

Neema Stephen Kahabi

Personal Information

Address	40, Tegeta Namanga, Dar es Salaam, Tanzania
Birth Date	05 th October 1994
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Education and Qualifications

Institution name and country	Indian Institute of Technology, Madras, India
From	May 2024 – To Present
Degree	Ph.D. in Civil Engineering
Field of Study	Civil Engineering
Institution name and country	University of Cape Town, South Africa
From - To	03 rd February 2019 – 31 st December 2022
Degree	Master of Science in Civil Engineering Infrastructure Maintenance and Management
Field of study	Civil Engineering
Dissertation title	The Effect on the Durability Properties of Concrete of Partial Replacement of Natural Fine Aggregates with Recycled Concrete Fine Aggregates
Final grade	GPA 71.78
Institution name and country	University of Dar Es Salaam, Tanzania
From - To	7 th October 2013 – 18 th November 2017
Degree	Bachelor of Science in Civil Engineering
Field of study	Civil Engineering
Final grade	GPA 3.2 with honors

Professional and Academic Experience

Duration	Position Held and Organization	Responsibilities/ Tasks
01 st May 2024 – To present	Ph.D. Student at the Indian Institute of	Research work in the civil engineering materials field.

	Technology Madras, India	
01 st September 2022 – To Date	Civil Engineer / (Researcher and Assistant Coordinator) Dar Al Handasah	<ul style="list-style-type: none"> • Identifying new project opportunities, managing expert acquisition and evaluating expert curriculum vitae's, any required legal documents for the compilation of EOI or Technical Proposal according to the company's standard formats • Site Visits and supervision of Laboratory materials investigations
March 2019 – 31 st December 2022	Tutor / Research and Laboratory Assistant University of Cape Town Cape Town, South Africa	<ul style="list-style-type: none"> • Industrial work for laboratory civil engineering work under the CoMSIRU department. • Tutoring undergraduate civil engineering students for courses such as Structural Analysis CIV3048F, Construction Materials CIV1006S and Geotechnical Engineering I and II (CIV 2039S and CIV 3042F) • Laboratory materials investigations
01 st April 2018 – 03 rd February 2019	Geotechnical Engineer and Quality Assurance Officer Inter- Consult Ltd Dar es salaam, Tanzania	<ul style="list-style-type: none"> • Material Field Investigation for structures designs such as Buildings and bridges • Preparation of Tender Documents, reporting and follow ups • Supervision of the Construction Works • Quality Assurance for Management Systems quarterly
July 2015 – October 2015	Civil Engineer Trainee Arabs Consulting Co Dar Es Salaam, Tanzania	<ul style="list-style-type: none"> • Trained at the Julius Nyerere International Terminal III under the Tanzania Airports Authority worked in the land survey department for both airside and landside, structural and sewage department, pavement construction supervision.
July 2014 – October 2014	Civil Engineering Trainee Nimeta Consult Ltd Dar es Salaam, Tanzania	<ul style="list-style-type: none"> • Worked at the rehabilitation and reconstruction of the Dar es Salaam harbor in Kurasini

Language Skills

Language	Writing	Speaking	Reading
English	Excellent	Excellent	Excellent
Swahili	Excellent	Excellent	Excellent
French	Basic (DELFA1 Certified)	Basic (DELFA1 Certified)	Basic (DELFA1 Certified)

Research Experience

Title: The Effect on the Durability Properties of Concrete of Partial Replacement of Natural Fine Aggregates with Recycled Concrete Fine Aggregates

Organization / Affiliations: The Concrete Materials and Structural Integrity Research Unit (CoMSIRU) - University of Cape Town

Duration: May 2019 – December 2022

Summary: This research focused on replacing recycled fine aggregates (RFA) with a standard size of 4.75 mm and below by investigating the presence of a secondary reaction on the basis of further hydration from the adhered cement paste that may lead to better durability properties of the concrete mix. The investigation was conducted at three replacement levels (0%, 25%, and 50%) of RFA and two water binder ratios of 0.45 and 0.6. No addition of superplasticizers, mineral additives and extra water were done to form a basis of comparison and assist in understanding the use of RFA individually. The experimental methodology for the study was conducted in three stages: material characterization tests, fresh and hardened properties of concrete. The gradation, fineness modulus, and particle relative density of all three types of fine aggregates used were measured during the material characterization tests. The durability properties were investigated through Durability Index (DI) tests, accelerated carbonation tests, and bulk diffusion tests. The results indicated that the blend of fine aggregates provided a standard and well-distributed particle size at the 25% replacement level.

