the Tourism Companies that have integrated ICT as an innovation factor. To attain this highest level implies that It takes a clear vision from leadership, agile processes, team collaboration, an understanding of customers, awareness of demographic shifts, a willingness to adopt new technologies, and an eye on the future, to make it work.

#### **PAPER 16**

**Title:** *Social cohesion/contestations: Demand for Socia-Economic needs*

**Authors:** *Esteri Msindo*

#### **Author keywords:**

Human Rights  
Socio-economic rights  
Social Cohesion

Is there is a link between human rights and social cohesion. Does the realisation of basic human rights achieve social cohesion? The answer lies in the potential of human rights to create socially inclusive and integrated communities. Both human rights and social cohesion are concepts that have been greatly criticized theoretically yet their existence prompt action on all parties that seek to achieve some form of social justice. Human rights drive action towards social, economic and political justice and therefore create institutional arrangements to curb poverty, inequality and all forms of social exclusion. Social cohesion, which is the intended outcome when human rights are respected relate to social values and human relationships emerging from a realisation of human rights. This paper brings conceptually the link between human rights and social cohesion based on the view that when human rights are protected and promoted the outcome is more cohesive societies that are not characterized by poverty, violence and delinquency. 'Social cohesion' and 'social contestations' concepts are explained in detail. Socio-economic rights are characterized by competition because of lack of adequate resources from states and increasing demand from rights holders and they are likely to result in conflict between citizens and the state and amongst community members if they are not met. The provision of socio-economic rights result in socio-economic integration and inclusivity. Respecting and provisioning of human rights when effectively undertaken result in delivery of social services, reduce inequalities, and hence increase social cohesion. Policies that governments implement to address social and economic problems aim to bring about social cohesion and reduce social conflict, that is, to influence directly the people's values and directly affect their communities. The intention is to create a stable and progressive society through soldering community members by reducing those elements that undermine social bonds. The state therefore play an important role in creating a cohesive society through economic development and reduction of poverty and inequality. Contradictions however exists in the state's role in the drive for social cohesion as the state has limited resources and often fails to efficiently and effectively implement policies to improve the economy and improve the social conditions of the ordinary citizens

#### **PAPER 17**

**Title:** *Traditional Render: a taken for granted, ignored and neglected yet sustainable solution in African Traditional Architecture.*

**Authors:** *Paul Makasa*

**Author keywords:**

Traditional Architecture  
Culture  
Render  
Peer education  
Environment  
Zambia

It is inherent in all African cultures to preserve the environment by relying on sustainable methods in building and rendering traditional houses. The materials used are obtained from the earth and when abandoned or demolished they degenerate and are assimilated without any serious negative impacts on the environment. This study focusses on how basic, readily available, minimally processed and recyclable material like cassava flour, different types of soils, tomato leaves, charcoal and ash are used as natural renders on wall surfaces in traditional architecture. To come up with an ingenious way of decorating houses. Research conducted in the Northern parts of Zambia found that, what is taken for granted or just blatantly ignored as ordinary decorative wall patterns, actually constitute 3 elements depicting: ordinary decorative paintings for walls; veiled superstitions; and act as a medium of communication. Traditionally women paint unique patterns to secretly broadcast their daily domestic hardships and to publicly educate their peers and those coming of age societal expectations and responsibilities. The problem is that, these renders rely on their inherent qualities to act as binders, fillers, and pigments, consequently when exposed to weathering elements they quickly fade away. Yet if well preserved they do last a considerable time. Furthermore, despite depicting good qualities and proving to be sustainable, not much has been done to scale up their use. Instead, they are substituted with the more unsustainable petrochemical or synthetic based paints and have consequently been disappearing into extinction. This study argues that compared to western countries, most African economies are not industrialised enough to contribute significantly to environmental degradation, but they are also not doing enough to preserve these proved and more sustainable methods. The study concludes that more research is needed to improve the renders' life spans, as a higher turnover may also prove unsustainable. Further that, if these available traditional methods could be improved, rapidly receding traditions could be slowed down making the world a more sustainable place to live.

**PAPER 18**

**Title:** *The role of small-scale squid fishers in sustaining livelihoods and maintaining Marine Resources in the context of climate change*

**Authors:** *Oyamangaye Mkaza and Bernadette Snow*

**Author keywords:**

Small-scale fisheries  
Climate change  
Food security  
Sustainable livelihoods

Small-scale fisheries are one of the social and economic benefits that the ocean provides for the world population, especially in developing countries. The coastal communities face challenges in ensuring that fisheries are sustainable and resilient to the effects of climate change, and the collapse of small-scale squid fisheries in South Africa in 2013-2014 raised stern concerns in South Africa's fishing industry leading to various studies being focused towards the marine environment. Small-scale fisheries is becoming more and more significant to the people and communities who use it due to the present global climate because the negative effects of climate change affects fisheries, livestock and crop harvest in tropical regions. The current climate trends, which reflects the increase in greenhouse gases over past decades are affecting global fisheries and the areas that are highly exposed to climate change coincide with areas experiencing low food security. Small-scale fisheries are important in terms of their contribution in various national economies, job creation for coastal communities and the sustainability of human existence on earth. Society needs a detailed knowledge of the living components of natural and managed systems because as global climate changes it affects the well-being of humans and functions of the ecosystems. The qualitative research approach was appropriate for this study, using unstructured interviews with participants. It gave an opportunity for participants to explain their views and provide depth of understanding of their social phenomena. The significance of this study is in broadening knowledge and understanding of how small-scale fishers respond and become resilient in the face of climate change, shocks and other risks which affects social and ecological systems negatively, and in forecasting the likelihood of future fishing collapse. The intention of the study is to contribute to the already existing body of knowledge and literature about small-scale fisheries by including the views of small-scale squid fishers and by describing their circumstances in social context.

## **PAPER 19**

**Title:** *Safety and Security as a component of Equity Planning for Student Housing: A Case Study of Brandwag, Willows and Universitas Suburbs in Bloemfontein, Free State*

**Authors:** *Qhamani Tshazi and Thulisile Mphambukeli*

### **Author keywords:**

Studentification

Safety and security

Student housing

The pronouncement of free education for first-time entering deserving students by the former president Jacob Zuma in December 2017 has led to a significant increase in the number of registered students at public universities. This increase has posed serious challenges for universities, subsequently leading to universities' not being able to provide adequate accommodation for all its students. The increase in numbers has also contributed to increasing studentification in the surrounding neighbourhoods. This paper investigates the issue of safety and security as a component of equity planning with respect to student housing at the University of the Free State Bloemfontein campus. We employed a mixed methods research design which investigated the aspect of safety and security with respect to off-campus students. We discovered that a large number of off-campus students are often located in unsafe spaces, where due to the absence of adequate security measures at their premises, their lives were constantly at risk. Based on our findings, we propose key measures that could be implemented at public universities when planning for safety and security in the neighbourhoods that surround these universities. Furthermore we recommend a set of urban equity indicators that can guide universities when planning for the location of student houses or residences to ensure that the safety and security of off-campus students is not compromised.

## **PAPER 20**

**Title:** *Adaptive co-design for self-help housing in South Africa*

**Authors:** *Viloshin Govender and Claudia Loggia*

### **Author keywords:**

Urban Resilience

Insurgency

Spatial Mapping co-design

African cities

Nowadays, due to rapid growth and a poor planning policies implementation in urban cities, the gap between the legal and illegal city has become more evident. New developments are moving further away from the city centre, causing sporadic growth and forming new nodes. This in turn leads to urban degeneration, lost and forgotten spaces within the city. Therefore, urban poor claim the right to the city by occupying lost spaces within the urban framework. Often, mapping these lost spaces proves to be challenging to urban designers, Architects and planners who try to analyse and design ad hoc solutions. Understanding spatial qualities, socio-ecological ecosystems and economical systems, is key to create a resilient city. In South Africa, insurgency can be seen in the form of informal settlements, self-help housing and urban homesteaders (squatters and homeless, using private property or government land). This research has two key objectives: To understand how space can be effectively captured and interpreted and to use spatial mapping as a key methodological approach in reinterpreting spaces to co-design adaptive solutions for self-help housing in such neighbourhoods. By combining drone imagery with collaborative mapping, the authors suggest a new approach to enhance community resilience and co-produce practical strategies for spatial, resource and skills management in informal settlements in South Africa. Participatory action research methods are followed to co-produce knowledge with the residents in a case study in the Durban Metropolitan area. The ultimate aim of this study is to build capacity in local communities seeking to improve their quality of life and assist local authorities in enhancing their intervention towards resilient futures.

