

CURRICULUM VITAE, SEPTEMBER 2018

BIODATA

Full Name: Dr. Clement Nyamunura MWEYA
Place of birth: Musoma, Tanzania; Nationality (birth): Tanzanian
Date of birth: 25 May 1976
Sex: Male



EDUCATION

- 2011-2016, PhD (Epidemiology/Ecological Modelling), Sokoine University of Agriculture, Tanzania
- 2006-2008, MSc (Medical Parasitology and Entomology), Upper Second Class GPA=4.0, Kilimanjaro Christian Medical College, Moshi Tanzania
- 1998-2001, BSc (Zoology and Wildlife Ecology), Upper Second Class GPA=3.8, University of Dar es salaam, Dar es salaam, Tanzania

INSTITUTIONAL AFFILIATION

National Institute for Medical Research (NIMR)
Tukuyu Research Centre (TRC),
P.O. Box 538, Tukuyu, Tanzania
Phone (office) +255 252 552214; Fax (office): +255 252 552016
Phone (mobile) +255 767 802 003 or +255 788 802 003
E-mail mweyaclement@gmail.com or cmweya@nimr.or.tz
Google Scholar <http://scholar.google.com/citations?user=va5mbaIAAAAJ&hl=en>

POSITIONS HELD/HONORARY VISITING

- 2011 – To date: Senior Research Scientist (Medical Entomology) – National Institute for Medical Research (NIMR), Tukuyu Research Centre.
- 2018 – To date: Honorary Lecturer – Department of Parasitology and Medical Entomology, Muhimbili University of Health and Allied Sciences (MUHAS)
- 2018 – To date: CEO/Founder – Vector-Borne Diseases Modelling Network (VBDMoNet - <https://vbdmodelling.org>). Network can be reached at info@vbdmodelling.org or secretariat@vbdmodelling.org.
- 2016/17 Academic year – Part-time Lecturer in the School of Life Sciences and Bioengineering at the Nelson Mandela African Institute of Science and Technology (NM-AIST), Arusha, Tanzania. Course: LiSe 7262: Population Ecology and Modelling for PhD students majoring Biodiversity Conservation.
- June 2015 – May 2016: WHO/TDR Honorary visiting fellow (Modelling Onchocerciasis Parasite Transmission) – School of Molecular Sciences, La Trobe University, Australia and Melbourne School of Population and Global Health, The University of Melbourne (<https://nematodegenetics.wordpress.com/2015/09/04/two-new-post-docs-clement-mweya-and-shannon-hedtke>).
- June – September 2013: Visiting Research fellow, Graduate School of Science and Technology (GSST) of the University of Aarhus, Denmark, under supervision of Professor Niels Holst (<http://www.ecolmod.org/course.html>).
- August 2009 – July 2010: Research Analyst fellow (Global Health Corps). Southern African Centre for Infectious Diseases Surveillance (SACIDS), Sokoine University of Agriculture (SUA).
- 2002-2011: Research Scientist (Entomologist) (NIMR) – National Institute for Medical Research (NIMR Tukuyu and Onchocerciasis Vector Elimination Project)

RESEARCH EXPERIENCE

- 2012-2014: Contributor of the participatory ecological modelling platform <https://github.com/NielsHolst/UniSim/blob/master/authors.xml> the Universal Simulator End user application and source codes can be downloaded from <http://www.ecolmod.org/> as copyrights reserved for Professor Niels Holst (niels.holst@agrsci.dk) and co-authors.
- 2014: Risk factors of HIV/AIDS transmission among mobile communities in Tanzania: (Team member)
- 2012-2014: Ecological factors associated with Rift Valley Fever during Inter-Epidemics Period in Tanzania (Principal Investigator)
- 2012: Evaluation of Sustainability of CDTI projects in Tanzania: Morogoro CDTI focus (Internal Evaluator, together with External Evaluators)
- 2012/2010/2009/2004: Surveillance of malaria vectors insecticide resistance in Tanzania; Ngonga sentinel site, Mvomero and Songea districts.
- 2009: District Comprehensive assessment of Global Funds for Malaria, HIV/AIDS and TB project. Hospital Records Reviews from 1998 to 2008 (PMTCT, ART, VCT, TB, Admission and Blood transfusion records)
- 2007/2008: Malaria burden (using PCR) and transmission intensity estimation using serological markers (MSP1 and AMA1) for KiliIPTi study sites, Tanzania
- 2006: Onchocerciasis situation (KAP, ophthalmological and dermatological) in Ruvuma focus southern Tanzania
- 2006: Barriers of HIV Voluntary Counseling and Testing (VCT) services in Tanzania; Njombe District
- 2003/2005: I participated on a large scale ground application of Temephos in rivers in the Tukumyu focus to kill larvae of *S. damnosum*, a national plan to eliminate vectors of Onchocerciasis
- 2004/2005: I participated in Susceptibility test and river trials of *Temephos phytagri* to larvae of *S. damnosum*, vector of Onchocerciasis in the Tukumyu focus.
- 2004: I participated in Impact assessment studies of Ivermectin in treating Onchocerciasis for the communities in Kyela district

