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Summary

Eng. Elias Onyango Ako has 25 years work experience in the field of engineering with 15years University teaching/ research experience as Lecturer out of which 6years as Head of Department of Energy Technology at the School of Engineering and Technology of Kenyatta University, a leading premier University in Kenya. He is a renewable energy practitioner and with a speciality in Thermal Sciences. He has been involved in training and consultancies in Solar Thermal Energy, Solar PV systems installations, and Bio-energy among other renewable energy applications. He has a Bachelor of Science in Engineering and Master of Science in Renewable Energy Technology and also attended several short courses on Renewable energy application and development.

He has consulted widely in renewable Energy and has been involved in various renewable energy projects including working as lead technical consultant in various renewable energy projects within East Africa. He has consulted for local companies dealing with design of energy production systems, and also design, fabrication and installation for hydro power systems and geothermal power plants.

He is also a member of Technical committee in the development of Renewable Energy Standards Kenya Bureau of Standards (KEBS), a Registered Engineer, a member of the Association of Energy Professionals and the Kenya Renewable Energy Association among others.

WORKING EXPERIENCE:

Teaching, Research and Administrative Experience

2006 to Date:	Lecturer Kenyatta University Department of Energy Technology– Lecturing and research in Solar Thermal Energy, Thermodynamics, Heat transfer, Refrigeration and Air Conditioning
2007 – 2015	Departmental Examination Coordinator
2015 -2020	Chairman Department of Energy Technology

Research Grants

1. Exploring Water Resources planning and Management options in the Nyangores Headwater Catchment of the Maasai Mara River Basin in Kenya (MaMa-HYDRO) Period: January 2014 – June 2016 10,000 Euro Funded research project: Austria – Commission for Development Research (KEF). International Partners: BOKU Austria, Kenyatta University
2. Establishment of 100kW Solar Plant at Kenyatta University to FASEP (French Government Fund for Private Sector) and awarded 350,000Euros in 2015. The solar plant provides power to selected buildings and is used by the department for teaching and research.
3. Multi-Disciplinary Research on the Establishment of Phyto - Therapeutic Centre at Kenyatta University – Awarded 60,000 Euros in 2018 by National Research Fund (NRF) – Kenya.
4. Solar Water Pasteurisation Project funded by National Council of Science and Technology (NACOSTI) 2,000 Euros 2012-2016.
5. 6. Multi-Stakeholder partnerships to deliver climate and SDG impacts in the Mount Kenya Region – Joint Research project with EcoAct – France, ClimatePAI – Kenya and Kenyatta University 2016-2018

6. Sustainable Energy Equality through Reliable Solar Technologies (SEERS Project) – 2019- to Date. Project on Solar Thermal Technologies for tea industries in Kenya – Joint Project with Brunel University UK and Kenya Tea Development Agency.
7. Widespread Use of Geothermal Energy in East Africa – 4 Year Danida Funded Collaborative Research Project 12,000 DKK (App. 200,000 Ksh) 2021-2024.

Sample Research Activities

1. Design of a solar tracking concentrator system for process heat generation
2. Design and Development of a portable low head – low volume hydro-turbine for shaft power applications
3. Development and Optimisation of Solar Water Pasteurisation System for use in Rural Areas . Funded by National Council of Science, Technology and Innovation
4. Development of Small Wind Turbines for Water pumping and Off-grid Power Production. – research supported by National Council of Science, Technology and Innovation
5. Solar Water Pumping Potential in Arid and Semi Arid areas in Kenya
6. Design and Development of Solar Pasteurization System for Camel Milk

Selected Publications

1. **Ako, E. O.**, Thoruwa, T.F.N., Maingi S.M. and Njagi,E.M. Performance of a 2-Element Plane Reflector Augmented Galvanised Pipe Flat Plate Collector for Solar Water Pasteurisation, *Journal of Food Technology* 7 (1): 12- 19, 2009 ISSN: 1684-8462, Medwel Publishing
2. Guezennec, F., **Ako, E. O.**, Blackburn T., Bürer M. and Fornas T. (2019) :Multi-Stakeholder partnerships to deliver on the SDGs in the Mont Kenya region Sustainable Development Solution Network: *A Global Initiative for United Nations*, 2019 Publication
3. Susan A. M., Thoruwa, T. N., Lang'at N. K. and **Ako E. O.** Performance of an Integrated Solar-Greenhouse Photovoltaic Ventilated Dryer with Clay-CaCl₂ Energy Storage Desiccants for Tomato Drying *American Journal of Energy Engineering* Vol. 9, No. 2, 2021, pp. 19-29. Doi 10
4. Chamdimba, H. B, Mugagga G. R. and **Ako, Elias**: Prospects and Constraints to Attaining Universal Access to Modern Energy in Malawi: *A Review International Journal of Sustainable and Green Energy* Volume 10, Issue 1, March 2021, Pages: 19-27 Received: Feb. 3, 2021; Accepted: Feb. 10, 2021; Published: Feb. 26, 2021. 11648/j.ajee.20210902.11
5. Chamdimba H. B., Mugagga G. R. and **Ako, E. O.**: Climate Change Mitigation and Adaptation through Anaerobic Digestion of Urban Waste in Malawi: *A Review Journal of Energy Research and Reviews* 4(4): 44-57, 2020; Article no.JENRR.56029ISSN: 2581-8368
6. Muriithi Zacharia, **Ako Elias**, Kiplagat Jeremiah, Maingi Simon and Luke Omondi Olang Assessment of land cover changes in lake Olbolsat region of the central Kenyan highlands using *Landsat Satellite Imagery* aided by indigenous knowledge *Journal of Biodiversity Management and Forestry* 2013, 2:2 Sci. Technology