## **PAPER 21**

**Title:** *Planning for Co-production through Innovative Technology in Informal and 'City-Edge' Human Settlements in the Global South: The Case of Hopley Farm, Harare, Zimbabwe*

**Authors:** *Abraham R Matamanda and Thulisile Mphambukeli*

**Author keywords:**

Hopley Farm  
Co-production  
Innovative Technology  
Human Settlement  
City-edge settlement  
Informal Settlement

This study explores the issues in planning for co-production through innovative technology in human settlements in the Global South context. The study used Hopley Farm in Harare, Zimbabwe as the case study. Furthermore, the study pays attention to ways in which the innovative technology can be mainstreamed through the development of an understanding regarding the strategies employed and the gaps filled by residents in the planning and development of informal and city-edge settlements. The main thrust is on how residents strategies to access water and sanitation. A qualitative research design was employed where document review was used to examine the policy and institutional framework informing and guiding human settlement planning and innovative technology mainstreaming in Zimbabwe. Key informant interviews triangulated with in-depth interviews with residents and focus group discussions with residents from Hopley Farm were also conducted. Emerging from the study is the dynamism and complexity associated with 'city-edge' and informal human habitat systems. Such complexity manifests in emerging settlements which are thriving, yet disconnected from the existing formal and collapsing water and sanitation infrastructure. This quandary has compelled residents, to employ certain technologies and strategies to access water and sanitation services showing that people are not just spectators of development. Although the plight of the residents is apparent, it seems the government is reluctant or they are not willing to tap into the opportunities presented by innovative technologies employed by the residents in working towards facilitating access to adequate water and sanitation. The study concludes that innovative technology employed in accessing water and sanitation can significantly contribute towards resolving the water and sanitation challenges faced by the Hopley Settlement. The paper argues that adequate water and sanitation provision may be achieved through co-production mechanisms and the transformation and reform in the political will as well as legislation guiding the planning of human settlements.

**PAPER 22**

**Title:** *Ship Recycling as a viable option for enhancing business, Employment and Inclusive Economic Growth and Development: Case Study of South Africa*

**Authors:** *Malwande Nkalitshana*

**Author keywords:**

Ship.  
Vessel.  
Recycling.

Ship recycling is a process of partially or completely dismantling a vessel for various reasons with an intention of recovering some or all the material of it, for re-use and reprocessing. During economic recession, ship owners sell or send their old vessels for scraping to the ship recycling facilities to get some money out of its materials. Vessels are also dismantled normally when they reach a certain age, wherein their usefulness at sea has deteriorated. Green Ship recycling offers socio-economic and environmental benefits and can assist with developing the port, shipping and logistics market on the African continent with focus on both the freight and cruise markets. Green Ship recycling also benefit the continent in growing skills, employment and business opportunities, the blue economy and other logistics infrastructure developments. Furthermore, ships are made up of almost 90% recyclable material and with that, green ship recycling contributes on the preservation and sustainable use of natural resources. In terms of global participation in the ship recycling sector, Asian countries are dominating, and they account for more than 80%. The remaining 20% is accounted for by other countries excluding those within the African continent, South Africa in particular. Despite the long-term benefits associated with this sector, Africa's and South Africa's participation is very minimal nor absent at all, though it has its triple challenges of poverty, unemployment and inequality that can be minimize by this sector. For it to participate in this sector, a collaborative and partnership between government institutions, academic and research institutions and private sector needs to be established. Through these collaborations and innovative research on ship recycling, South Africa stands a chance on increasing the realization of the objectives of its economic policy framework; National Development Plan. Furthermore, through green ship recycling, South Africa stand a chance to attain its objectives of growing the economy and increased job creation through Operation Phakisa.

## **PAPER 23**

**Title:** *The use of Innovation in South African Subsidised Housing Projects*

**Authors:** *Nosizo Sebake*

### **Author keywords:**

Built environment

Innovation

Subsidized housing

### **EasyChair key phrases:**

South Africa (40)

A number of organisations such as Agrément SA, Technology Innovation Agency, the Green Building Council of South Africa, Technology Localisation and Implementation Unit and the Innovation Bridge are mandated to support innovation within South Africa, including in the built environment generally and in human settlements in particular. Ranging from the construction to the water sector, these innovations and technologies continue to be applied to numerous projects throughout the country. Despite this, however, it is unclear to what extent innovations are being applied to South Africa's built environment. It is important for the Government to know this so it can determine the role of innovation in achieving its objective of creating sustainable housing. Drawing from the Department of Science and Technology studies, this paper discusses the challenges and opportunities observed in identifying, within the subsidised housing stock, projects that use innovation. Best practices for reporting on the application of innovation are reviewed before recommendations for improving South Africa's current situation are presented.

## **PAPER 24**

**Title:** *A landscape study of South African Dissertations in the field of Human Settlements between 1994 and 2018*

**Authors:** *Peta de Jager, Coralie van Reenen, Mark Napier, Sizo Sebake and Sheldon Bole*

### **Author keywords:**

Dissertations

Human settlements

South Africa

About 17 000 (or 13%) of the 128 634 theses and dissertations from South African institutions of higher learning hosted on the National ETD Portal online database contain "human settlement(s)" or "housing" as keywords. This paper presents a landscape study of such theses and dissertations completed since the dawn of democracy in South Africa. The goal was to identify gaps in research – both topically and geographically – in order to guide future research direction in the field of human settlements. The objective was to locate the originating institutions and the geographic study regions, document the nature and range of study topics by thematic category and to visualise changes in these factors over time. A representative sample was studied to identify the broad need which the dissertations seek to address, and mapped to research designs and research methods. The research design consisted of a systematic desktop review.

Method: Opensource meta-data of South African theses and dissertations were obtained from the UCT-CS Digital Libraries Laboratory and sorted by keywords and publication date. Originating institutions and (where obtainable/ applicable) study regions were geographically mapped. Quantitative longitudinal data analysis was performed. A randomised, representative sample of dissertations or theses was selected for further qualitative analysis (need identification, research design, research method). The study revealed areas of research focus, mapped according to topic and region. Findings from this paper provide the groundwork for further investigation into research gaps and needs as identified from practitioners' perspectives, in order to establish alignment. This can be used in future studies to determine the nature and extent of local research-practice gaps in the human settlements sector.

## **PAPER 25**

**Title:** *A critical Analysis of bystander mechanisms in curbing Victimization of Women*

**Authors:** *Washington Tsokota and Mzomkhulu Sibanda*

### **Author keywords:**

Bystander



Nonviolent men  
Violence against women  
Intervention  
**EasyChair keyphrases:**  
Sexual violence (40)

Violence against women and girls (VAW) stands as the most rampant human rights violations in the world. United Nations posit these estimates, “one in three women world-wide has experienced physical or sexual violence because she is a woman”. Violence is a major obstacle to women’s and girls’ development, and to the welfare and development of their communities and societies as a whole. More recently, prevention has begun to specialize in bystanders—third party witnesses to incidences where there’s high risk of sexual violence and who by their presence have the power to intervene in prosocial ways to make situation better. Although bystander intervention strategies have rapidly proliferated as a tool for the prevention of sexual violence, the conceptual framework behind it needs further development. The field is lacking a clearly articulated model for the range of opportunities for bystander action and how they are connected to sexual violence. This article aims to provide a high-level framework for the prevention of violence against women by identifying effective and promising strategies, priority areas, as well as population groups and sites. The Desk Research Methodology and Systems will be applied in this study. Critical analysis of multiple theoretical and model foundation will help in intervention strategies via theoretical articulation, describing, interpreting and synthesizing several theoretical perspectives that stand to improve engaging nonviolent men in tackling VAW. Furthermore, the study will aid researchers understand the reasons for transforming bystander behaviour in assessing bystander’s actions, as the core of engaging nonviolent men in the fight against violence on women.

## **PAPER 26**

**Title:** *A Foucauldian analysis of Public Housing in Rural South Africa.*

**Authors:** *Danford Chibvongodze and Sithembiso Lindelihle Myeni*

### **Author keywords:**

Foucault  
Power  
Governmentality  
Public housing  
South Africa

### **EasyChair keyphrases:**

Public housing (40)  
South africa (40)

Public housing schemes like most projects of its kind has been used by the state as a tool of creating what Foucault refers to as “governable subjects”. This paper evinces that state led public housing schemes have played a critical role in subscribing certain labels that gives the state the impetus to intervene and govern the private lives of their citizens. The further argue that the provision of housing to South African citizens goes beyond achieving socio-democratic principles but serves to problematise poverty and seeking ways of to intervene in the everyday life of those characterised as “poor”. The paper engages Foucault’s thoughts on “governmentality” and “biopolitics” to suggest that state directed development such as public housing programmes, far from mobilising people to rise against poverty they have systematically transformed poor people into objects of knowledge, management and governance. Consequently, to control and intervene in population, the paper argues that through its housing policy, the South African government has intendedly and unintendedly produced a simplified and schematic model of the reality in which they want to intervene. To this end, the paper asserts that while the provision of housing aimed to address the prevalence of material poverty among previously disadvantaged groups, it also functioned as a process of conditioning state-citizens relations. By using empirical evidence extracted from qualitative data collected from beneficiaries of the Jozini low-income housing programme in KwaZulu-Natal province, South Africa, the paper argues that while to a certain extent housing subsidy schemes mitigate South Africa’s perpetual housing problem, the paper looks at how the production of power intersects with public housing in creating governable bodies

## **PAPER 27**

**Title:** *Challenges associated with failure of Rural Entrepreneurs in Vhembe District*

**Authors:** *Ishmael Obaeko Iwara*

### **Author keywords:**

Economic Growth  
Entrepreneurship  
Failure  
Rural regions

Over the years, South Africa has been confronted with poor performance and slow growth in entrepreneurship, especially amongst the youth. Even though various measures have been employed to spike entrepreneurship (a pivotal economic resource) to its expected thresholds, over 50% of the total entrepreneurs fail annually. This has amplified joblessness, migration, income inequality, poverty and crimes. It is not clear what specifically might be the cause. The Cresswell (2013) explanatory sequential mixed method design will be followed to profile the challenges with hopes of suggesting possible solutions. Multi-stage sampling will be followed to select respondents. Participatory engagement techniques which will be applied during qualitative data collection included key informant interviews and participatory mapping. This will also apply during the quantitative confirmatory data collection proposed to provide a statistical explanation of factors deterring the progress of entrepreneurs. The qualitative data will be analysed through Atlas.ti v8 mediated thematic content analysis while the quantitative data will be analysed using the IBM Statistical Package for Social Sciences version 25.0, through crosstabulation. While the study focusses on rural regions of Vhembe district, it is believed that the findings could be applied in other regions of the country and beyond.

