

**CURRICULUM VITAE**  
**DR. PATRICIA NDUKU MUENDO**

<b>NAME</b>	<b>PATRICIA NDUKU MUENDO</b>
UNIVERSITY ACADEMIC POSITION	LECTURER
INSTITUTION	Machakos University
PHYSICAL ADDRESS	Machakos town, Along Machakos Wote Road.
<b>PERSONAL DATA</b>	
PLACE OF BIRTH	Machakos County
NATIONALITY	Kenyan
PROFESSION	Researcher & Lecturer – Aquatic Ecology & Aquaculture
CONTACT ADDRESS	PO Box 136 – 90100 Machakos
<b>1. SUMMARY OF EXPERIENCE ( maximum 300 words)</b>	
<p><b>Dr. Patricia N. Muendo</b> holds a PhD in Aquaculture from Wageningen University (Netherlands), Masters in Hydrobiology from the University of Nairobi and Bachelor of Science (Botany/Zoology) also from the University of Nairobi. She has served as Ag. Chairman, department of Environmental conservation (SEKU), A.g Dean, School of Water Resources (SEKU), Ag. Dean, school of Science, Education and Technology (Kabarak University), and also Ag. Dean School of Pure and applied sciences (Machakos University). She has over 15 years’ experience in aquatic science / aquaculture education and research (nutrient dynamics, ecology &amp; aquatic production systems). She has collaborated in various aquaculture research and development projects including PDA CRSP (USAID funded), INREF-Pond (Wageningen University, Netherlands), NICHE/KEN/158 (Nuffic – Netherlands), ASALI (university of Amsterdam) and MARICULTURE (Nacosti – Kenya), among others. She is currently (2016 – 2019) a collaborator &amp; co- principal investigator in SNIPH and IMAQULATE projects (funded by BBSRC – NEWTON FUNDS), responsible for project co-ordination and administration. She can be contacted on c/o Machakos university, P.O Box 136 – 90100, Machakos, Kenya; email: pnmuendo@mksu.ac.ke; or pmuendo@yahoo.com, Tel. +254 724 993404</p>	

<b>2. EDUCATION</b>	
2002 - 2006	PhD. Aquaculture/Fisheries, (Wageningen University, Netherlands)
1996 - 2000	MSc. in Hydrobiology, Zoology Dpt. University of Nairobi
1990 - 1995	BSc. (Hons) Botany/ Zoology, University of Nairobi.
<b>3. EMPLOYMENT</b>	
2014- present	Machakos University (MksU) Lecturer/researcher (Aquaculture/Fisheries/Aquatic Ecology),
2010 – 2014	South Eastern Kenya University (SEKU) Lecturer/researcher (Aquaculture/Fisheries/Aquatic Ecology)
2008 – 2010	Kabarak University (KABU) Lecturer (zoology/ environmental science),

1996	Teachers Service Commission (TSC)
<b>4. POSITIONS PREVIOUSLY HELD</b>	
<i>Year (from – to)</i>	<i>Position, Project / Programme, Company / Institution / Client Description of roles and responsibilities</i>
April 2017 – October 2019	Ag. Director, Research, Innovation and Technology, Machakos University Duties: Establishment of operational structures and coordination of activities of the directorate
May 2015 – April 2017	Ag. Dean, School of Pure and Applied Sciences, Machakos University Duties – Coordination of academic programmes and management of the school
April 2011 – Dec 2014	Ag. Director, Catering & Accommodation Services, SEKU Duties – Establishment of structures and management of directorates staff to ensure efficient provision of catering and accommodation services to students
October 2010 – April 2011	Ag. Dean, School of Water Resources, Science & Technology, SEKU Duties – Coordination of academic programmes and management of the school
June 2010 – October 2010	Ag. Chairman, Department of Environmental Conservation and Natural Resource management, SEKU Duties – Curriculum development and coordination of academic programmes in the department
Sept. 2009 – April 2010	Ag. Dean, School of Science, Engineering and Technology, Kabarak University Duties – Coordination of academic programmes and management of the school
February 1996 – October 1996	Graduate teacher, Teachers Service commission, Station: Wakaela Secondary School Duties – Teaching: Biology, Chemistry & and mathematics.