TEACHING AND SUPERVISION EXPERIENCE

- 2018 – To date: Supervision support for Masters of Public Health (MPH) as Honorary Lecturer – Department of Parasitology and Medical Entomology, Muhimbili University of Health and Allied Sciences (MUHAS)
- 2018 – To date: Supervision support for PhD and Research fellows as CEO/Founder – Vector-Borne Diseases Modelling Network (VBDMoNet - <https://vbdmodelling.org>). Network can be reached at info@vbdmodelling.org or secretariat@vbdmodelling.org.
- 2016/17 Academic year – Part-time Lecturer in the School of Life Sciences and Bioengineering at the Nelson Mandela African Institute of Science and Technology (NM-AIST), Arusha, Tanzania. Course: LiSe 7262: Population Ecology and Modelling for PhD students majoring Biodiversity Conservation.

TRAINING COURSES/WORKSHOPS/CONFERENCES

- 18 – 19 May 2017: 2nd Conference on Impact of Environmental Changes on Infectious Diseases, Organised by the Abdu salaam International Centre for Theoretical Physics (ICTP), Trieste Italy under sponsorship of ICTP/UNESCO. Award: Certificate of participation
- 08 – 17 May 2017: Workshop on Mathematical Models of Climate Variability, Environmental Change and Infectious Diseases. Organised by the Abdu salaam

International Centre for Theoretical Physics (ICTP), Trieste Italy under sponsorship of ICTP/UNESCO. Award: Certificate of participation

- 29 - 31 March 2017: 6th East African Health and Scientific Conference & International Health Exhibition and Trade Fair: Ecole Technique Professionnelle, Bujumbura – Burundi. Sponsored by the World Health Organization (WHO). Award: Certificate of participation
- 22 - 24 March 2017: the Third CAAST-Net Plus Workshop on Strengthening Research Capacities for Applied Research into Human Health and Climate Change, Kampala, Uganda. Sponsored by The Uganda National Council for Science and Technology (UNCST) in partnership with the EU-funded CAAST-Net Plus consortium and UNEP-DTU (Denmark). Award: Certificate of participation
- 2016: Introduction to Machine learning – online Coursera 11 weeks course (Linear Regression with One Variable, Linear Regression with Multiple Variables, Octave/Matlab Tutorial, Logistic Regression, Regularization, Neural Networks: Representation/Learning, Advice for Applying Machine Learning, Machine Learning System Design, Support Vector Machines, Unsupervised Learning: K-Means clustering and PCA, Anomaly Detection, Recommender Systems, Large Scale Machine Learning and Application Example: Photo OCR (Optical Character Recognition). Facilitated by: Andrew Ng, Associate Professor, Stanford University; Chief Scientist, Baidu; Chairman and Co-founder, Coursera.
- 2015 – 2016: Introduction to Computer programming with Mat Lab – online Coursera 9 weeks course facilitated by Professor Mike Fitzpatrick, Vanderbilt University
- 29 November to 12 December 2015: Australian Society for Parasitology (ASP) two weeks course "Concepts in Parasitology for postgraduates and Early Career Researchers", Sunday 29th November and Saturday 12th December 2015. Coordinating instructor Associate Professor Alex Maier, Australian National University, Canberra ACT, Australia.
- 2014: Public Health Applications of ecological models, Biodiversity Informatics Course, 22-26 September 2014. Coordinating instructor distinguishable Professor Town Peterson, University of Kansas Biodiversity Institute, KA USA.
- 2013: Ecological Niche Modeling Course, Nairobi, Kenya: 25-28 February 2013
- 2012/2013: Ecological Modeling course (details: www.ecolmod.org/course.html). Training is based on writing simple open-source programs in the C++ language and construction of own models as plug-ins for the Universal Simulator. September-December 2012 and September-December 2013.
- 2012: Infectious diseases modeling course in Arusha Tanzania, organized by the Abdus Salam International Center for Theoretical Physics in Trieste Italy. UNESCO Sponsorship
- 2012/2011/2010/2004: Refresher Course on Monitoring Insecticide Resistance for malaria vectors in Tanzania. Facilitator on Reading and interpretation of WHO susceptibility test results and Adult mosquito sampling techniques
- 2011: Short Course on CDC Bottle Bioassay training for Monitoring of Insecticide Resistance of Malaria Vectors. Conducted by the National Institute for Medical Research (NIMR) Mwanza Center in collaboration with CDC Atlanta
- 2011: Summer School on Climate Impacts Modeling for Developing Countries: Water, Agriculture and Health at the *Abdus Salam International Center for Theoretical Physics* in Trieste Italy. UNESCO Sponsorship
- 2011: Powerful Leadership I: Key Leadership Skills training. The course covered about Leadership Principles, Coaching for Success and Navigating Changes.
- 2011: Fundamentals of Frontline Management. Course covered about Performance System Model, Managing Performance Condition, Motivation Principles and Practice, Leadership Principles and Practice, Communication, Delegation and Planning.