#### **PAPER 28**

**Title:** *Digital learning in Teacher Education: Implications for Teaching and Learning in the 21st century.*

**Authors:** Nonzukiso Tyilo

#### **Author keywords:**

21st century skills  
Blended learning  
Collaboration  
Devices  
Digital learning  
Innovation

This paper explores the integration of digital learning in teacher education programme to enhance teaching and learning. In the 21st century, effective teaching is not only understanding basic knowledge and facts, but teachers need to integrate technology to prepare learners for the world of work. Literature suggests that teacher's innovative endeavours create conducive spaces where learners can collaborate with peers through digital tools. This in turn promotes learner-centred classrooms as learners engage in classrooms. This paper adopted TPACK model that puts emphasis on content knowledge, pedagogical knowledge and technological knowledge during teaching and learning. The model emphasizes that teachers should know the content, the appropriate methods to use and the knowledge of technological tools when teaching. This paper adopted interpretive qualitative research where Further Education and Training (FET) phase students teachers from the Faculty of Education were participants of the study. Through convenient sampling, data collection from 30 student teachers was through focus group interviews and reflective journal entries. The results showed that student teachers recognize the importance of digital learning in teacher education programmes to enhance teaching and learning for the 21st century. In addition, the results show that digital learning enhances peer collaborations without geographical proximity. From the results, it is evident that unavailability of resources (devices and connectivity) jeopardizes digital learning. This paper recommends that the university provides students with devices and strengthens connectivity to ensure effectiveness of digital learning.

#### **PAPER 29**

**Title:** *Addressing Unemployment, Food Insecurity and Sexual Abuse among girls and women in Informal Settlements across South Africa.*

**Authors:** Jabulani Gilford Kheswa

#### **Author keywords:**

Food Insecurity  
Housing  
Unemployment  
Transactional sex  
Women

There is a common agreement among scholars regarding exploitation of girls and women in informal settlements in South Africa. As a result of unemployment, lack of housing and physical and sexual abuse, an alarming number of women resort to substance abuse and transactional sex for coping and economic survival. Research indicates that owing to abuse, such women are susceptible to experience depressive symptoms such as suicidal ideation, low self-esteem, posttraumatic stress disorder and impaired psychological well-being. Guided by multiple theories and models such as Bronfenbrenner's ecological theory and Maslow's hierarchy of needs, this paper is aimed at suggesting interventions to reduce food insecurity, gender-based violence and unemployment. Considering that transactional sex is the driving force of HIV/AIDS and unplanned pregnancy, the Non-governmental Organizations (NGOs), private companies and government should collaborate and play a key role in improving the economic crises faced by many women. At macro level, the government should create job opportunities for women and build their resiliency effect through campaigns and awareness programmes to curb HIV/AIDS. Finally, at local government level, municipalities should ensure there is service delivery from the South African Police, social workers, medical doctors and counselling psychologists, and infrastructures such as mobile clinics and health care workers are accessible.

### **PAPER 30**

**Title:** *Poverty increase against Infrastructure Development: Rethinking sustainable Rural Development in South Africa*

**Authors:** *Sijekula Mbanga*

**Author keywords:**

Rural infrastructure  
Poverty  
Inequality  
Investment  
Sustainable livelihoods  
Humanity

While the African National Congress-led government in South Africa has made noticeable strides in extending infrastructure provision and introducing relief programmes in rural communities since assumption of power in 1994, both the ANC Election Manifestos of 2009, 2014 and 2019, and the National Development Plan adopted by the Government in 2012 recognise the stubbornness of the triple challenge of unemployment, poverty and inequality that confronts the post-Apartheid state. According to Statistics South Africa survey (2016) about 51% of the South African population lives below the poverty line, and majority of which reside in rural areas and informal settlements. With good service delivery performance indicators that permeate municipality annual reports rural communities continue to swim in abject poverty and hopelessness, with social grants beg the sole means of sustaining their livelihoods. The NDP advocates for an active citizenry to redefine the power relations between state, communities and private sector in the development process. The paper argues that with the relatively increasing public sector infrastructure investment in rural areas the correspondingly rise in poverty points to a fundamentally flawed architecture of development management process. The paper argues that evidence is abound in the South African rural landscape of the continuing co-existence of infrastructure development products and decline in the quality of life of people. This paper critically examines the utility of the sustainable livelihoods approach as a philosophical departure in development management interventions in rural areas. With inclination to a Structure-Agency theory the paper advocates for a shift in government policy and programme thinking, design and strategy towards a humanizing transformation trajectory instead of a neo-liberalistic commodification of development interventions.

### **PAPER 31**

**Title:** *Assisting owner building using Building Information Modelling (BIM)*

**Authors:** *Mandla Dlamini*

**Author keywords:**

Building Information Modelling  
Parametric modelling  
Owner built housing

Building Information Modelling (BIM) is one of various available intelligent 3D model-based digital tools. In recent years BIM has received immense traction locally in providing architecture, engineering, and construction professionals with the tools to more proficiently plan, and design buildings and infrastructure. With the development of parametric modelling, building products data is becoming increasingly available and

sophisticated, potentially saving time and money in project preparations while preventing errors and expensive changes during construction. These technologies have therefore received increasing uptake for the design phase of buildings. However, the potential of BIM to revolutionize small scale building, construction and management has remained limited to date. It is, therefore, our interest to explore the potential of commonly BIM to contribute directly to the fabrication of buildings, during the preparatory and construction phases. This paper explores the possible benefits applicability of BIM to owner built housing.

## **PAPER 32**

**Title:** *Alternative \*Sustainability\* In Human Settlements through Design Activism*

**Authors:** Kevin Kimwelle

### **Author keywords:**

Sustainability  
Social innovation  
Social activism

In the past decade the sense of urgency to attain sustainable development has been globally felt and accepted. The resultant drive towards creating greener and more sustainable human settlements has sparked a multi-sector response in the fields of academia, policy-making, professional practice, industrial manufacturing technologies and green trends. Of particular interest, is the Green trend, which research has found, finds more merit in theory than in practice. The trend has been found to marginalize poor populations that cannot afford 'green technology' to harness its power, thus failing to contribute to the improvement of their daily circumstance. In fact, commercialization of green trends seems to further perpetuate and worsen the social inequality gap. The economic burden felt by the poor and the resultant social inequality therefore hampers the potential for developmental leapfrogging that is inert in globalization and modernization. There is however, a radical alternative—one that is grounded in global ideals and operationalized at a local and tangible level, one that can mobilize skills and resources to compete against commercialisation through social values such as the circular economy and open source technology that disrupt the mainstream economy. The proposed paper will provide tangible examples of community-based participatory research that advocate for active citizenship and engage communities through conducting their own asset-based community mapping and participatory design to produce social innovations that facilitate socioeconomic development at a local level. The proposed paper will feature three different project typologies set in the urban, peri-urban and township areas that are using various unconventional modes of thinking to create alternative, designs, technologies, buildings and community centres. These typologies create alternative business and communities that provide a glimpse into what is possible when 'idle capacity' in marginalized economies use the green agenda as a vehicle to penetrate the mainstream economy. The proposal documents the narrative of several projects in contrasting spaces which are interconnected. Their complexity is unpacked to reveal possible alternative economic routes that provide solutions to the local economy. The proposal documents action research that has created catalytic projects that have begun re-shaping the sustainable human landscape. The projects have won several reputable accolades in the mainstream space such as the SAPOA 2018 Award for Innovative Excellence - Overall Most Transformative Project in South Africa and were nominated for Design Indaba 2017 MBOISA (Most Beautiful Object in South Africa). The work has also been published in numerous newspapers including the Mail & Guardian and future locality in South African Broadcasting Corporation and internationally on several television stations. The research creates an evidence base for alternative methods that inform and radicalize theory, academia, professional practice, industry and policy making towards creating socially innovative spaces that are more inclusive to enable poorer and marginalized communities to develop and compete fairly in the mainstream space.

## **PAPER 33**

**Title:** *The influence of statutory planning in rural nodal areas as mechanism to the sustainability of rural settlements: A Comparative Study in selected rural areas in Eastern Cape*

**Authors:** Fezile Flatela

### **Author keywords:**

Rural settlements  
Nodal areas  
Land use planning  
Spatial planning  
Transformation

## 1. Problem Statement

1.1 The informal and disorderly rural nodal areas influence communities to practice land uses that stimulate the economic potential of those areas. It is being thought that these areas attract different land uses which ultimately influence their social benefits and economic potential.

