UNIVERSITY OF GHANA

BAM
Bundesanstalt für Materialforschung und -prüfung

Seminar:

Aspects of Materials, Architecture, Structures and Gender Equity in Sustainable Urban Development in Africa

With

Dr. Dipl.-Ing. Wolfram Schmidt, BAM, Berlin, Germany

Prof. David Dodoo- Arhin, University of Ghana, Ghana

Prof. Fatma Mohamed, University of Dar Es Salaam, Tanzania

Prof. Simone Stürwald, University of Munich, Germany

Nonkululeko Radebe, Karlsruher Institut für Technologie, Germany

Wednesday, 22. September 2021

SES Conference Room, School of Engineering Sciences

Annie Jiagge Rd

University of Ghana

9:00 – 12:30

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GEFÖRDERT VOM

Bundesministerium für Bildung und Forschung

Programme at a glance:

09:00-9:15: Welcome on behalf of UG, BAM, BMBF (PAWS) and RILEM

Prof. Abu Yaya, HOD/ Ag. Dean, School of Engineering Sciences University of Ghana

Prof. David Dodoo- Arhin, University of Ghana

Dr. Wolfram Schmidt, Bundesanstalt für Materialforschung und -prüfung, Germany

09:15-09:45: Construction material versus architecture

Prof. Fatma Mohamed, University of Dar Es Salaam, Tanzania

09:45-10:15: Material saving construction strategies

Prof. Simone Stürwald, University of Munich, Germany

10:15-10:45: Sustainable materials and concrete solutions with bio-based constituents

Dr. Wolfram Schmidt, Bundesanstalt für Materialforschung und -prüfung, Germany

10:45- 11:15: Coffee break

11:15-12:30: 'Is the world literally 'built' for men?

Nonkululeko Radebe, Karlsruher Institut für Technologie, Germany

About the Seminar

Background

Africa is the fastest growing continent, according to McKinsey. By 2025 there will be 100 African cities with more than one million inhabitants. This urban growth will require enormous amounts and movements of construction materials, which in return will coin economic growth on the one hand along with ecologic impact on the other hand. It is therefore important to plan and build the expansion of cities with sustainability at the forefront. Incorporating local materials into the supply chain can create livelihoods, the availability of space and resources offers opportunities to create socio-economically responsive urban regions that can be future-oriented without losing tradition and cultural heritage. Through the lens of sustainable materials, structures and designs we can create more environmentally friendly materials, healthy and liveable cities. Sustainability in the context of urbanisation allows for innovative, reinvention and restoration of past and current solutions to evolving urban problems.

In the past, gender aspects have been neglected out of development debate, hence it is crucial to have intersectional solutions when we engage in sustainable development discourse. There is still a huge disparity in the representation of women in STEM fields across the world not just in Africa. In sub-Saharan Africa only 31.3% of women are in employed in Research and Development positions and of which most are in lower positions and have limited decision-making power. There is a need to have inclusive solutions that will ensure the success of women in STEM and achieving sustainable developments.

Objectives

The Seminar "Aspects of Materials, Architecture, Structures and Gender Equity in Sustainable Urban Development in Africa" gathers high-level experts from materials, architecture and sciences who will give insights on sustainable urbanisation with a focus on to sustainable materials, architectural and structural solutions, as well as gender considerations.

Acknowledgements

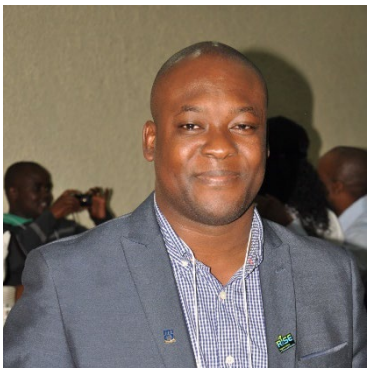
The seminar takes place with the financial support of Programme Advocating Women in STEM (PAWS) by the German Ministry of Education and Research (https://www.internationales-buero.de/en/paws.php). The scientific content has been approved by the RILEM Educational Activities Committee (http://www.rilem.net).

Fatma Mohamed obtained her Bachelor Degree in Architecture and Building Engineering from Tokyo Institute of Technology and her Masters and PhD at the University of Tokyo, Japan. She has been working at the University of Dar es Salaam since 2014 and is the first female Head of Department of Structural and Construction Engineering. She is interested in research involving the construction industry as well as the built environment. She was involved in the Engineering Education for Sustainable Cities in Africa Project under University of Toronto and is the lead researcher in a project looking at the relationship between BRT system and neighbourhoods in Dar es Salaam under the Centre for Sustainable, Healthy and Learning Cities and Neighbourhoods.

Simone Stürwald is a Professor of Sustainable Construction of the OST - Eastern University of Applied Science in Rapperswil, Switzerland since 2012. She holds a Dipl.-Ing. Degree in Civil Engineering from TU Braunschweig, Germany and an EMBA and she has been working at University of Kassel, Germany for more than six years and investigated the "Bending Behavior of Ultra High-Performance Concrete with combined Reinforcement". Simone Stürwald is responsible for training in the fields of building materials and construction at OST. She also manages an accredited material testing laboratory for building materials and supports companies in their search for sustainable solutions with her research and innovation projects. Furthermore, Simone Stürwald is involved in standardization, in various fib expert groups and in the Globe Consensus of RILEM.

Nonkululeko Radebe is a PhD student at the KIT doing research focused on early hydration and mechanical behaviour of cement. She is passionate about the access to education and resources to the African youth and has contributed to several papers for the ISEE-Africa conference on these topics. Additionally, she was selected as the representative for sub-Saharan Africa in the RILEM Youth Council (RYC), where she attracts and engages with young researchers to facilitate networking with top scientific minds in the built environment. Lastly, she is Lindau Alumni, a volunteer for STEMi Makers Africa and founder of ArtScie, a youth development program based in South Africa.

Wolfram Schmidt works at in the department "Safety of Structures" at BAM, responsible for the rheology and admixtures laboratory with a research focus on innovative cement and concrete constituents. Furthermore, he is secretary of the German Rheological Society, founder of the Pan-African cement round robin (PACE-PTS) and initiator of the conference series "Advances in Cement and Concrete Technology in Africa" (ACCTA) and ISEE-Africa (Innovation, Science, Engineering, Education). He received the German-African Innovation Incentive Award GAIIA and is member of RILEM and fib and among others convenor for sub-Saharan Africa and officer in the RILEM Development Advisory Committee. Many of his research and educational projects such as KEYS, INFRACOST, and Local-Care are focused on the potentials for more sustainable, circular urban construction technologies using local, environmentally friendly resources in Africa.



David Dodoo-Arhin is an Associate Professor of Materials Science and Engineering at the University of Ghana, Legon-Accra Ghana. He was the Head of the Department of Materials Science and Engineering, from 2014 to 2016 and Ag. Director of the Institute of Applied Science and Technology (IAST) from August 2016 to December 2016. He was the host of the 2nd Knowledge Exchange for Young Scientist meeting in 2016. His research interest includes valorization of local ceramic and biomass resources for low-cost building applications and nanostructured materials. He has been involved in the "Adaptation of systemic infrastructural concrete structures to environmental challenges and risks (INFRACOST)" project in collaboration with Bundesanstalt für Materialforschung und -prüfung (BAM) and MC Bauchemie- Berlin, Germany since 2017. He is also involved in the Pan African Crystallographic and the African Light Source projects.