Title: Recycled Concrete Aggregates and their Influence on Concrete Properties (Research Monograph under SPARC)

Organization / Affiliations: Indian Institute of Technology Madras, Chennai, India, and University of Cape Town, and University of the Witwatersrand, South Africa

Duration: January 2022 – March 2023

Summary: The monograph addresses the use of recycled concrete aggregates (RCA) as a replacement for natural aggregates (NA) in concrete applications. It aims to provide information and perspectives on current research trends and gaps as well as to guide practicing engineers on the use of RCA in concrete construction and the impact of RCA on the mechanical and durability properties of concrete. It outlines the current scenarios regarding use of RCA in concrete, and international standards and recommendations for the acceptance of RCA in concrete. Additionally, it discusses the estimation and collection of C&D waste along with production of RCA and the different beneficiation techniques used for quality improvement. The monograph

further presents the properties of RCA and their influence on concrete properties (fresh, mechanical and durability properties). The performance of RAC is compared to reference NAC and the possible shortcomings and advantages are also highlighted. Lastly, it reviews the life cycle assessment (LCA) of concrete produced with RCA

Participation in Conferences

Name and Place of Conference	Scheme for Promotion and Research Collaboration – Online
Date	July 2022
Title and Authors	Neema Stephen Kahabi, Hans Beushausen and Mark Alexander, presenting “The Effect on the Durability Properties of Concrete of Partial Replacement of Natural Fine Aggregates with Recycled Concrete Fine Aggregates”
Type	Oral

Participation in Research Projects

Title:	Sustainable Construction Workshop for the Sub-Saharan Countries in Africa – SUSCON
Organization / Affiliations:	University of Dar es Salaam and the Technical University of Munich
Position:	Student Assistant
Duration:	January 2023 – To date
Task:	Assisted the participants in conducting research for their respective cities highlighting the choice of construction materials and their challenges as well as proposing their solutions.
Title:	Dam Construction Feasibility Project at the East of Mount Kilimanjaro
Organization / Affiliations:	University of Dar es Salaam and Milwaukee School of Engineering
Position:	Assistant Student Researcher
Duration:	December 2016 – March 2017
Summary:	The project was to provide water for non-potable uses. The dam would serve a population 10,000 people living in the east of Mount Kilimanjaro whose economy depends heavily on agriculture and irrigation.

Teaching and Mentoring Activities

Name of Organization:	University of Cape Town
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Duration:	March 2019 – August 2022
Courses:	Structural Analysis CIV3048F, Construction Materials CIV1006S and, Geotechnical Engineering, I and II (CIV 2039S and CIV 3042F)
Name of Organization:	WomEng Fellowship
Duration:	June 2020 – July 2022
Mentoring Program:	Mentored 6 female engineers on the following modules: Leadership, Employability skills, Mental Health and Well being and Innovation skills

Professional Membership

Board Name:	Graduate Member, Engineers Registration Board (ERB) GE11135
Institution Name:	Graduate member, Institute of Engineers (IOE)

Publications:

[1] Recycled concrete aggregates and their influence on concrete properties under SPARC on ResearchGate, 2023 http://dx.doi.org/10.13140/RG.2.2.36843.41764
[2] The Effect on the Durability Properties of Concrete of Partial Replacement of Natural Fine Aggregates with Recycled Concrete Fine Aggregates under CoMSIRU, 2023 http://hdl.handle.net/11427/38025

References:

Name and Position of Referee:	Emeritus Prof Mark Alexander Co-Director and Senior Advisor of CoMSIRU
Organization:	University of Cape Town South Africa.
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Name and Position of Referee:	Dr. Fatma Mohammad Head of Structural Department at COET
Organization:	University of Dar es Salaam Tanzania
Contact:	tumakassim@hotmail.com +255 777 333 388
Name and Position of Referee:	Professor Hans Beushausen, Director of CoMSIRU and Head of department
Organization:	University for Cape Town South Africa.
Contact:	hans.beushausen@uct.ac.za :+27 (0)21 650 5181