1.2 Formalising spatial and land use planning in rural nodal areas can leverage their social benefits and economic potential, which in turn, can sustain the surrounding rural settlements.

1.3 Transformation of these areas can create spin-offs that can have economic benefit to the adjoining rural and peri-urban areas.

## 2. Objectives

2.1 To determine the underlying features of those informal rural nodal areas that draw attraction of communities to practise informal economic activities in those areas.

2.2 To explore spatial and land use planning interventions that can augment the social and economic potential of those nodal areas.

2.3 To determine possible contribution of those nodal areas towards economic and social benefit of surrounding rural settlements through their spin-offs.

## PAPER 34

**Title:** *Urban regeneration and renewal in African cities in the light of the Sustainable Development Goal for cities: a case of Lagos, Nigeria.*

**Authors:** Taiwo Afinowi

### Author keywords:

Urban regeneration

Urban renewal

Urban housing

Infrastructures

Sustainable cities

Urban regeneration and renewal are tested and they are relatively successful means of addressing the urban problems or challenges that plague cities, including inadequate housing, urban decay, inadequate infrastructures, and inefficient cities. They have also been applied in the resuscitation of declining urban socioeconomic dynamics. African cities are experiencing a high level of urbanization due to an increase of people in urban spaces leading to more pressure on human settlements in terms of housing and basic infrastructure such as water, sanitation, hygiene, and power supply. The inability of most governments to deal with this challenge has led to the proliferation of slums, informal settlements, all forms of informal housing and insufficiency of basic infrastructure and services in urban centres. In the light of these and other challenges cities experience, it is necessary to continually measure government policies and actions against the sustainable development goal (SDG) of making cities safe, sustainable and inclusive. The objective of this paper is to appraise the level of government's responsiveness in the city of Lagos towards urban regeneration in line with SDGs to address urban housing and infrastructural problems highlighted above. There are commendable efforts by the government through the various agencies and ministries to cater for housing, renewal, and regeneration. However, research carried out show that much of the city's regenerative plans are geared towards projecting the image of a 'world class city'. The city's regenerative approach is driven by the pursuit of economic interests and capitalism as against ensuring inclusivity, sustainability and access to affordable housing and basic infrastructure. This study aligns with Vanessa Watson theory of conflicting rationalities between the yearnings for inclusive human settlements and what obtainable in the city.

## PAPER 35

**Title:** *Economic and Carbon Growth - Sustainability in Buildings*

**Authors:** Samson Mohomane, Linda Lingano, Tshwafo Motaung and Sandile Songca

### Author keywords:

Green brick

Agricultural waste



Most economic activities are currently driven by energy derived from fossil fuel with its associated effect on increase in greenhouse gas (GHG) emissions. Low carbon growth plan was seen as a breakthrough to overcome this challenge. Global policy aims to price in the cost of carbon emissions, South Africa must find the means to emit less carbon. One of the key proposals to support a transition to a low carbon economy includes building standards that promote energy efficiency and the action plans include all new buildings to meet the energy-efficiency criteria set out in South African National Standards. In this study we create sustainable bricks from industrial waste (gypsum, fly ash, sugarcane ash, to mention a few) for smart cities and urbanization. This project is done in partnership with uMhlathuze municipality in Richards Bay. Accumulation of industrial and agricultural waste in Richards Bay has been considered as a major threat to sustainable development. The construction industry is also one of the principal contributors of the depletion of natural resources. Bio-brick is presumed economically (20% cheaper) than conventional bricks, and alternative to clay or cement concrete bricks. The utilisation of wastes in the brick offers an attractive alternative to their disposal, minimize the volume of waste in landfill, and contribute towards sustainable construction and green building within the industry. Their competitive properties will be discussed.

### PAPER 36

**Title:** *Employing an inductive content analysis approach to explore the implementation of the Galeshewe Urban Renewal Programme, in hindsight (2001-2010), Sol Plaatje Municipality, Northern Cape, South Africa*

**Authors:** *Danisile Seeco and Thulisile Mphambukeli*

#### **Author keywords:**

Qualitative inductive content analysis  
Urban Fragmentation  
Urban Renewal Programme  
Planning  
Post-apartheid urban re-integrative planning

The paper explored the implementation process of the Galeshewe Urban Renewal Programme (GURP) in hindsight from 2001 – 2010. The aim was to gain insights to the key challenges experienced by the Sol Plaatje Municipality that might have contributed to the inadequate implementation of GURP. An inductive content analysis approach was employed. Within the urban and regional planning context, qualitative inductive content analysis is less commonly used, and the infrequency of this research method created an opportunity for the researchers to present a unique way of systematic analysis of what might have gone wrong during the implementation process of the GURP. Hence, a chronological history through a timeline of key events that took place during the implementation of GURP is presented. We discovered that the manner in which GURP was introduced in Galeshewe produced disintegration and a disconnect between the people of Galeshewe and the infrastructure provided – resulting in dysfunctionality and a degeneration of GURP projects. This discovery nullifies the notion that the URP was introduced to redress the socio-economic and spatial historical injustices of the colonial-segregation-planning development in South Africa. Consequently, a lack of a well thought legislative and policy framework that was to guide the conceptualisation and implementation of GURP contributed to a disconnection on a contextual, political and socio-economic level. We suggests that the inductive content analysis approach is a useful method for planning, particularly when the institutional memory is no longer available to provide answers to the historical record that influenced the implementation of Urban Renewal Programmes in South Africa and elsewhere.

### PAPER 37

**Title:** *Unpacking the landscape of Human Settlement Decision Support Tools in South Africa*

**Authors:** *Onke Aphelele Qwabe, Sithembiso Lindelihle Myeni, Andrew Okem, Aubrey Mpungose, Ndumiso Ndlovu and Bongumusa Zamisa*

#### **Author keywords:**

Sustainability  
Innovation  
DSTs

The provision of sustainable human settlement is one of the key challenges for the ANC-led government. The mushrooming of informal settlements (often un-serviced and characterised by poor/inhabitable living

conditions) on the periphery of urban centres are manifestations of the government's failure in meeting the housing needs. The deployment of decision support tools (DST) could be instrumental in addressing some of the housing delivery challenges. Underpinned by a multi-pronged approach comprising desktop research, only surveys and workshops with the human settlement stakeholders, the study provides a database of DST comprising 109 and the various characteristics of the DST. Approximately three in every five tools (60.6%) identified were owned by the government, followed by the Academic/Research Institutions (19.3%) and private sector (18.4%). More than half (59.6%) of the tools are publicly available with over three-quarters (78.9%) are software. Slightly over half (55.1%) of the tools were designed to be applied for all the geo-types, including urban, rural and peri-urban areas. There were only two (1.8%) decision support tools that were designed for rural areas only while 45% of the identified tools have multiple purposes (i.e. they could be used for planning, implementation and/or monitoring and reporting) followed by 23.9% of the tools which are used for planning. Only 3.7% of the tools are used for implementation. Overall, this study established the myriad of DST in South Africa and is a valuable resource for stakeholders in the human sector. The comprehensive database could also serve to reduce duplication and redundancy in the development and deployment of new tools. Findings indicated that there are various gaps and challenges with regard to the adoption and application of DSTs in South Africa. We conclude by suggesting that the adoption must be embedded within sustainability, innovation and systems approach paradigms.

### **PAPER 38**

**Title:** *Exploring Green Project Management towards an Integrated Model to Upscale the Use of Innovative Building Technologies in Low-Cost Housing*

**Authors:** *Tshiphiri Tshivhasa, Sijekula Mbanga and Winston Shakantu*

#### **Author keywords:**

Innovative building technologies  
Green project management  
Sustainability  
Green development  
Green building

#### **EasyChair keyphrases:**

Innovative building technology (95)  
Green project management (63)

The use of Innovative building technologies is fairly emerging in low-cost housing sector and was introduced by South African government with the aim of expediting subsidised housing delivery whilst reducing project cost and introducing alternative funding streams. There is an alarming concern that, even though there is a variety of realised benefits, innovative building technologies are not utilised at scale for the construction of government subsidised housing in different human settlements development subsidy programs. The current focus of housing delivery in South Africa is to provide a qualifying subsidy beneficiary with a good quality house through a low-cost housing project that was delivered on time. This focus is less considerate of the aspect of environmental sustainability of a project. This paper, adopting a Ludwig von Bertalanffy et al Systems Theory, utilises both project management body of knowledge and sustainability discourses to explore a green project management approach which also give an expression to innovative building technologies. The key argument in this paper is that, the integration of the principles of green development in the project management process will contribute to the uptake of innovative building technologies in government subsidised housing projects. The paper argues that this integration will, furthermore, contribute towards effective project outcomes and environmental impact by reducing carbon emission, water usage and reliance on power grid. Furthermore, the paper argues that the end product of green development-oriented project management praxis is a green residential building which presents environmental benefits, economic benefits whilst creating a viable community as purposed in human settlements development. This paper is a results of a critical literature review with the aim to shift the current focus in construction of government subsidised houses to a highly competitive segment of property market, taking advantage of green project management approach that elevates the consideration of environmental sustainability in residential housing dispensation.

