



Ongoing and significantly increased research by young professionals is crucial to the future of the cement and concrete industries, speakers at the recent Cement and Concrete SA (CCSA) YCRETS 2021 symposium agreed.

CCSA staged the two-day Young Concrete Researchers, Engineers, and Technologists (YCRETS) symposium online on July 13 and 14 to create a forum for young individuals involved in research, design, and application of concrete and cementitious-based materials.

Papers covering diverse areas of research carried out by young people from countries such as South Africa, Germany, India, Nigeria, Namibia, Finland, and Sudan, were presented at the virtual event. The themes of the presentations included:

- “New Generation” of construction materials;
- Durability, monitoring, and repair of reinforced concrete structures;
- Challenges in design and maintenance of concrete structures;
- Sustainability; and
- Structural analysis of concrete structures.

In his keynote address, Prof Mark Alexander, Emeritus Professor of Civil Engineering at the University of Cape Town, said the decade ahead held formidable challenges for cement and concrete, which could only be coped with by increased research. “Aspects such as alternative binders, new test methods, and construction technologies, the integration of the fourth industrial revolution - the so-called 4th IR – and the reduction of the environmental impact of the industry, will all require intensive research,” he told the delegates.

RESEARCH CRUCIAL FOR THE FUTURE OF CEMENT AND CONCRETE SECTORS

“Universities will play a vital role in developing such new technological findings, which makes increased industry investment in research essential – particularly to enhance local technology. However, there is danger in imparting knowledge which may not be appropriate for Southern Africa and treating such overseas knowledge as a commodity.”

He feels South Africa has a “world-class cement and concrete industry,” as shown in local applications such as the Gariep Dam, Garden Route bridges, and various forms of concrete roads. “The country has a rich history and background in concrete research and education, which has given the local industry a technical edge. The need to sustain this collaboration between research and the cement and concrete industry is essential because, without such mutual interaction, both industry and research will be impoverished,” he added.

Prof Alexander also acknowledged the invaluable role research fellowships funded by CCSA predecessors (such as the Portland Cement Institute, Cement and Concrete Institute, and The Concrete Institute) as well as the Concrete Society of Southern

Africa, and the publication of the world-renowned CCSA concrete reference book, *Fulton's Concrete Technology*, had played in the development of concrete knowledge globally.

Prof Yunus Ballim, from the School of Civil and Environmental Engineering at Wits, said the papers presented at YCRETS 2021 reflected the responses of the young research community to guide future practice and policy in more sustainable use of infrastructural materials. "The papers also show how optimistic the young researchers are about the possibility of a more environmentally sensitive and sustainable future world. The challenges to cement and concrete engineering are global, and the answers are best found in shared conversations across the globe."

Hanlie Turner, Business Development Manager of CCSA, also stressed the importance of combining resources for the future of cement and concrete. "Networking and membership of professional bodies such as CCSA are important. The moment you engage and become a contributor in a respected network of professionals, you will become noticed and regarded as an influencer," she urged the young researchers.

Bryan Perrie, CEO of CCSA, said many of South Africa's leading researchers and technologists were retiring or close to retirement. "It is therefore important that young people should emerge to fill the gap. Concrete is a fantastic material, and there is a definite need for more people to enter a career in concrete. CCSA is considering hosting more YCRETS symposia in the future to expand this platform for young researchers to showcase their work to peers and potential employers," Perrie added.

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