- 2011: In House Training on LABOUR LAWS and Negotiation Skills for Collective Bargaining. Workshop facilitated by Dr. Agrei Mlimuka of the Association of Tanzania Employers (ATE).
- 2010: Introduction to Geographical Information Systems (GIS) and its applications for Veterinary science and public health practice: Emphasis on Arc view, GPS including data acquisition and manipulation
- 2010: Training workshop on *WHOPES* Guidelines and SOPs for malaria vectors insecticide resistance surveillance
- 2010: Global Health Corps orientation programme on Global Health, Readership and Management, Stanford University CA, USA
- 2008: Advanced WHO/TDR Course on Immunology, Vaccinology and Biotechnology applied to infectious diseases, Lausanne Switzerland
- 2007: Finding Online Information Resources for Malaria Research, International Maternal and Child Health (INFORM) Uppsala University, Sweden
- 2007: East African Regional Workshop on Functional Genomics and Bioinformatics: Studies of Parasites, in Morogoro, Tanzania. Other courses studied include; Variant Antigens, Malaria Genome, General Immunology, Immunity to Malaria (All stages, Placenta), Epidemiology, Molecular Techniques (DNA Micro Arrays, qPCR, RT-PCR, Flow Cytometry), Proposal Development etc.
- 2007/2005: Mosquito Ecology and Vector Control Training Workshop at the Vector Control Training Centre, Muheza, Tanga
- 2005: Effective Communication Skills Training Workshop for IMHOTEP staff, held at NIMR HQ.

BOOKS/BOOK CHAPTER/THESES/DISSERTATIONS/TECHNICAL REPORTS

1. **Mweya, C.N.** (2016) Ecological Factors Associated with Rift Valley Fever virus during Inter-Epidemics periods in Tanzania. *PhD Thesis*. Sokoine University of Agriculture, Morogoro Tanzania.
2. Mboera, L.E.G., Tungu, P., Rumisha, S.F., **Mweya, C.N.** et al. (2014) Entomological investigation of the risk of Dengue transmission in Dar es Salaam, Tanzania. Report Submitted to the National Institute for Medical Research, Dar es Salaam, Tanzania.
3. Kabula B, Tungu P, Matowo J, Kitau J, Mweya C, Emidi B, Masue D, Sindato C, Malima R, Minja J, Msangi S, Njau R, Mosha F, Magesa S, Kisinza W (2010). Standard Operating Procedures for Surveillance of Insecticide Resistance for Malaria Vectors
4. **Mweya, C.N.** (2008) Use of RDTs, PCR and Serological Markers to estimate burden and transmission intensity of malaria in KiliIPTi study sites. *MSc. Dissertation*. Kilimanjaro Christian Medical College, Moshi Tanzania.
5. **Mweya, C.N.** (2001) Life History of *Diplostomum mashonense* (Cestodes), the parasite of the head of the *Clarias* spp. *BSc Dissertation*. University of Dar es salaam, Dar es salaam, Tanzania.