### **PAPER 39**

**Title:** *Multi-purpose community centres as a stimuli for Sustainable Development*

**Authors:** *Bongiwe Gobe, Sijekula Mbanga and Brink Botha*

#### **Author keywords:**

Spatial planning

Multi-purpose community centres  
Sustainable development  
Participatory democracy  
Community development  
Integrated planning  
Integrated services  
Socio-economic impact

**EasyChair keyphrases:**

Multi-purpose community (126)  
Purpose community centre (110)  
Sustainable development (40)

The research paper seeks to explore how multi-purpose community centres can become a stimuli for sustainable development within the already existing and new housing areas. The paper is an outcome of a critical review of literature pertaining to multi-purpose community centres in their different names, role of infrastructure in improving quality of life and socio-economic development anchored on community participation. The paper will address a growing concern that there are multi-purpose community centres that are not meeting their expected outcome of bringing sustainable development, integration and improved quality of life to communities where they are constructed. The poor and the marginalised groups in many communities are deprived access to integrated government services, information and developmental opportunities. The constitution of the Republic of South Africa of 1996 in Section 32 (a) stipulates that, “everyone has the right to access to information”. Historical, social and economic factors in our continent and country have contributed to limited access to citizen of this very important right. The implementation of multi-purpose community centres approach is seen as a primary solution to a number of the following challenges facing our society; inadequate infrastructure, remote settlement patterns, poor access to basic services, poor access to technology, poor access to information, increased unemployment rate, increased poverty rate, inequality and many others. The paper will address issues that hinder multi-purpose community centres from becoming centres that build functioning communities that respond to socio-economic challenges and lead to improved quality of household life. It will further look into key activities that are expected to take place for multi-purpose community centres to become vehicles for bringing change in the communities they are constructed. The paper will suggest an inclusive human settlements strategy for the creation of well- functioning multi-purpose community centre within the existing and new housing projects.

**PAPER 40**

**Title:** *Challenges in Implementing Innovative Building Technologies: Housing Case Studies in South Africa*

**Authors:** *Jeffrey Mahachi*

**Author keywords:**

Innovative building technology  
Conventional construction  
Regulatory environment  
Life cycle cost

South Africa has come a long way in addressing the housing backlog for the poor and has even taken further steps by providing a regulatory environment for energy efficient houses. The benefits of including energy efficiency are increasingly becoming realized, not only due to global pollution but due to the additional electricity crisis affecting most South Africans. Many challenges, however, lie ahead with finding a balance between eradicating informal settlements and providing energy efficiency measures, taking into account the escalating cost of building materials. The South African regulatory environment provides for the implementation of non-conventional, innovative building technologies (IBT). However, the uptake of these technologies to assist in fast delivery of houses and social infrastructure is very slow. This paper reports on an investigation carried out on a few case studies where the technologies have been used in housing developments. The research methodology involved collating the data from the projects, analysing the challenges and making recommendations. The major challenge identified in the implementation of the IBTs is the cost. Cost analysis and comparisons are made in the paper, and it is apparent from the results that the construction cost of IBTs compares favourably with conventional construction for multi-family residential units. However, for single and double story individual units, the cost for implementing IBTs are higher than conventional construction. On availability of more data, it is recommended that a more detailed life cycle cost be performed. A life cycle cost model will enable a fair cost comparison of conventional construction versus IBT construction.

#### **PAPER 41**

**Title:** *Training towards reality*

**Authors:** *Thomas Stewart*

**Author keywords:**

Human settlement practitioners

Informal settlements

Human settlement theory

Human settlement training

**EasyChair keyphrases:**

Human settlement (40)

When reality continuously overtake the responsive actions of decision makers and practitioners, it becomes the practice. This paper endeavours to explore some theories and training that might assist in capacitating human settlement practitioners in being able to pre-emptively and retrospectively strategize and attend to improving living conditions in informal settlements. When dealing with informal human settlements the unconventional thereof requires an unconventional response and likewise training and scholarly engagements that explore the periphery of known knowledge. Mostly people, who are the beneficiaries of human settlement projects, seem only to be included in the rhetoric of 'participation'; 'consumer education'; and 'consultation'. It is argued that scholarly opportunities, which may present practical solutions, are overlooked in the interest of rapid production of technically superior products. Some theoretical and training ideas are shared and presented for further debate.

#### **PAPER 42**

**Title:** *The role of community learning in pursuit of peace: Prospects and Challenges*

**Authors:** *Runyararo Marima*

**Author keywords:**

Social capital

Community learning

Transformation

Social cohesion

Zimbabwean society is affected by various political, social and economic challenges. Among the many factors leading to the fragmentation is the propagation of a paradigm of war which subsequently leads to a weak social capital. Designed as a participatory action research following an emancipatory paradigm the research engages affected youth in exploring their individuation and sense of community as well as strengthening their social capital. Community learning is one way of attaining social cohesion and transformation. It is one's life experience as they learn new things from those around them. Guided by the lenses of the transformative learning theory, this experiential learning platform relied heavily on the exchange of plural alternative narratives to attain social cohesion and transformation. Preliminary findings show that narratives allow participants to create, recreate and alter social identities and perspectives.

#### **PAPER 43**

**Title:** *Low-income rental housing: A need for review of the South African Housing Policy*

**Authors:** *Adeleye Adeniran, Siwisa Ntombonina and Sijekula Mbanga*

**Author keywords:**

Rental housing

Housing policy

Residential mobility

Low-income housing

Although a significant proportion of South Africans live in rental accommodation, the focus of housing policies for low-income earners is on homeownership. The study premises on a problem identified by the Eastern Cape Department of Human Settlements that despite the increase in housing delivery over the years, informal settlement keeps springing up so also is the incessant cries of poor households that need homes. A survey of three Break New Ground (BNG) projects Wells Estate, Mount Ayllif and Lady Grey, all sited in the Eastern Cape revealed that the rate of renting in these settlements have been increasing in recent years giving credence to the need for rental housing. This paper argues that rental housing policy can contribute to the enhancement of residential mobility, improved labour market and livelihood opportunity, and strengthen socio-economic networks.

#### **PAPER 44**

**Title:** *Maldevelopment- a key feature defining rural development in South Africa*

**Authors:** *Zamikhaya Maseti*

**Author keywords:**

Maldevelopment

Sustainable rural development

Agricultural land reforms

The main challenge for rural development in South Africa has been the marginalisation of the rural people. As a result, the socio-economic phenomenon of maldevelopment continues to be the main feature characterising and defining rural development. This paper traces the genesis of maldevelopment in South Africa by looking at the land, agricultural and rural development policy reforms that have been implemented since 1994. The paper contends that the phenomenon of maldevelopment has somehow derailed sustainable rural development. The paper attributes this persistency of maldevelopment to the faulty architectural design of land reform policies post 1994. Over the years, government departments have produced many reports, which confirmed the slow pace of rural development in South Africa. These reports have never been subjected to rigorous intellectual engagement as they all point to the genesis of maldevelopment. Rural development will not become a reality if the rural people are neglected, not given land, machinery and capital to work the land. The paper demonstrates how government has, over the years, unwittingly contributed to the demise of rural development and pauperisation of the rural people through policy failures. Finally, the paper concludes by making specific recommendations on how best government could promote sustainable rural development. If the architectural design of land and agricultural policy is not overhauled post 2019, rural development will just be a hollow and deferred dream to the majority of the rural people.

#### **PAPER 45**

**Title:** *Implications of the counter urbanisation trend around peri-urban and rural areas for spatial planning*

**Authors:** *Ayanda Canca*

**Author keywords:**

Cultural Nuances

Urbanisation dynamic

Reconceptualising rural -urban continuum

Resource sustainability

Spatial structure and form

15 March 2019: Spatial Planning policy and practice has been characterised by distinguishing between rural and urban settlement. Whereas there has been a body of literature that recognises the rural-urban continuum, its implications on spatial configuration and on fiscal pressure have not been fully analysed. Human settlement practice is not offering an optimal response to this rapidly transforming post-Homeland landscape. This paper sets out to provide a new planning paradigm to replace conventional urbanisation theories and inform planning policy. Urban expansion occurring outside formal Township Establishment legislation areas, is changing the rural spatial form and structure. The problem is that the nature of this settlement pattern and practice remains undefined and therefore escapes a credible theoretical framework for policy planning and service delivery practice. A re-conceptualisation of urbanity, efficiency and accommodation of cultural nuances in living spaces is required. This paper seeks to explore the considerations underpinning counter-urbanisation. The key informants of human settlement policy and practice should be aligned to these choices in order to optimise fiscal, environmental, space and resource sustainability. The research area comprises N2 settlements from Mthatha to Butterworth and an area along the district road from Dutywa to Engcobo. Ethnographic studies of five families will be conducted as well as surveys using questionnaires, sampling 50 families and individuals of varying socio-economic profiles. Settlement preferences express themselves in a particular spatial form. The implications thereof need to be analysed more rigorously. Current legislative, financial and spatial policy frameworks do not take cognisance of this peculiar Urbanisation Dynamic.

