



KeSEBAE NEWS

Newsletter of the Kenya Society of Environmental, Biological and Agricultural Engineers



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KeSEBAE ANNUAL CONFERENCE 2022

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Eng. Shiribwa Mwamzali, Eng. Patrick Wambulwa, Philip Kello Harsama (PS, Crop Development), Eng. Prof. Lawrence Gumbe, Aboud Moeva and Eng. Prof. Ayub Gitau sharing a photo during the opening ceremony

Kenya Society of Environmental, Biological and Agricultural Engineers, KeSEBAE, held its Annual Conference both Virtually and Physically from Wednesday 7 to Friday 9 December 2022. The theme of the conference was Engineering a Sustainable World. The Conference attracted attendees of over four hundred (400) Engineers (Professional Consulting Engineers; Professional Engineers; Graduate Engineers and Student Engineers) and Stakeholders from Kenya, the United States of America, Nigeria, and Ghana, among others. Of special mention is Prof. Mike O. Faborode, the president of the Pan African Society for Agricultural Engineering (PASAE) who made a keynote address.

KeSEBAE Annual Conference began steadily at 9:30 am on Wednesday, 7 December 2022. The Conference opening ceremony was graced by prominent leaders.

DEAR READER

Welcome to KeSEBAE Newsletter.

A fortnightly Newsletter touching on topical issues affecting our environment.

KeSEBAE NEWS is a Newsletter of the Kenya Society of Environmental, Biological and Agricultural Engineers (KeSEBAE)

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Call for Membership



Kello Harsama PS, Crop Development Giving His Speech.

Our guest speaker was Phillip Kello Harsama, the Principal Secretary of, the State Department for Crop Development. Other leaders include Aboud Moeva, Irrigation Secretary; Eng. Erastus Mwongera, Engineering Board of Kenya (EBK) Chairperson; Eng. Patrick Wambulwa and The Association of Consulting Engineers of Kenya (ACEK) Chairman among others.

The Conference was divided into Eight (8) Technical Sessions: A total of **thirty- two (32)** papers were presented as indicated below.

i. Process Engineering

- Processing of Agroforestry waste – A climate Smart Approach
- Municipal Waste Management in Kenya- Options Waste to Energy Interventions
- Policy Shift Towards Financing Agricultural Mechanization in Kenya
- Sustainable Food Preservation and Processing Technologies for Rural Communities
- Effect of Processing Technologies on Fuel Briquettes

ii. Irrigation and Water Resources

- Irrigation Development and Management
- Spatial Surface Water Flows Estimation for Water Harvesting Using Quantitative Geomorphology and SWAT in Amala River catchment
- Challenges and Experiences in Preparation and Construction of Irrigation Projects
- Challenges and Experiences in Preparation and Construction of Irrigation Projects
- Moisture Removal Rate and Energy Used in Experimental Vertical Pneumatic Dryer - a Case Maize Grain
- Determination of the Requirements of a Solar Powered Water Pumping System

- iii. Environment and Climate Change
 - Challenges, Implications and Opportunities Due to Climate Change in Agriculture in Kenya.
 - Environmental Engineering Innovative Options in Mitigating Climate Change Vulnerability
 - Modelling Simulation and Economic Evaluation of Waste Tire Pyrolysis
 - Impacts of Climate Change in Agriculture
 - Systems Change: Approaches to Advancing Solutions to Tackle Plastic Pollution
 - Briquetting as An Alternative Source of Energy in Kenya
 - Mechanizing Sustainable Food Security Under the Changing Climate
- iv. Infrastructure, Housing and Transportation
 - Decision Making in Wastewater Pipeline Asset Management: A Case Study of the City of Dallas
 - Enhancing Social Justice Principles in Public Infrastructure Developments – Case Study of Nyamasaria Bus Park, Kisumu County in Western Kenya
- v. Innovation, Emerging Issues and Biomedical Engineering
 - Trends in Scientific Computing Tooling in Engineering
 - Baseline Survey on Current Level of Mechanization and Ware Potato Cultivation and The Labour-Intensive Activity in Ware Potato Production Chain at Nyandarua County
- vi. Bioproduction and The Blue Economy
 - Performance Evaluation of Hydrolysis of Lactose Using Enzyme-Immobilized Beads in a Packed Bed Reactor
 - Electricity for Bioproduction
 - Assessing the Fertilizing Property of Digestate on the Growth and Yield of Micro–Tom Tomato Cultivar
- vii. ICT and Young Engineers Chapter
 - IoT in Modern Agriculture – Case Study of Proposed Drip Irrigation Demo Plot at ATDC Mtwapa
- viii. Education, Research and Practice
 - Pan African Society of Agricultural Engineers (PASAE) Address
 - Nigerian Institution of Agricultural Engineers
 - Ghana Society of Agricultural Engineering
 - Ethics in Engineering Practice.
 - Outcome Based Engineering Education in Kenya: A Case for Environmental, Biological and Agricultural Engineering.
 - Transforming Engineering Education in Kenya



