

CURRICULUM VITAE



Name of Staff

Emmanuel Beuttah Kinyor Mutai
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KITENGELA
KENYA

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PERSONAL

DATE OF BIRTH:	December 25, 1961
PLACE OF BIRTH:	Kabisaga, Nandi North
RESIDENTIAL:	Kitengela, Kajiado County
MARITAL STATUS:	Married
RELIGION:	Christian
ID/No.	3289927

Profession:

Agricultural Engineer/Environmental & Biosystems Engineer

Years with Firms/Entities

10 years teaching at the University of Nairobi as a Lecturer and 1 year as an Acting Chief Technologist, 6 years as a senior Technologist at the University of Nairobi; 7 years as a Divisional Manager with Eastern Produce Africa Ltd and 1 year experience as a Divisional Soil Conservation officer with ministry of Agriculture

Membership of Professional Societies:

1. Graduate member, Engineering Registration Board (ERB)
2. Member, Kenya Society for Agricultural Professionals (KSAP)
3. Member, Kenya Society for Agricultural Engineers (KSAE)

Key Qualifications:

I am currently working as a Lecturer at the Department of Environmental and Biosystems Engineering, School of Engineering University of Nairobi and before then I was an Acting Chief Technologist (senior technologist). I therefore have 16 years experience in a university teaching. My area of specialization is in Structures and

Environment and Process and Food Engineering. I am currently pursuing a PhD in Biosystems Engineering formerly Agricultural Engineering in the area of Structures and Environment. PhD topic *Dynamic Modeling of the Hygrthermal Environment of the Broiler Chicken House in Kenya*. I m a registered student at the university of Nairobi in the third year of study. I do hold a M.Sc. degree in Agricultural Engineering from University of Nairobi and B.Sc. in Agricultural Engineering from Egerton University and a Diploma in Soil and Water Engineering from Egerton College.

The courses I have taught at the University of Nairobi both at the undergraduate and postgraduate include: Numerical Methods, Fundamentals of Computing, Infrastructure and Construction Management, Process and Food Engineering, Heat and Mass Transfer, Solid and Structural Mechanics, Mechanics of Machines, Farm Machinery, Ergonomics, Mechanization, Built Environment, Farm Structures, Workshop Techniques and Practice, Physical Properties of Biological Materials, Mechanical Properties of Building Materials, Finite Element Method, Statistics, Machinery management, Agricultural Processing, Post Harvest Technology among others. I have also conducted practicals in soil and water, Agricultural structures, Computing and Computer applications, Instrumentation, Process and Food Engineering and also in Power and Machinery areas.

Before joining the University of Nairobi, I was a Tea Estates Manager with Eastern Produce Africa Ltd (Kapsumbaiwa, Nandi Hills) for 7 years where I learned management and field operations such as land development, soil conservation, greenhouse technologies, tea husbandry, transport and fleet management, Tea factory processing, machinery, financial management and control, Budgeting and implementation as well as industrial relations, Design of new Tea Estates, among other aspects of Tea Estates Management.

In 1986 I worked as a Divisional Soil and Water Conservation officer in Amagoro Division in the old Busia District for 1 year. During this time I was in charge of all the soil and water conservation and drainage structures under a project SIDA.

I do Engineering consultancy services in my area of Agricultural Engineering and Land use Planning. My recent consultancy service was on a *feasibility study of the master plan for tea culture Development in Gatara area of Nyamasheke District of Western province in Rwanda*.

Areas of Interest

1. Bio-Structures and Environment
 2. Bio-Processing and Food Engineering
 3. Post harvest Technology
 4. Agricultural Mechanization and Management
 5. Computing
 6. Numerical Methods
 7. Rural Infrastructure Development
 8. Appropriate Technology
 9. Modeling and Simulation
 10. Black Tea Processing
 11. Land Use Systems Planning
 12. Soil and Water Conservation
 13. Infrastructure management
 14. Cleaner Production Systems
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Recent Courses Taught and Examined at the University of Nairobi

Post graduate:

M.Sc.	FEB 611	Finite Element Method
M.Sc.	AIC 504	Fundamentals of Computing & Networks
M.Sc.	AFS 611	Computer Applications
PGD	AFS 511	Computing

