

## Editors

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First published in February 2016,  
Cape Town, South Africa

ISBN - 978-0-620-69590-9

Published by:

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University of Cape Town, Cape Town, South Africa  
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## Declaration

A total of 121 abstracts were received for the conference from Universities located in Egypt, Ghana, Hong Kong, New Zealand, the Netherlands, Nigeria, South Africa and the United Kingdom; out of which 55 full papers were accepted. All full papers in this publication went through a double-blind peer review process which involves abstracts assessment by a scientific committee panel, feedback to authors on abstracts submitted, submission of full papers for the accepted abstracts, review of full papers by the scientific committee and panel of reviewers, feedback to authors on full paper submitted which included decision on acceptance and evaluation of the revised papers by the scientific committee and reviewers to ensure quality of content.

## Professional accreditation

The 9th cidb Postgraduate Conference is accredited by the South African Council for the Project and Construction Management Professions (SACPCMP) for 15 CPD Hours under Category A: Core, with Validation Number: SACPCMP/CPD/16/001.

## Correspondence

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For more information, please visit the conference website:  
[www.cidb-pg-conf.uct.ac.za](http://www.cidb-pg-conf.uct.ac.za)



# PREFACE

Dear conference participants,

It gives me great pleasure to welcome you to the 9th cidb postgraduate conference on *“Emerging Trends in Construction Organisational Practices and Project Management Knowledge Areas”* in the beautiful city of Cape Town – the World Design Capital, 2014. The conference is organized under the auspices of the University of Cape Town and Cape Peninsula University of Technology as collaborators.

Society faces considerable challenges with respect to construction project procurement, delivery and management. In addition, there is the problem of lack of transformation in the construction industry, due partly to the inability of significant numbers of emerging contractors to grow and develop sustainably, not only in South Africa, but also on the African continent. Besides these new challenges, problems persist around the productivity, effectiveness and efficiency of processes in the construction industry, the inability of the construction industry to expand as a vehicle for job creation for both unskilled and skilled workers, provide the much-needed houses and provide solutions to problems of unsustainable construction practices, project development and procurement.

Over the last decade, the construction industry has been at the forefront of developing innovative solutions such as green buildings, new materials, procurement methods, management and organizational practices to overcome these challenges. The coming decade will require more innovative solutions to deal with current and future

challenges. However, these challenges often require the collective efforts of industry and science. Sharing experiences and ideas in the area of construction project delivery, strategic management, organisational practices and procedures in construction remains an ongoing priority. Organisations such as the cidb and SACPCMP all contribute to this continuous activity of developing, sharing and disseminating practical and scientific knowledge.

In order to stimulate interaction between the conference participants, the organising committee has designed a programme, which enables different opportunities for networking, learning and discussions. In addition to keynote addresses from invited speakers and parallel paper sessions, the conference will host three very auspicious master classes. The subjects of these master classes are all related to current developments in construction research and practice. Looking at the contributions submitted to the parallel paper sessions and the enthusiasm shown by the master class coordinators, I am convinced that this will be a very stimulating event, leading to new insights, probable solutions to some of the challenges facing the construction industry and followed by many joint (research) initiatives. Finally, I wish to thank all those individuals who played an important role in the organisation and support of the 9th cidb Postgraduate Conference.

I wish you all a stimulating conference and a pleasant stay in Cape Town, the Mother City!

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**A/PROF ABIMBOLA WINDAPO**

CHAIR, 9th cidb Postgraduate Conference

# FOREWORD

by the CEO of cidb

The cidb Act mandates the cidb to support human resource development in the construction industry by establishing best practices and advising organs of the state on human resource development in relation to the construction industry. To achieve this, the cidb has since 2004 been collaborating with universities that offer construction management related qualifications to host a successful postgraduate conference series.

The cidb is pleased to welcome you to this 9th edition of the cidb Postgraduate Conference hosted by the Department of Construction Economics and Management of the University of Cape Town, in partnership with the Cape Peninsula University of Technology. It is my belief that you will enjoy the conference that comes at a very critical time in our transformation journey as an industry. The main theme of this conference is:

*Emerging trends in construction organisational practices  
and project management knowledge areas*

These have a direct bearing on the transformation journey of the country as we grapple with how best to create a just, fair and inclusive society where all are equally valued for their contributions, to the nation building project. I sincerely hope that as you debate the emerging trends in construction organisational practices, you will pay special attention to issues of transformation of the industry as well as your roles as academics. The cidb encourages all participants to work together collectively to transform this industry.

It therefore gives me great pleasure to welcome all participants, and trust that this meeting will continue to provide an on-going platform for interaction between researchers, public sector clients and private industry to discuss issues of significance to the industry. I would also wish to reiterate the cidb's continued commitment to conferences such as these and the contribution they make to the development of the next generation of academics and practitioners in the industry.

I want to thank the conference organisers under the capable guidance of A/Prof Abimbola Windapo of the University of Cape Town, and to also thank the University of Cape Town, Cape Peninsula University, South African Council for the Construction and Project Management Professions ( SACPCMP) and NMC Construction for their support.

**MS HLENGIWE KHUMALO**

Acting CEO, Construction Industry Development Board  
February 2016



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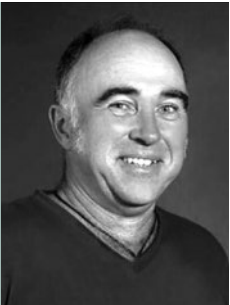
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# KEYNOTE SPEAKERS



## PROF. JOHN SMALLWOOD

Nelson Mandela Metropolitan University, Port Elizabeth, South Africa

Prof. John Smallwood is Professor and Head, Department of Construction Management, and Programme Director, MSc (Built Environment) Programme, and a member of Construction Research Education and Training Enterprises (CREATE), which consultancy specialises in construction health and safety (H&S), and quality. Notable latter related contributions include those to the cidb H&S and quality status reports.