#### **PAPER 46**

**Title:** *Household cost as a driver for determining the sustainability of the Human Settlement*

**Authors:** *Lorato Motsatsi and Jeremy Gibberd*

**Author keywords:**

Household expenditure  
Human settlements  
Cost  
Local government

As the cost of living rises in South Africa, many households face financial constraints. These financial constraints provide a picture of the effectiveness of the human settlement in supporting a sustainable household livelihoods. This paper develops a methodology based on household expenditure that can be used to evaluate human settlements and identify areas that local government needs to address.

**PAPER 47**

**Title:** *Municipal Waste Management: An antidote for a healthy city*

**Authors:** *Sibongangani Mngomezulu, Adeleye Adeniran, Sijekula Mbanga and Brink Botha*

**Author keywords:**

Waste management  
Healthy-city  
Sustainable human settlement

Municipal waste management is a vital component of the environmental design which itself is one of the pillars of the healthy-city concept. This paper draws attention to the problem of municipal waste management in the context of healthy-city with the aim of analysing the dynamics of the characteristics of municipal waste management in urban areas. An examination of selected settlements in the Nelson Mandela Bay Municipality across a set of variables comprised of the following measures: collected mixed municipal waste from different sources (households, leisure parks, hotels, hospitals and industries among others) and area of controlled landfill sites in operation. The analysis, based on data from the 2010 and 2015, is used as a basis to draw an inference for a healthy city

**PAPER 48**

**Title:** *Unpacking the opportunities and challenges in sustaining urban agriculture in low-income settlements in Durban.*

**Authors:** *Vincent Myeni*

**Author keywords:**

Urban poor  
Food security  
Sustainable low income human settlements.

**EasyChair keyphrases:**

Urban agriculture (60)  
Food insecurity (40)

Urban agriculture in the form of community gardens is one of the key livelihood strategies and practices by the urban poor in South Africa. The influx of people in urban centres results in the expansion of informal settlements which are mostly characterised with lack of basic services, overcrowding and food insecurity. This paper intended to explore and evaluate the role of community gardens in dealing with poverty, unemployment and food insecurity in Durban. Sustainable Livelihoods and Human Basic Needs Approaches were used as theoretical framework for the study. The paper argues that a meaningful participation of all relevant stakeholders in urban agriculture, the urban poor can effectively deal with the challenges of food insecurity and contribute to poverty alleviation. The paper uses the qualitative data from twenty community gardeners in Mayville and officials from eThekweni Municipality to unpack the opportunities that could be tapped into and challenges that hinder the sustainability of urban agriculture for low-income settlements. Findings indicates that challenges emanate from community members, leadership in the area and the municipality gets discouraged to provide the financial and advisory support from the community members who practice urban agriculture. Opportunities are limited to those who are actively involved in community gardening. Therefore, the study concludes that a meaningful involvement of all stakeholders in urban agriculture in a form of community gardens could be used as strategy for poverty alleviation, fight unemployment and food insecurity for the entire community.

#### **PAPER 49**

**Title:** *Does the Sustainable Building Assessment Tool Address Resilience Sufficiently?*

**Authors:** *Jeremy Gibberd*

**Author keywords:**

Sustainability

Resilience

SBAT

Sustainable building assessment tool

Climate change is already having significant impacts globally. These impacts are experienced most acutely in developing countries where infrastructure and population are often more vulnerable and resources and capacity for adaptation are limited. It is therefore particularly important to understand vulnerabilities to climate change in developing countries and address these in the most effective and efficient ways possible. The Sustainable Building Assessment Tool (SBAT) was developed to support the integration of sustainability in buildings in developing countries. Through analysis of current climatic change projections for South Africa, key implications for built environments are ascertained. These will be reviewed against the SBAT to investigate whether existing criteria adequately address projected climate changes. Findings from the study indicate that while the SBAT provides a robust framework for addressing sustainability, it does not address climate change resilience comprehensively. Recommendations are therefore made for how the SBAT, and other similar tools, could be improved to support climate change better.

#### **PAPER 50**

**Title:** *Considering healthy indoor environments in the development of human settlements by characterising the building indoor microbiome.*

**Authors:** *Jako Nice*

**Author keywords:**

Architecture

Microbiome

Health

Design

Indoor environments

Assessment

As humans we spend up to 90% of our lives in indoor environments. Considering the rate of urbanisation in South Africa and globally, it would be prudent to consider the health quality of the indoor environments of current and future planned human settlements. The impact of the built environment (BE) on user health is widely known, with up to 15% of people contracting healthcare acquired infection (HAI) in hospital environments, family members contracting tuberculosis (TB) in home environments. In the United States of America (USA) the loss of time and financial cost due to HAI in offices and public buildings estimated at billions of US\$. Yet we know very little of characteristics of the indoor environment. An emerging field of the microbiology of the built environment (MOBE) could unlock our understanding towards future planning and design. Characterising the indoor BE requires interdisciplinary approaches that include architecture, microbiology and engineering. The methodology adopted, investigated two case study facilities. It included microbial sampling of indoor rooms; sensor data collection for CO<sub>2</sub> and temperature; and spatial metrics that include occupancy, people type, room function with internal flow patterns through spatial modelling. Correlation of the data sets provided identification of environmental factors that play an influential role on the microbiome of the indoor environment brought about by the typical user type. The findings indicated that the indoor biome varied seasonally and consisted of unique air and surface communities. Unique biomes were observed at a room space level, but similarity at building typology taken from the two case studies. The indoor built environment is dynamic, the need to extend these investigations into the residential and housing sphere is critical. The influence of building design decisions (operations, layout, planning, hardware and systems...) had a direct effect on the microbial composition and structure of the indoor built environment and consequently user health. This study presents an empirical quantitative approach to determining what healthy indoor environment applicable in human settlements at large could be.

#### **PAPER 51**

**Title:** *Does the built environment sustainability tool (BEST) address resilience sufficiently?*

**Authors:** *Jeremy Gibberd*

**Author keywords:**

Sustainability  
Resilience  
BEST  
Built environment sustainability tool.

Climate change is already having significant impacts globally. These impacts are experienced most acutely in developing countries where infrastructure and population are often more vulnerable and resources and capacity for mitigation are limited. It is therefore particularly important to understand vulnerabilities to climate change in developing countries and address these in the most effective and efficient ways possible. The Built Environment Sustainability Tool (BEST) was developed to guide the development of more sustainable neighbourhoods in developing countries. Through analysis of current climatic change projections for South Africa, key implications for neighbourhoods are ascertained. These are reviewed against criteria in the BEST to investigate whether the tool adequately addresses projected climate changes and promotes associated resilience measures. Findings from the study indicate that while the BEST provides a useful guide for addressing sustainability in neighbourhoods it could be enhanced by addressing resilience more comprehensively. Recommendations are therefore made for the further development of the BEST.

**PAPER 52**

No submission

**PAPER 53**

**Title:** *The built environment as a vehicle towards social inclusion in cities: A wicked problem*

**Authors:** *Khululekani Ntakana and Sijekula Mbanga*

**Author keywords:**

Built environment  
Social inclusivity  
Local participation  
Sustainable development

**EasyChair keyphrases:**

Built environment (80)  
Social inclusivity (50)

The contemporary built environment in cities raises questions about how it is progressing, how it is structured and its performance to incorporate sustainable development thinking specifically social inclusivity. This paper reports and discusses findings from a critical review of local and international literature on social inclusivity in the built environment. It seeks to find nexus between the built environment and social inclusivity programmes, and explores constraints, limitations and gaps. Although the focus of development is on people and their needs, the review findings reveal that the built environment in cities does not locate people and their needs, rather, it relegates them to the periphery. This paper, therefore, argues that the social dimension of human settlements and / or spatial transformation will not be achieved by us just talking about it in cities, it won't come naturally out of prayer. The behaviour of different professions in the built environment, the methods and techniques applied by the built environment professionals and what informs those including laws and policies implemented needs to be revisited if social inclusivity is to be attained.

**PAPER 54**

**Title:** *Privatization of urban public spaces and its impact on sustainable cities and social inclusion*

**Authors:** *Khululekani Ntakana and Sijekula Mbanga*

**Author keywords:**

Privatization  
Inclusivity  
Sustainability  
Public spaces

The privatization of urban public spaces (UPS) raises questions about the sustainability of urban settings and the impact that privatization has on social inclusion and access to urban land and well developed public spaces. This paper reports and discusses findings from a critical review of local and international literature on the



privatization of UPS. Although cities partner with the private sector in the planning, development, maintenance and management of UPS in attempt to build socially cohesive, environmentally friendly, and economically competitive cities, the review findings reveal that privatization is associated with the decreasing 'publicness' of UPS and shortcomings in the fulfilment of social and political responsibilities. Some of these shortcomings are the result of cities using privatization as a vehicle for economic development and financial revenue and not necessarily incorporating all sustainability attributes in terms of city planning and development. This paper argues that local authorities, city planning decision makers and the interests they are pursuing, influence the sustainable and socially cohesive design of cities.