Undergraduate:

ACR 206	Statistics I
JWF 363	Infrastructure Management
FEB 116	Fundamentals of computing
BQS 214	Computing I
AEB 101	Introduction to computing
BRE 106	Introduction to computing
FEB 271	Solid and structural mechanics I
FEB 234	Mechanics of machines I
FEB 240	Workshop practice
FEB 423	Heat and mass transfer
FEB 461	Process and food engineering
FEB 508	Numerical methods in engineering
FEB 511	Agricultural mechanization
AEB 301	Agricultural Processing & Structures
FAE 511	Farm Machinery I
FAE 441	Farm Machinery II

Diploma:

JAH 044	Agricultural Structures and Equipment
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M.Sc. and PGD Supervision

Education:

<u>YEAR</u>	<u>AWARD</u>	<u>UNIVERSITY/COLLEGE/SCHOOL</u>
2010 - to - date	Ph.D Registered	Environmental & Biosystems Engineering University of Nairobi P. O. Box 30197 Nairobi Kenya
2000 – 2003	M.Sc.	Agricultural Engineering University of Nairobi P. O. Box 30197 Nairobi, KENYA
1994 – 1997	B.Sc.	Agricultural Engineering Egerton University P. O Box 536 NJORO KENYA
	Grade:	<i>Upper Second Class Honours</i>
1983 – 1996	Diploma	Soil and Water Engineering Egerton College P. O Box 536 NJORO KENYA
	Grade:	<i>Distinction</i>
1981 – 1982	KACE Kenya Advance Certificate of Education	Sawagongo High School Private Bag Nyangweso YALA, KENYA
	Grade:	<i>2 Principles and 2 Subsidiary level passes (6 points)</i>
1977 – 1980	KCE (Kenya Certificate of Education)	Tinderet (Kilibwoni) Secondary School P. O Box 26 KAPSABET, KENYA
	Grade:	<i>Division II (24 points)</i>

Proficiency Certificates (Short Courses)

<u>YEAR</u>	<u>AWARD</u>	<u>INSTITUTION</u>
MAY 2013	Grant Proposal Writing	UNES, UoN
SEPTEMBER 2008	e-content Development and The use of e-Learning tools	ICT Centre (UoN)
APRIL 1993	Managing People	Consultancy For Effective Training
AUGUST 1991	Industrial Relations in Management	Three E Consultants -TECO
NOVEMBER 1989	Leadership, motivation & Communication	Kenya Institute of Management

Employment Record:

<u>YEAR</u>	<u>POSITION</u>	<u>EMPLOYER</u>
2003 -Date	<i>Lecturer</i>	Dept. of Environmental & Biosystems Engineering University of Nairobi P. O. Box 30197 NAIROBI, Kenya
<p>Duties include teaching courses allocated both at undergraduate and graduate level, supervising student projects both at undergraduate and graduate level, in-charge of FTSE (Full Time Student Equivalent allocation for the department), representing the faculty in show and exhibition committees, secretary to the departmental curriculum review, in-charge of departmental computing services, Secretary to the departmental income generation services, Technical member of Editorial committee of School of Engineering Journal, supervision during field attachment among other duties allocated by the chairman.</p>		
1998 – 2003	<i>Senior Technologist</i> <i>DEF</i>	Dept. of Environmental & Biosystems Engineering University of Nairobi P. O. Box 30197 NAIROBI, Kenya
<p>Duties included conducting practicals in soil and water engineering, Process and food Engineering and Power and Machinery laboratories. Also assisted in computer labs as well as income generation.</p>		
1997 – 1998	<i>Technologist</i> <i>ABC</i>	Dept. of Environmental & Biosystems Engineering University of Nairobi P. O. Box 30197 NAIROBI, KENYA
<p>Duties included conducting practicals in soil and water engineering, Process and food Engineering and Power and Machinery laboratories. Also in-charge of departmental documentation centre (Library).</p>		
1987 – 1993	<i>Divisional Tea Estates Manager</i>	Eastern Produce Africa (K) Ltd Plantations House, Lessos Road, P. O Box 22 Nandi – Hills, KENYA
<p>My duties included day to day running of the estate facilities, machinery, equipment, field activities such as planting of tea, timber plantation, nurseries, plucking, transport of plucked tea to the factory, processing of the tea received at the factory as well as managing labour. In-charge of procurement, budgeting and control, payment of suppliers and labour. Representing the company at the estates level on matters of industrial relations and other government organs.</p>		
1986 – 1987	<i>Divisional Soil and Water Conservation Officer</i>	Ministry of Agriculture & Livestock Development G.O.K Amagoro Division Busia District KENYA
<p>As a Divisional extension officer, my duties included organizing government programs on soil and water conservation in the division. It also included supervising construction of soil conservation and drainage structures</p>		
1982 – 1983	<i>Supervisor</i>	National Cereals and Produce Board Chemnoet Maize Buying Center Nandi District KENYA
<p>As a supervision I was in-charge of quality control, inspection of maize to be purchased and storage facilities as well as paying the sellers and labour.</p>		