Technical Sessions Going on During the Conference



KeSEBAE Guests Having Lunch During the Conference



Executive Committee Members During the Annual General Meeting

The Thiba Dam Visit

On the third day of the conference, KeSEBAE under the sponsorship of National Irrigation Authority(NIA) had 29 members visit Thiba Dam. The Journey began at 8:30 am and by 12:55 we were at the site. Eng. Jairus Serede, water resources and irrigation engineer at National Irrigation Authority was our guide. The visit began with a presentation about the dam before the physical visit of the dam.

Thiba Dam is located in Rukenya Town next to Kutus, Gichugu Central Division in Kirinyaga County. The dam was constructed to supply water to the existing Mwea Irrigation Scheme as well as the proposed expansion area. The main source of water for the Mwea Irrigation Scheme is the Thiba River. The design was primarily meant to store water, especially during the rainy season and release the same water back to the Thiba River. The main parties involved in the project include the National Irrigation

Authority (Employer), a joint venture of Nippon Koei and Koei (Consultant), Strabag International GmbH (Contractor) and Japanese International Corporation Agency together with the GoK (Financiers). Inter-basin water transfer system was adopted in the '90s under a grant from the Japanese Government jointly with the Government of Kenya (GoK). Thiba Dam was conceptualized since water from River Thiba, augmented by the Nyamindi system was not enough to command the area under Mwea Irrigation Scheme. The proposed expansion area is about 10,000ha. Scope involves a diversion from the Thiba headworks which links the main canal. The soils are silty clays. The dam side is approximately 15m wide and 40m tall, with some gentle slopes on both pillars and 1km long. Climate experienced involves two rainy seasons in April to May and short rains from October to December.



1. A picture of the intake of the dam	2. A picture of presenter listening to comments from the audience
3. A picture of KeSEBAE members boarding the bus to tour the Thiba Dam	4. A picture of KeSEBAE members listening to the presentation

The Association of Consulting Engineers of Kenya (ACEK) Gala Dinner 2022



Eng. Prof. Lawrence Gumbe, Chair KeSEBAE giving his address



IEK Council Appreciating the Chief Guest at the ACEK Gala Dinner

On Thursday, 8 December 2022, KeSEBAE was represented at ACEK Dinner by **eight (8)** Executive Committee Members. The dinner happened at Sarova Hotel in Nairobi. The theme of the dinner was **Delivering Sustainable Seamless Connectivity Talking Notes.**

The Dinner was opened by Hon. Onesimus Kipchumba Murkomen, Cabinet Secretary who sent a representative. Eng. Prof. Lawrence Gumbe, gave a



Claudia Bess, David Anyona, Ezekiel Oranga, Eng. Amos Kiptanui, Eng. Shiribwa Mwamzali, Eng. Prof. Lawrence Gumbe, Eng. Richard Kanui

keynote address where he pointed out that KeSEBAE warmly welcomes the cordial relations that exist between itself and ACEK as well as IEK and other engineering and professional bodies in Kenya, Africa and worldwide. It is only through cooperation that we can advance engineering and society in general. KeSEBAE also committed to working with EBK to increase the number of engineers in Kenya as well as ensure requisite standards of engineering work and standards



Kenya Society of Environmental
Biological and Agricultural Engineers

JOINT INTERNATIONAL ANNUAL CONFERENCE 2023

**THEME: Engineering Agenda 2063:
The Africa We Want**

AGENDA 2063 is Africa's blueprint and master plan for transforming Africa into the global powerhouse of the future.