#### **PAPER 55**

**Title:** *The architectural curriculum of the 4th industrial revolution towards sustainable smart communities*

**Authors:** Yashaen Luckan

#### **Author keywords:**

4th industrial revolution

Smart

Sustainable

Community

Architecture

Curriculum

The 4th industrial revolution (Schwab 2016) has catapulted innovation into a realm far beyond the traditional historical curriculum; it questions the very nature of research, teaching, knowledge generation and knowledge transfer - a disruption that has challenged all innovation and creativity. This era is not about the survival of the fittest, it is however about the survival of the most flexible. The disruption caused by the World Wide Web raises questions about historical ways of thinking and making. Architectural thinking and practice are inherently disruptive processes underlined by clash of ideas which sparks innovation, as affirmed by Johansson (2017) in his book, *The Medici Effect*. One of the manifestations of this era, that challenges the architectural curriculum, is the smart city concept. The paper asserts that investment into smart cities cannot be overwhelmingly skewed towards technology for production, arguing that investment in people is vital to the development of sustainable communities. A critical question emerges within the South African context: how can the smart city concept spatially transform the apartheid city? This paper promotes the idea of deep eco-systemic thinking (Goodman 2002) to enhance the socio-cultural nuances of place, while advancing active citizenship through engagement with the global knowledge society. The paper posits the notion of the agile curriculum to achieve this objective, arguing for a humanistic approach to design thinking for the sustainable development of smart communities within this 4th industrial revolution – education for smart citizenship is critical in this regard. The research methodology is based on a pragmatic philosophy and a qualitative approach. Correspondingly, the theoretical and conceptual framework is underpinned by an in-depth literature review of the following topics: the impact of the 4th industrial revolution on sustainable development, curriculum transformation, modes of practice and education for sustainable development.

#### **PAPER 56**

**Title:** *The importance of Entrepreneurial Education in growing Youth Entrepreneurship*

**Authors:** Sandile Mjamba

#### **Author keywords:**

Business

Economy

Youth

The education system in its current epoch perpetuates a cycle that manufactures job seekers for an unresponsive and over saturated labour market. This article argues that such a cycle stems from the asymmetrical gap between university curriculums and entrepreneurial demands. Entrepreneurial outputs in twenty six universities in South Africa has been relatively low. There are existing student entrepreneurs but the majority do not receive sufficient support to develop their entrepreneurial education acumen. This discussion seeks to propose how higher education institutions should be at the forefront of the student entrepreneurial agenda; growing the participation and sharpening entrepreneurial acumen. This requires us to draw on some existing knowledge on how universities can become entrepreneurial. It further requires us to be critical of the current curriculum to propose how universities can become breeding spaces for youth entrepreneurship.

## **PAPER 57**

No submission

## **PAPER 58**

**Title:** *The rural school as a place for sustainable community development.*

**Authors:** *Nischolan Pillay and Yashaen Luckan*

### **Author keywords:**

Rural school  
Sustainability  
Adaptive reuse  
Design thinking  
Architecture  
Social development

The history of the South African democratic struggle realised the demise of Apartheid and the ultimate defeat of unfair practices, promised freedom, transformation, and development for all citizens. However, 25 years into the democracy that struggle continues for a large part of the population. Rural communities in South Africa face various struggles such as poor service delivery, unemployment, spatial challenges, education, a division between classes, social exclusion etc. In rural communities, the rules of engagement differ from their urban counterparts. Communities in rural areas also suffer from sub-par education, eventually leading to unemployment and negative economic growth in its spatial context. Social gathering spaces in rural areas are generally located at schools, which act as quasi-community centres. This raises a critical question: how can the rural school enhance the socio-economic sustainability of rural communities? This research examines various literature sources to understand the challenges facing rural communities, rural schools spatial programmes and factors influencing economically and socially sustainable development. Various sources reviewed reveal a lack of decent infrastructure, poor educational systems, and mindsets that negatively impact sustainable economic and social development in rural communities. The paper argues that the adaptive reuse of space in the rural school can create a vital socio-economic hub for the advancement of education, culture and micro enterprises in rural communities. The author's highlight, through literature review, the pertinent issues facing South African rural communities and possible measures which can be implemented to successfully contribute to growth and sustainability. The paper aims to redefine design thinking for the sustainable transformation of rural schools as socio-economic communal hubs.

## **PAPER 59**

**Title:** *Unmanned Aerial Vehicles (UAV's) use in public infrastructure projects, a joint effort between the Government Department: Infrastructure Development (GDID) and the University of Johannesburg (UJ)*

**Authors:** *Nischolan Pillay and Innocent Musonda*

### **Author keywords:**

Unmanned aerial vehicles  
Industry 4.0  
Infrastructure projects  
Project management  
BIM

Unmanned Aerial Vehicles (UAV's) or Drones have become a popular area of interest in the civilian and academic arenas. UAV's saw their introduction for military use in the United States however, in recent times the technology has been introduced for recreational use. Drones offer multiple different uses including but not limited to; agriculture monitoring, real estate video and photography, film making, mapping, construction monitoring, remote sensing, commercial aerial surveillance, recreational use, and other creative uses. The introduction of the fourth industrial revolution has not spared the construction industry and various technology implementations are becoming popular. In the construction industry, UAV's have shown a beneficial impact in the monitoring, quality control, execution, management and delivery of the final product. UAV's not only provide photographic and videography data, but also geospatial and mass data. Through the implementation of Building Information Modelling and point cloud data coupled together, a spectrum of data sets can be formed such as; as-built drawings, material and quantity take-off, project management data etc. In late 2018 the Government Department- Infrastructure Development (GDID) approached the University of Johannesburg

(UJ) for a partnership on the cutting edge; drone project. The GDID had implemented drones on their projects, however, the data only yielded photographic and videography data, UJ obliged on the partnership and revealed the various uses and data that can be extrapolated from drones. This research makes use of a mixed method approach of data collection implementing literature as a secondary source and various case studies to investigate the powerful information drones capture. The research focuses on the innovative solutions and uses developed by the UJ for implementation of drone technology on Public Infrastructure projects for the GDID. The research covered in this paper will be helpful to the research community and industry in revealing the benefits of technology implementation in construction projects.

## **PAPER 60**

No submission

## **PAPER 61**

**Title:** *The challenges facing Kwasa Gardening Project in Walmer Township in Port Elizabeth*

**Authors:** *David Bogopa and Thandiwe Blauw*

### **Author keywords:**

Poverty

Poverty alleviation

Skills development

Urban agriculture

Poverty is one of the major challenges faced by South Africa today, even after twenty five years of democracy. South Africa is still grappling with many issues which include among others a population which is still living below poverty line and the most affected are women and children. Poverty alleviation is one of the key priorities for the government, and the communities where the poor live engage in projects that support poverty alleviation while on the same breath also helps with skills development and financial freedom. In this paper, the focus is on the impact of women participation on urban agriculture project by means of a vegetable garden to alleviate poverty at Kwasa Project in Walmer Township. This research has followed a qualitative approach which included individual interviews using an interview schedule. To supplement the above, secondary relevant scholarly sources were consulted. The research objectives of this paper include the investigation of the challenges facing the Kwasa Project in Walmer Township. In the final analysis, this paper provides recommendations with the view of resolving some of the problems as well as contributing meaningfully towards policy improvements at all sphere of government.

## **PAPER 62**

**Title:** *"Hands on the City": Lessons from the Zanzibari land restitution claim and housing redevelopment process in the Ethekwini Municipality.*

**Authors:** *Brendan Boyce*

### **Author keywords:**

Social Justice

Land reform

Land restitution

Sustainable human settlements

Social housing

Redistributive justice

Active citizenship

### **EasyChair keyphrases:**

South Africa (40)

Land restitution (40)

The dawn of democracy and the passage of the Constitution of the Republic of South Africa has opened the possibility for local communities who were forcibly removed from the "urban core" to the periphery of the city to claim restoration of their land under the land restitution legal framework. This paper considers the case of the Zanzibari community in KwaZulu-Natal. The paper will examine the unique history of this community's struggle for the restoration of their land as well as their efforts to secure its redevelopment as an integrated social housing with elements of commercial and cultural development. This paper will undertake a critical review of the literature, policy and praxis in the areas of urban land reform, urban land restitution and

sustainable human settlements development. The paper will also reflect on engagements with key informants, officials and practitioners in seeking to examine the phenomenon whereby local communities across South Africa's major urban centres from the City of Cape Town, City of Johannesburg and the Ethekeeni Municipality have mobilized to seek justice in relation to their apartheid era dispossessions. It also explores the rise of more radical social movements which are driven by a more overtly political agenda to "reclaim" the city through the occupation of vacant "buffer" and "underutilized" tracks of well positioned land by extra-legal means. The paper considers the processes which has seen localized social movements such as the Zanzibari community grasp the nettle and dictate the terms of the redesign of their spaces. Whilst this paper argues for the continued use of restorative justice processes in the transformation and redevelopment of the South Africa's urban spaces as it continues its journey to "normalization" of the city, the paper also critically discusses the theoretical arguments of Nancy Fraser so as to problematize the continued use of the politics of recognition to frame our approaches to transformation and development in the South African polity. Furthermore, the paper will also explore the "opening of the space" for more active citizenship together with the opportunity for co-creation of the post-apartheid city. This paper explores the phenomenon where many such projects have become mired in intractable local social contestations. By reflecting on the case of the Zanzibari community the paper work will present some preliminary lessons aimed at enriching our knowledge base on the complexities and often competing ideological stances and interests at play and the role that these nascent struggles have on reshaping the fast-evolving post-apartheid urban landscape.