Engineering Practice & Consultancy

1. 2008-2011, Agricultural Engineer, *Feasibility Study, Design and Planning of the Mushubi Tea Factory, Nyamagabe District, Southern Province, RWANDA (2008 - 2011). GillexAfrica LTD*
 - In-charge of factory site location and preliminary survey of the proposed factory. This including planning the factory with its requirements, Water abstraction design, roads design, Power line design, labour units and social amenities infrastructure.
 - Tea culture field design. Tea Estates parks, Timber parks, Human settlement (Imudugudu), Livestock park design etc.

2. 2006 – 2008, Agricultural Planner, *Master Plan Study for the Development of Tea Culture at Gatare Area of Nyamasheke District, Western Province, RWANDA (2006 – 2009). Lexmark Engineering (K) LTD*

Responsible for the planning and design of physical facilities, infrastructure, tea blocks, timber blocks, tea factory location, roads, nurseries, electrification, water supply, housing, as well as design of other social amenities infrastructure.

Selected Publications

Book

- [1] **Mutai E. B. K. (2010).** Simulation of Temperatures in a Broiler chicken House in Kenya. VDM Verlag Dr, Muller Pub. ISBN: 978-639-23545-6

Refereed Journals

- [1] **S. B. Oirere, E. B. K. Mutai, D. A. Mutuli, D. O. Mbuge, J. J. Owuor, (2013).** Evaluation of Waste Management Systems For Tea Factories In Kenya: A Case Study Of Nyansiongo Tea Factory. Paper submitted to International Journal Applied Science, Engineering and Technology. June 2013.
- [3] **Mbuge, D.O., M.M. Kanyara, E. B.K.Mutai, S. Murunga, D. A. Mutuli and J. Agullo. (2013).** The Effect of Drying Temperature on Nutrient levels in Oyster Mushroom. Accepted for publication on 30th November, 2012. Africa Journal of Science and Technology.
- [4] **K.V. Too, E.B. K. Mutai, J.M. Mutua, D.A. Mutuli and D.O. Mbuge (2012).** Vicoelastic Properties of Bulk Groundnuts. Research Journal of Applied Sciences, Engineering & Technology. Vol. 4 No. 10 ISSN 2041-3238
- [5] **E. B. K. Mutai, Otieno P. O., D.A, Mutuli, A. N. Gitau And D. Mbuge (2011):** Simulation of the Microclimate in poultry structures in Kenya. Research Journal of Applied Sciences, Engineering & Technology. Vol. 3 No. 7 ISSN 2040-7459
- [6] **S. Langat, D. O. Mbuge and E. B. K. Mutai (2010).** Determination of the Parameters for Design of Flexible Plastic Tank. AJST, Vol. 11, No. 2: 37-45, December, 2010
- [7] **Mutai, E.B.K, A.N.Gitau, A. A. Aganda, G. E. Karuri (2010).** Dynamic Modelling Of Temperatures In Poultry Structures. ICASTOR Journal of Engineering; Vol. 3, No. 2 (2010) pg 105-120
- [8] **Mutai E.B.K and L.O. Gumbe (2003):** Environmental Modeling in Poultry Structures. *JEAE (3): 24-31, (2003)*