 Wed 6 – Fri 8 Dec 2023

 Nairobi

**EARN
20 CPD
POINTS**



SUB-THEMES

1. Seamless connections (Roads, Railways, Air Transport and Water Transport)
2. Energy for Africa
3. Industrialized Agriculture
4. Housing
5. Free Trade in Services
6. Security
7. Engineering Education and Practice

KEY DATES:

Abstract Submission: 11 Oct 2023
Paper Submission: 10 Nov 2023
Payment Deadline : 25 Oct 2023

CHARGES

Members: KES 15,000 (\$150)
Non Members : KES 20,000 (\$200)
Undergrad Students: KES 2,000 (\$20)
Field Visit : KES 5,000 (\$50)
Virtual: KES 5,000 (\$50)

Bank Payment Mode

Absa Bank: Nairobi University Express Branch
Account Name: Kenya Society of Environmental,
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Call for Papers

To the Next Editions of the JEAE

JEAE

Journal of Engineering in Agriculture and the Environment

The Journal of Engineering in Agriculture and the Environment (JEAE) is a Publication of the Kenya Society of Environmental, Biological and Agricultural Engineers (KeSEBAE) through which researchers in the fields of Environment, Agriculture and related fields share research information and findings with their peers from around the globe.

The JEAE Editorial Board wishes to invite interested researchers with complete work in any relevant topic, to submit their papers for publication in the next editions of the Journal.

Manuscripts may be submitted online or via email to:

Prof. Lawrence Gumbe, Chairperson, JEAE Editorial Board

Via Email: info@kesebae.or.ke or online via: https://www.kesebae.or.ke/journal/manuscript_submit.php

Criteria for Article Selection

Priority in the selection of articles for publication is that the articles:

- | | |
|--|---|
| <ul style="list-style-type: none">a. Are written in the English languageb. Are relevant to the application of engineering and technology in agriculture, the environment and biological systemsc. Have not been previously published elsewhere, or, if previously published are supported by a copyright permissiond. Deals with theoretical, practical and adoptable innovations applicable to engineering and technology in agriculture, the environment and biological systemse. Have a 150 to 250 words abstract, preceding the main body of the article | <ul style="list-style-type: none">f. The abstract should be followed by the list of 4 to 8 "Key Words"g. Manuscript should be single-spaced, under 4,000 words (approximately equivalent to 5-6 pages of A4-size paper)h. Should be submitted in both MS word (2010 or later versions) and pdf formats (i.e., authors submit the abstract and key words in MS Word and pdf after which author uploads the entire manuscript in MS word and pdf)i. Are supported by authentic sources, references or bibliography |
|--|---|

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CALL FOR ARTICLES TO KeSEBAE NEWS

KeSEBAE NEWS Editorial wishes to call for topical articles for publication in future editions of KeSEBAE NEWS.

Please transmit the same to the **Editor: Ezekiel Oranga** via Email: info@kesebae.or.ke

NOTE: A payment will be made to the author of each selected article

CALL FOR MEMBERSHIP



Be a KeSEBAE Member:

The annual subscription fees, admission fees and reinstatement fees for members of all grades (except Honorary and Life Members who shall pay no dues or fees) are indicated below: The annual dues are as follows:

<i>Membership Category</i>	<i>Annual Subscription (KES)</i>	<i>Admission Fees (KES)</i>	<i>Reinstatement Fees (KES)</i>
<i>Fellow</i>	5,000	1,000	2,000
<i>Member</i>	2,000	1,000	2,000
<i>Ass.Member</i>	1,000	1,000	2,000
<i>Aff.Member</i>	500	1,000	2,000
<i>Student</i>	300	100	-

Membership Renewal

Members of all grades are requested to renew their **2022 membership as follows.**

<i>Membership Category</i>	<i>Annual Subscription Fee (KES)</i>
<i>Fellow</i>	5,000
<i>Member</i>	2,000
<i>Ass. Member</i>	1,000
<i>Aff. Member</i>	500
<i>Student Member</i>	300

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Account No.	2038150696
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Currency	Kenya Shillings

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