### **PAPER 63**

**Title:** *Challenges of sustainable-affordable in South Africa and Palestine. Finding long lasting solutions to sustainable-affordable housing challenges in South Africa and Palestine for the benefit of Gaza Strip and West Bank*

**Authors:** *Dr Anis Daraghma*

#### **Author keywords:**

Poverty  
Methodology  
Research

**Background:** The proposed research project emerged from a request by Berzeit University (BZU), a Palestinian university based in the West Bank, to the Institute of Palestine and South Africa (IPSA), asking for a) the support of a South African university in tailoring an engineering curriculum for sustainable-affordable housing for BZU; and b) to assist in finding the most appropriate building technologies for the Palestinian people, drawing on South Africa's knowledge and experience of affordable housing. In response to BZU's request, IPSA engaged with NMU, because it is the most expertise in sustainable, affordable housing in South Africa. IPSA further facilitated the establishment of the Palestine Task Team for Sustainable Affordable Housing (PTTSAH), consisting of the Departments of Architecture and Civil Engineering at BZU; the Palestinian Housing Council; the Civil engineering Department at An-Najah University (ANU); PLO department for resisting forceful removal, a private housing firm; the South African embassy in Palestine; and the Governor of Tubas. Discussion between the above partners (NMU, IPSA and BZU) concluded that the way forward is to establish a post-doctoral fellowship for a Palestinian academic at NMU to conduct research that will address the sustainable, affordable housing needs of both nations.

**Research problem:** The majority of Palestinian people live in poverty, yet build their houses using expensive building technologies. This practice is common among Palestinian refugees living in the Levant (Israel, the West Bank, the Gaza Strip, Jordan, Lebanon and Syria), who constitute 55% of the nation, as well as among low-economic income Palestinian groups living in the West Bank and the Gaza Strip. The building technologies used by these groups are least innovative and unaffordable for many, who therefore live in inadequate and unsafe accommodation, and contribute to continuing poverty for those who do manage to pay for them.

Two factors that contribute to the continued use of expensive building technologies by loweconomic income groups are evident. First, engineering courses in Palestinian universities continue to limit their focus to the use of traditional concrete and stone building methods and materials. There is therefore a need for courses that encourage the development and the use of innovative, sustainable and affordable housing technologies. Second, there is an unwillingness on the part of relevant Palestinian officials to explore or commit to sustainable and affordable housing options. To date, the few projects that have attempted to address the need for low-cost housing for Palestinian people have failed. "Al-Rawabi City," for example, began as an initiative that aimed to address the housing needs of lowincome economic groups and ended up providing a business hub and residences for the elite. Similarly, the labour housing scheme in Ramallah, which began 20 years ago, aimed to address the housing needs of Ramallah's labour force. The project was never completed and most of its buildings now need to be torn down. There is thus an urgent need for research into the barriers and opportunities with respect to sustainable and affordable housing for Palestinian people in the Levant.

Research questions: The proposed research will answer the following questions: 1) Why are Palestinian officials unwilling to explore or commit to national strategy that aims for building sustainable affordable housing for the poor people? 2) Why do Palestinian engineering curricula not include a focus on sustainable-affordable housing? 3) Why do Palestinian refugees and low-income groups not build their houses with materials suited to their financial means? 4) what lessons can be drawn from South Africa on building technologies and successful approaches for sustainable-affordable houses for the poor people of both nations? and 5) How could the NMU curriculum be modified to address the need of BZU for an engineering curriculum on sustainable-affordable housing for the poor and low-low-income economic groups?

Methodology: This research will be approached in three steps. First, the researcher has to address the research questions mentioned above. This will provide the research with the arguments behind the persistent and the emphases of the national ill in Palestine.

Second, the research has to describe and to study the South African discourse on sustainable affordable housing. This will provide the research with the emphases of the case and lessons learned from South Africa. Third, to conceptualise recommendations for both of South Africa and Palestine. This will provide the partners with suggestions about sound building technologies and approaches toward sustainable-affordable houses for the poor and low-economic income groups of Palestine and South Africa. Part of the recommendation has to focus on the emphases of the modification of the NMU curriculum to suites BZU engineering curriculum on sustainable- affordable houses for the poor and low-economic income groups of Palestine.

#### **PAPER 64**

**Title:** *Sustainable disaster relief settlements an innovative option*

**Authors:** *Dr Siviwe Zukile Shwababa*

#### **Author keywords:**

Disaster relief (DR)

Shelters

Economic factors

Environmental factors

Socio cultural factors

Technical factors

Disaster relief (DR) shelters are very instrumental in disasters stricken communities and are an imperative part of disaster response and recovery. DR shelters are often used to offer secluded and secure accommodation for people who have either been displaced, or have lost their customary accommodations as a result of a disaster incident. DR shelters not only provide instant and short-term accommodation for victims of a disaster, but they also help them to recover from the trauma of a disaster as well as provide a base to start the process of rehabilitation. A review of the literature, case studies, and reports relating to the design of DR shelters demonstrates that their provision and performance are not presently as effective as they could be. A gap of sufficient consideration with respect to climatic conditions, locally available materials, skills, cultural, social issues, delays, cost constraints, and poor location selection for DR shelters have each been identified as sources of poor performance resulting into an unacceptable standard of living. Moreover, there seems to be a lack of sufficient consideration with regard to the design of DR shelters for future storage and re-use. The principal aim of this paper is to explore the extent to which environmental, economic and technical measures affect the provision and performance of DR shelters. This paper therefore presents a sustainable disaster relief settlement model which incorporates such measures from a design phase.

#### **PAPER 65**

**Title:** *Urban renewal and redesigning of Durban Metropolitan Region, "the Aerotropolis Way"*

**Authors:** *Ongezwa Ntshiqqa*

#### **Author keywords:**

Spatial Development Plan (SDF)

Aerotropolis

Economic infrastructure

Durban has experienced a complete transformation and renewal after the implementation of Strategic Spatial Plans in accordance to the Spatial Development Plan (SDF) of EThekweni Municipality. This paper will unpack the changes in the spatial form of Durban since the operation of the King Shaka International Airport (KSIA) Aerotropolis was instigated in 2010. Since the development and operation of the KSIA major businesses,

investors and developers have moved towards the north of Durban, the city planning corridors and major nodes alike. The impacts of this urban renewal are both positive and negative. The positive implications of the development of KSIA as an aerotropolis amongst others are the improved development of economic infrastructure to make it a global competitive city and the prospects of bringing international investment, economic growth, developments of infrastructure for bigger population especially private estates, and employment opportunities. The negative impacts on the other hand are the dilapidated buildings in the inner city center since the KSIA wind of change. The EThekweni Municipality has realized drastic changes in land use patterns due to decreased economic values of properties in the city, low levels of enforcement of municipal by laws and hijacking or abandoned buildings by the poor. The root cause of these challenges emanates from the exclusion of the inner city in the plans of economic infrastructure and proposals for town planning scheme reviews. Therefore, the urban regeneration in Durban is twofold, one is planned urban renewal implemented through approval of policy. The second renewals are reactionary, these are responses to challenges arising and inform various projects of urban regeneration across the world. Urban renewal is conceived as a treatment to a decaying city than a positive growth. The city of Durban has its projects of urban renewal which include Isiphingo and the Durban city centre. The projects are both reactionary interventions to the challenges at hand partially as a result of the relocation of the old Durban airport. According to Karsada the impact of airports has hugely shaped business locations and urban development in the 21st century the same way did highways did in the 20th, railway terminals in the 19th, and waterborne ports did in the 18th. Investments towards airport development and engineering unlock more economic development opportunities through international investments and business networking

#### **PAPER 66**

No submission

#### **PAPER 67**

No submission

#### **PAPER 68**

**Title:** *A definition and application of a community based and user-oriented innovation and sustainability model to achieve smart and green human settlements within the context of South African rural communities: The case study of Ekuphumleni EcoSun Green Village project.*

**Authors:** *Tshepang Mosiea, Sijekula Mbanga, Precious Lukhele, Konrad Soyeze, Barbara Mohren, Nonhlanhla Mkhize*

#### **Author keywords:**

Green Village  
Smart Cities  
Sustainable Human Settlements  
EcoSun  
Green Technologies.

Along with many other countries globally, South Africa is home to municipalities with inadequate and decaying infrastructure accompanied by many other wicked problems within the space of human settlements. The paper acknowledges that there is an urgent need for human settlements to be sustainable and green. We argue that for this to be achievable, there is a need for the deployment of integrative innovative technologies in the implementation of sustainable settlements and village designs, there is however a lack of demonstrations on how this integration can be implemented. The research paper aims to define and apply the Ecosun Green Village Model within the context of the South African rural communities. The model addresses a holistic picture demonstrating how the envisaged green settlements can be achieved. The study uses a mixed-method approach for data collection gathered mainly through focus group discussions with relevant stakeholders and the secondary data collected through literature assessment and desktop study. The study concludes by emphasizing the importance of such interventions to assist the country to respond to green economy principles and Sustainable Development Goals, mainly goal 11, thereby improving access to basic service delivery at a community level.

The Conference Chair would like to thank all participating partners:



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