### PREVENTING COLLAPSE OF REINFORCED CONCRETE STRUCTURES AND SUPPORT WORK: ASSURANCE VERSUS 'ACCIDENT INVESTIGATION'

- Construction Management is a discipline and a profession not an acquired title or term
  - Failure of management versus the myth of 'accidents'
  - Quality management and health and safety management: The 'stay standing' duo
  - Construction Managers convert vision to reality: The implications!
- 



## PROF. PANTELEO RWELAMILA

University of South Africa (UNISA), Midrand, South Africa

Prof. Rwelamila is a project management and procurement expert specialising in procurement policy, infrastructure procurement and management of risks and contracts management. He has experience of more than 30 years in consulting in construction economics, policy development and conducting studies in project appraisal, project planning, procurement, contract formulation and management, project performance evaluation and strategic project management.

### INFRASTRUCTURE DEVELOPMENT THROUGH PUBLIC PRIVATE PARTNERSHIPS (PPPS): WRESTLING WITH TWIN CHALLENGES IN EMERGING ECONOMIES – FROM RHETORIC TO REALITY

- What constitutes the public side of PPPs?
- Marginalization and management of the public as principal stakeholders
- The need for a paradigm shift from exclusion to inclusion in PPP arrangements
- Conceptual model for appropriate stakeholder management in PPP projects

## PROF. ALFRED NGOWI

Central University of Technology, Bloemfontein, South Africa

Prof. Alfred Ngowi is a professor in Civil Engineering and the dean of the Faculty of Engineering and Information Technology at the Central University of Technology, Free State. He is a NRF rated scientist in construction engineering and management and has published over 100 articles in journals, book chapters and conference proceedings. He is the co-chief editor of the Journal of Construction in Developing Countries (JCDC); Associate Editor of Built Environment and Asset Management (BEPAM) and reviews editor of the Botswana Journal of Technology (BJT).



## WHAT THE CONSTRUCTION INDUSTRY NEEDS TO KNOW ABOUT SUSTAINABLE DEVELOPMENT GOALS

- At its seating in September 2015 the UN General Assembly declared 17 Sustainable Development Goals (SDGs) to be accomplished by 2030.
- Of the 17 SDGs, 4 are very closely associated with the built environment and these cannot be achieved without the participation of the construction industry.
- The global campaign for SDGs presents a significant new opportunity for the construction industry.
- Construction companies could create competitive advantage by branding themselves or in partnership with others as leaders in sustainable development.

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## PROF. JAN WIUM

Stellenbosch University, Stellenbosch, South Africa

Prof. Jan Wium, received his Civil Engineering degree from the University of Pretoria in 1979 and a master's degree in 1985. He holds a PhD from EPFL in Switzerland. After working as structural engineering consultant for 20 years, he joined Stellenbosch University as lecturer in 2003. Since 2010, he holds the Chair in Construction Engineering and Management position, focusing on modular construction, risk management and constructability in construction.



## TRENDS IN CONSTRUCTION ENGINEERING AND MANAGEMENT

- The current status of project delivery: Projects have a tendency to be completed over time and over budget, quite often as a result of scope and design changes
- Tendencies in project design: Design of projects become more and more automated with sophisticated software providing support to the design engineer
- Trends in management and execution of projects: Management tools such as Building Information Models enable projects teams to improve collaboration and management of design and costing. Tools are however fragmented and a cohesive approach is needed
- Identified needs for improvement of the project execution phase: Items identified based on comparisons between in-situ concrete and precast concrete construction



# KEYNOTE SPEAKERS



## ISHMAIL CASSIEM

**Construction Industry Development Board, South Africa**

Ishmail is a Manager in the Construction Industry Performance Programme at the Construction Industry Development Board (cidb), responsible for performance improvement, development of best practices, standards and health and safety policies in the construction industry. He holds an MSc in Project Management. He has 30 years' experience in the construction industry working for civil engineering contractors, the CSIR, and a training company. He participates in various committees at the South African Council for the Project and Construction Management Professions (SACPCMP).

## INTRODUCTION OF A REGISTER OF PROFESSIONAL SERVICE PROVIDERS

- Proposed framework for the cidb Register of Professional Service Providers
- cidb Register of Professional Service Providers; Registration Criteria
- Professional Service Provider Recognition Scheme
- Best Practice: Management Systems
- Best Practice: Membership of a Voluntary Organization
- Standard for Professional Service Providers Performance Reports



## BONKE SIMELANE

**Group Corporate Services Director, NMC Construction Group, South Africa**

Bonke Simelane is Group Corporate Services Director for the NMC Construction Group which he joined in 2012. He is the incoming Vice-President of Master Builders South Africa. He is also a Council Member of the South African Council for the Construction and Project Management Professions (SACPCMP) where he is a member of the Construction Management Development Committee.

## NOMVULA RAKOLOTE

**Central University of Technology, Bloemfontein, South Africa**

Nomvula Rakolote is the Registrar of the South African Council for Project and Construction Management Profession (SACPCMP).

The South African Council for Project and Construction Management Professions (SACPCMP) is a statutory body established by section 2 of the Project and Construction Management Act (Act No.48 of 2000).

The SACPCMP regulates the Project and Construction Management Professions in order to protect the public.

She has, with the support of Council hosted three annual Project and Construction Management Professions Conference SACPCMP Conference that focused on the growth, development and transformation of the professions. While her primary task is mere registration of professionals, accreditation of institutions who offer training and development in the Built Environment, particularly, Project and Construction Management, she believes that without the growth of the industry, it would be difficult to ensure development of new talent, especially those from historically oppressed communities.



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