Proceedings

- [1] **Mutai, E.B.K, A.N.Gitau, A. A. Aganda, G. E. Karuri (2012).** Dynamic Modelling Of Temperatures In Poultry Structures. 7th International CIGR Technical Symposium "Inovating the Food Value Chain". 2nd International Conference on Postharvest Technology and quality Management. Post harvest Africa, 2012, 25-28 November, 2012. www.sun.ac.za/postharvest/cigr/2012.
- [2] **Too K. V., Mutai E. B. K. , Mutua J. M., Mutuli D. A., D. O. Mbuge. (2012).** Viscoelastic Properties of Bulk Groundnuts. 7th International CIGR Technical Symposium "Inovating the Food Value Chain". 2nd International Conference on Postharvest Technology and quality Management. Post harvest Africa, 2012, 25-28 November, 2012. www.sun.ac.za/postharvest/cigr/2012.
- [3] **Mutai E.B.K And L.O. Gumbe (2003):** Modelling of Temperatures in a Broiler Chicken House in Kenya. Proceedings of the first international conference in Eastern Africa region on Operations Research and Development for Africa (ORDA-1)
- [4] **Mutai E.B.K, D.A Mutuli, F. Luti And L.O Gumbe (2002):** Environmental Simulation and Control of Poultry Housing Systems in Kenya. Proceedings of the 14th Kenya Society of Agricultural Engineers Annual International Conference (KSAE 2002), OCT. 24 -25, 2002 at Hotel Milimani, Nairobi, Kenya.

- [5] **Mutai E.B.K and L. Gumbe (2001).** Simulation and control of poultry production systems in Kenya. *Proceedings of the International Conference on Agricultural Science and Technology (ICAST 2001), Nov. 7-9, 2001 at Beijing. P.R China*

Thesis

- [1] **Mutai E.B.K and A. K. Toromo (1996).** The influence of land use patterns of Njoro Catchment on sediment yields of river Ndarugu, Njoro (*Unpublished B.Sc. Thesis*).
- [2] **Mutai E.B.K (2002).** Simulation of temperatures in a broiler chicken house in Kenya. (*Published Thesis*)

Proposal

- [1] **Mutai E.B.K. (2009).** A Dynamic model of the hygrothermal environment in a broiler chicken house. *Ph.D proposal submitted and has been accepted for research at the University of Nairobi.*
- [2] **Mutai E.B.K. (2010).** A Dynamic model of the hygrothermal environment in a broiler chicken house. *Research project submitted to and funded by National Council of Science and Technology (Ksh. 1.2 Million)*

Reviewer of Refereed Journals

- [1] International Commission of Agricultural and Biosystems Engineering Journal (CIGR)
- [2] Engineering Science and Technology Research Journal (ESTR)
- [3] Journal of Cleaner Production
- [4] Agricultural and Biosystems Engineering Journal (IJABE)

Undergraduate Supervision B.Sc.

- [1] **ERICK K KOECH (2012).** Design Of UV Based Drinking Water Treatment Plant For Kericho Municipality. FEB 540 Design Project
- [2] **LEWIS NJERU MUGO (2012).** Design of a Coffee Solar Drier with Forced Convection. *FEB 540 Design Project*
- [3] **KIPLANGAT ELIAS (2010).** Design Of A Human Waste Disposal System For Chepseon Market FEB 540 Design Project
- [4] **SHELMITH THEURI (2010).** Design of a municipal bioreactor landfill with gas extraction points for the Nakuru municipal council. FEB 540 Design Project
- [5] **OGUYA, SARAH ATIENO (2010).** Design of a Waste Water Treatment Facility For Kenya Pipeline Company [Kpc] Ps 10. FEB 540 Design Project
- [6] **KIPRONO LANGAT EPHANTUS (2009):** Gas Conditioning Tower Efficiency Determination and Its Effect on the Electrostatics Precipitator. Case Study: East African Portland Cement Company (EAPCC, Athi River). FEB 540 Design Project
- [7] **KIPRUTO KIRIDZA ROB JACOB (2009):** Design of Optimum Oxidation Conditions for Fermentation of Tea. Case Study: Eastern Produce Of Kenya, Kipkoimet Tea Factory – Nandi-Hills. FEB 540 Design Project