PUBLICATIONS

1. Mashili FL, Kagaruki GB, Mbatia J, Nanai A, Saguti G, Maongezi S, Magimba A, Mghamba J, Kamugisha M, Mgina E, **Mweya CN**, Kaushik R, Mayige MT (2018) Physical Activity and Associated Socioeconomic Determinants in Rural and Urban Tanzania: Results from the 2012 WHO-STEPS Survey. *Int J Popul Res*. Volume 2018, Article ID 4965193, 10 pages. <https://doi.org/10.1155/2018/4965193>
2. **Mweya CN**, Mboera LEG, Kimera SI (2017) Climate Influence on Emerging Risk Areas for Rift Valley Fever Epidemics in Tanzania. *Am. J. Trop. Med. Hyg.*, 97(1), pp. 109–114. doi:10.4269/ajtmh.16-0444

3. **Mweya CN**, Kimera SI, Stanley G, Misinzo G, Mboera LEG (2016) Climate Change Influences Potential Distribution of Infected *Aedes aegypti* Co-Occurrence with Dengue Epidemics Risk Areas in Tanzania. *PLoS ONE* 11(9): e0162649. doi:10.1371/journal.pone.0162649
4. Mboera LEG, **Mweya CN**, Rumisha SF, Tungu PK, Stanley G, Makange MR, Misinzo G, De Nardo P, Vairo F, Oriyo NM (2016) The Risk of Dengue Virus Transmission in Dar es Salaam, Tanzania during an Epidemic Period of 2014. *PLOS Negl Trop Dis* 10, 1, e0004313
5. **Mweya,C.N.**, Kimera,S.I., Mellau,L.S. & Mboera,L.E.G. (2015) Inter-epidemic abundance and distribution of potential mosquito vectors for Rift Valley fever virus in Ngorongoro district, Tanzania. *Global Health Action* 8.
6. Kagaruki,G.B., Kimaro,G.D., **Mweya,C.N.**, Kilale,A.M., Mrisho,R.M., Shao,A.F., Kalinga,A.K., Kahwa,A.M., Ngadaya,E.S. & Materu,G.S. (2015) Prevalence and risk factors of metabolic syndrome among individuals living with HIV and receiving antiretroviral treatment in Tanzania. *British Journal of Medicine and Medical Research* 5, 1317-1327.
7. **Mweya,C.N.**, Holst,N., Mboera,L.E.G. & Kimera,S.I. (2014) Simulation modelling of population dynamics of mosquito vectors for Rift Valley fever virus in a disease epidemic setting. *PloS one* 9, e108430.
8. **Mweya,C.N.**, Kimera,S.I., Kija,J.B. & Mboera,L.E.G (2013) Predicting distribution of *Aedes aegypti* and *Culex pipiens* complex, potential vectors of Rift Valley fever virus in relation to disease epidemics in East Africa. *Infection ecology & epidemiology* 3.
9. **Mweya,C.N.**, Kimera,S.I., Karimuribo,E.D. & Mboera,L.E.G. (2013) Comparison of sampling techniques for Rift Valley Fever virus potential vectors, *Aedes aegypti* and *Culex pipiens* complex, in Ngorongoro District in northern Tanzania. *Tanzan J Health Res* 15, 1-7.
10. Kija,J.B., **Mweya,C.N.**, Mwita,M., Kija,H. & Fyumagwa,R. (2013) Prediction of Suitable Habitat for Potential Invasive Plant Species *Parthenium hysterophorus* in Tanzania: A Short Communication. *International Journal of Ecosystem* 3, 82-89.
11. Kabula,B., Tungu,P., Matowo,J., Kitau,J., **Mweya,C.**, Emidi,B., Masue,D., Sindato,C., Malima,R. & Minja,J. (2012) Susceptibility status of malaria vectors to insecticides commonly used for malaria control in Tanzania. *Tropical Medicine & International Health* 17, 742-750.
12. Kisinza,W., Kabula,B., Tungu,P., Sindato,C., **Mweya,C.**, Massue,D., Emidi,B., Kitau,J., Chacha,M. & Batengana,B. (2011) Detection and Monitoring of Insecticide Resistance in Malaria Vectors in Tanzania Mainland. <http://ihi.eprints.org/779>
13. Mwanziva,C., Manjurano,A., Mbugi,E., **Mweya,C.**, Mkali,H., Kivuyo,M.P., Sanga,A., Ndaro,A., Chambo,W. & Mkwizu,A. (2011) Defining malaria burden from morbidity and mortality records, self treatment practices and serological data in Magugu, Babati District, northern Tanzania. *Tanzania Journal of Health Research* 13, 93-96.
14. Mwanziva,C.E., Kitau,J., Tungu,P.K., **Mweya,C.N.**, Mkali,H., Ndege,C.M., Sanga,A., Mtabho,C., Lukwaro,C. & Myamba,J. (2011b) Transmission intensity and malaria vector population structure in Magugu, Babati District in northern Tanzania. *Tanzania Journal of Health Research* 13, 54-61.
15. Williams,G.S., **Mweya,C.**, Stewart,L., Mtove,G., Reyburn,H., Cook,J., Corran,P.H., Riley,E.M. & Drakeley,C.J. (2009) Immunophoretic rapid diagnostic tests as a source of immunoglobulins for estimating malaria sero-prevalence and transmission intensity. *Malaria journal* 8, 168.