Selected Workshop and Conferences

1. **11th – 14th May 2011** – Capacity Assessment for East Africa Community Regional Strategy on Scaling up Access to Modern Energy Services – Kigali, Rwanda.
2. **6th June– 26th July 2011** – International Training Workshop on Solar Energy Application, Lanzhou City, China
3. **28th May – 30th June, 2011** – International Conference on Solar Energy Applications Gansu Natural Energy Centre, China
4. **2nd September - 4th September 2011** – Stakeholders Workshop on Potential of Small and Micro Hydropower Development in Kenya.
5. **2nd July – 28th July, 2012** - International Training Workshop on Small Hydropower Technology, Hangzhou, China
6. **27th -28th May 2013** Workshop on Appropriate Technology for the 21st Century: Sustainable Development in Africa. Review paper on Solar Water Pasteurization Techniques
7. **10th -25th February 2014** Regional Workshop for East Africa Energy Stake Holders

8. **25th – 29th November 2014** 6th International Conference on Appropriate Technology, Kenyatta University Conference Centre.
9. **21st – 22nd November 2016** Solar cells and LEDs Training Workshop Kenyatta University Conference Centre.
10. **4th -5th April 2017** Africa Renewable Energy Leaders' Summit (ARELS) 2017 – Solar and Hydropower Energy Panellist
11. **19-21st March 2018** Sustainable Energy Forum for East Africa, Kigali Rwanda
12. **5th October – 13th December 2018** and **7th to 15th April 2019** – Training of trainers Workshop on Renewable Energy and Model of Universities of Applied Sciences in Germany – Ingolstadt Technical University of Applied Sciences
13. **1st October – 31st December 2020** – Visiting Researcher at Ingolstadt Technical University of Applied Sciences THI – research at the institute of New Energy Systems (Germany)

Consultancies

Selected Consultancy Work

- 2013 - 2014 Olkaria Geothermal Power Plant – Green Energy Well Head Power Generation and Heat recovery Project
- 2014-2015 Bujagali Hydro Power Plant Rehabilitation Works (Uganda)
- 2015-2016 Umande Trust –Biogas Project- Design of solar thermal system for preheating effluent
- 2016-2018 Eco-Act and Climate – Wood fuel Stove improvement project- Eco-Act and Climate Pal- Design and testing of improved cook stove project. The project was designed to offer innovative solutions to mitigating climate change. Currently it has transformed over 60,000 households with over 300,000 individuals directly benefiting from the project activities
- 2016-2018 Kenyatta University Design and construction of 100kW Plant
- 2016 – to Date Ezeetec Ltd. Hydro-Mechanical Works for KENGEN rehabilitation projects – Kindaruma Hydropower Station, Kamburu Hydropower Station, Masinga Hydropower Station among others.

Professional Development/ Short courses Training

1. Solar Photovoltaic Workshop for Educators – Strathmore University, Energy Research Centre (2014)
2. International Training Workshop on Solar Energy Application, Lanzhou City, China (6th June– 26th July 2011)
3. Hydropower Training for English-speaking African Countries, Hangzhou – China, (2nd July – 28th July, 2012)
4. Trainer: Solar Cell and LEDs: Theory Design and Implementation for Sustainable Electricity Production (21st – 26th Nov. 2016)
5. Trainer, Solar PV System Design and Installation Training for East Africa Community (EAC) Region by EACREEE. KU, Kenya (15th – 27th September 2019)
6. International Training on Solar and Wind Applications, UNIDO-GANSU Natural Energy Institute, China (6th Sept. - 27th Sept 2021)

Professional Affiliations

- Registered Engineer – Engineers Board of Kenya (EBK)
- Member Institution of Engineers of Kenya (IEK)
- Member Association of Energy Professionals East Africa (AEPEA)
- Member Kenya Renewable Energy Association (KEREA)
- Member- International Solar Energy Society (ISES)
- Member World Society of Sustainable Energy Technologies (WSSET)

REFEREES:

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