- [8] **ODERO OTIENO PARICK (2009):** Computerized Simulation for Modeling Temperature in a Poultry House. FEB 540 Design Project
- [9] **OPONDO CHRISPINUS (2009):** Computer Software For Rural Water Supply Design And Cost Analysis. FEB 540 Design Project
- [10] **KIPKOECH C. HILARY (2006):** Design of Photovoltaic Pumping System. FEB 540 Design Project
- [11] **KORIR CHERUIYOT VICTOR (2006):** Design of Naturally ventilated Greenhouse system, using design software. FEB 540 Design Project
- [12] **LANG'AT HILARY KIPRONO (2005):** Mathematical Model for predicting Microclimate in a Broiler Chicken Housing. FEB 540 Design Project
- [13] **MUNYUA JEREMIAH MURUITHI (2005):** Computer Software for Rural Water Supply. FEB 540 Design Project
- [14] **KAMSINGI JARED (2005):** Design of Criteria for Rapid Assessment of Large Land Area Degradation
- [15] **BIEGON K. CLARKSON (2004):** Assessment of Safety and Occupational Health factors in a Greenhouse. FEB 540 Design Project

Postgraduate Supervision M.Sc.

DEGREE AWARDED

- [1] **SYLVIA MURUNGA. (2012).** An Efficient and Cleaner Production System for Tea Processing Industry in Kenya (A case Study of Mudete Tea Factory)

THESIS SUBMITTED FOR EXAMINATION

- [1] **TONUI K. STEPHEN (2012).** Optimization Of Air-Infiltration Solar Maize Grain Dryer With A Biomass Heater

THESIS ON FINAL DRAFT

- [1] **STEPHEN NYAKONDO NYANG'AU (2012).** Development of a Least Cost Energy Model For Future Energy Markets In Kenya
- [2] **OIRERE STELLAH BONARERE (2012).** Developing An Efficient Waste Management System For Tea Factories In Kenya: A Case Study Of Nyansiongo Tea Factory
- [3] **REUBEN RUTTOH (2009).** The Influence of Land Use on the Upper River Athi Sub-catchment of Eastern Kenya between 1985 and 2005

PROPOSALS APPROVED BY BPS

- [1] **SHADRACK OMONDI ODERO (2013).** Evaluation Of The Effectiveness Of Superabsorbent Polymers (Saps) In Air Drying

- [2] **AMOS ABALA WAMBURA. (2013).** Investigating The Physical Properties Of Glass Reinforced Polymer As Material For Solar Hot Water Tanks In Coastal Areas

- [3] **STEPHEN K NGULI (2012).** Evaluation of Viability of High Temperature Gasification Incinerator Case Study: Electrical Energy from Solid Waste for Embu Municipal

Faculty Participation/Activities

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|----------------------------------|------------------------|
| 1. Show and Exhibition committee | Faculty Representative |
| 2. Counselor | Peer Counselor |
| 3. Curriculum Review | Departmental Secretary |
| 4. Computer committee | Departmental Convener |
| 5. E-Learning | School Representative |
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Community Service

- Member
Board of Governors
St. Michael's Kabisaga High School,
P. O Box 747,
ELDORET
- Chairman
Winning Life Christian Education Centre
Kitengela
P.O Box 425- 00242
- Snr. Senior Pastor
Winning Life Christian Church
P. O. Box 425, code 00242
Kitengela

Languages:

English	Excellent in reading, good speaking and writing
Kiswahili	Excellent reading, good speaking, reading and writing
Kalenjin	Excellent reading, writing and speaking

Hobbies:

- 1 Teaching and Preaching the Gospel of the Kingdom of God
 - 2 Watching Televangelists
 - 3 Watching Nollywood films
 - 4 Athletics
 - 5 Cybernetics
 - 6 Reading Christian and Engineering Books
 - 7 Reviews articles
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