16. **Mweya, C.N.**, Kalinga, A.K., Kabula, B., Malley, K.D., Ruhiso, M. & Maegga, B.T. (2008) Onchocerciasis situation in the Tukumyu focus of southwest Tanzania after ten years of ivermectin mass treatment. *Tanzania Journal of Health Research* 9, 174-179.
17. Kalinga, A.K., **Mweya, C.N.**, Barro, T. & Maegga, B.T.A (2007) Susceptibility of *Simulium damnosum* complex larvae to temephos in the Tukumyu onchocerciasis focus, southwest Tanzania. *Tanzania Journal of Health Research* 9, 19-24.

MANUSCRIPTS UNDER-REVIEW

1. Mary T. Mayige, Gibson B. Kagaruki, Joseph Mbatia, Alphonsina Nanai, Grace Saguti, Sarah Maongezi, Ayoub Magimba, Janneth Mghamba, Hellen Semu, Mathias Kamugisha, Eric Mgina, **Clement N. Mweya**, Julius Massaga, Mwele Malecela and Ramaiya Kaushik. (2017). Prevalence and determinants of diabetes and pre-diabetes in Tanzania. *Under-Review* with BMJOpen manuscript identification bmjopen-2016-014717

CURRENT PROJECTS AND MANUSCRIPTS UNDER-DEVELOPEMENT

1. **Mweya, C.N.** Investigating use of artificial neural network algorithms and support vector machine classification to identify Rift Valley Fever temporal epidemics patterns from simulation data.
2. **Mweya, C.N. et al.** Data-driven prediction of patterns associated with recrudescence of Onchocerciasis parasite transmission after years of Ivermectin mass treatment.
3. **Mweya, C.N.** and Bakare, E. Aggregated Onchocerciasis Model with Low Transmission and Parasite Recrudescence
4. **Mweya, C.N.** Investigating use of anomaly detection systems to identify temporal patterns associated with Rift Valley Fever epidemics.

COMPUTER EXPERIENCE

- Programming Languages – C/C++ (using Qt. Creator and Eclipse IDEs), Programming in MATLAB, CSS for Web Development and R Programming.
- Modelling Environment–Universal Simulator, Berkeley Madonna and OpenModeller/MaxEnt
- Statistical and Computational Packages – MATLAB, Octave, Statistics in R, SPSS, STATA and Prism GraphPad
- Spreadsheet and Databases – EXCEL2013, ACCESS2013 and MySQL(Basic)

ASSOCIATION MEMBERSHIPS

1. Tanzania Entomological Association (TEA)
2. Tanzania Public Health Association (TPHA)
3. Pan African Mosquito Control Association (PAMCA)
4. The Australian Society for Parasitology Inc.

REFEREES

Professor. Yunus D Mgaya
 NIMR Director General,
 PO BOX 9653
 Dar es Salaam – Tanzania
 Tel (Off): +255 22 2121400
 Cell: +255 784 237 774
yunusmgaya@gmail.com

Professor Sharadhuli I. Kimera
 Associate Professor of Epidemiology

Sokoine University of Agriculture
PO BOX 3297 Chuo Kikuu SUA
Morogoro – Tanzania
Cell: +255 787569684
sikimera@gmail.com

Paul S. Gwakisa, MSc, PhD
Professor of Immunology and Animal Biotechnology
Genome Science Center and Dept. of Microbiology, Parasitology and Biotechnology
College of Veterinary Medicine and Biomedical Sciences
Sokoine University of Agriculture
Morogoro – Tanzania
Cell: +255 782 437 508;
psgwakisa@gmail.com
Skype: paul.gwakisa
Adjunct Professor
School of Life Sciences and Bioengineering
The Nelson Mandela African Institution of Science and Technology
Arusha, Tanzania