7. OTHER LEADERSHIP POSITIONS	
<i>Year</i>	<i>Position/Programme/Institution</i>
2018 - To date	<b>Member</b> , Board of Governors – Nunga Primary School
2013 - To date	<b>Member</b> , Board of Governors – Nyaani Secondary School
8. RESEARCH ACTIVITIES/PROJECTS (Past and Present)	
<i>Years/Duration</i>	<i>Position /Title / Sponsor</i>
2016 – 2019	<b>Co-Investigator &amp; in-country coordinator:</b> Development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH). Funded by BBSRC (Biotechnology and Biological Sciences Research Council), UK. Grant No.: BB/N005031/1. Grant amount: £251, 823.09
2016 –2019	<b>Co-Investigator &amp; in-country coordinator:</b> Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE). Funded by BBSRC (Biotechnology and Biological Sciences Research Council), UK. Grant No.: BB/N005082/1. Grant amount: £101, 628.72
2017 - 2019	<b>Co-investigator:</b> . Climate smart rainwater harvesting and conservation technologies for improved food security in selected parts of kitui county. Funded by National Research Fund. Grant amount: Kshs. 16 Million.
2014 - 2017	<b>Co-investigator:</b> . Transdisciplinary applied research on sustainable livelihoods. A joint collaboration of Moi University (MOI), South Eastern Kenya University (SEKU) and VU University Amsterdam (VUA). Funded by VU University, Amsterdam. Grant amount: € 360,000
2013 – 2016	<b>Co-ordinator:</b> . Capacity Building to deliver competent human resources in integrated water resource management and aquaculture for equitable and sustainable livelihoods in Kenya’s arid and semi arid lands and beyond. Funded by NUFFIC (Netherlands); Niche – Ken – 158. Period: 2013 – 2016. Grant amount: € 1.2 Million
2011 – 2014	<b>Co-investigator:</b> . Enhancing food security among coastal fisher communities: promoting small scale mariculture technologies along Kilifi creek. Funded by National Council of Science and Technology. Grant No. NCST/5/003/3 <sup>rd</sup> STI CALL/97. Research period: 2011 – 2014; Grant amount: Kshs. 7 million
2011 – 2014	<b>Co-investigator:</b> . Promotion of Surface runoff and rainwater harvesting for application in aquaculture and horticulture development in Kitui District, Kenya. Funded by National Council of Science and Technology. Grant No. NCST/5/003/3 <sup>rd</sup> STI CALL/145. Research period: 2011 – 2014; Grant amount: Kshs. 7 million

10. OUTREACH ACTIVITIES	
May 2016	Training farmers on Aquaculture enterprise budgeting as part of a project on capacity building for sustainable and gender sensitive aquaculture sector in Kenya
December 2017	Surveys on farmer health management practices
January 2019	Stakeholder involvement workshop for dissemination on research findings on fish health management
11. LINKAGES AND COLLABORATIONS	
<i>Year from – to</i>	<i>Description of links/collaborations</i>
2016 - 2019	<ul style="list-style-type: none"> <li>• <b>Prof. Douglas Tocher - Stirling University (Scotland - UK),</b></li> <li>• <b>Dr. Adams - Scottish association for marine science - UK,</b></li> <li>• <b>Dr. Madalla - Sokoine University (Tanzania),</b></li> <li>• <b>Prof. Rina Chakarwati - University of Delhi(India),</b></li> <li>• <b>Prof. Roy - Goa University (India),</b></li> <li>• <b>Prof. PadKumar - Kerala University (India),</b></li> <li>• <b>Mr. Maingi - Aquaculture Association of Kenya,</b></li> <li>• <b>Ms. Mary Opiyo - Kenya Marine and Fisheries research Institute (KEMFRI)</b></li> </ul> <p>Collaborative research on development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH).</p>
2016 - 2019	<ul style="list-style-type: none"> <li>• <b>Dr Francis Murray - Stirling University (Scotland - UK),</b></li> <li>• <b>Dr, Rachael Lawrence - RVC (Royal Veterinary college - UK),</b></li> <li>• <b>Kenton Morgan - University of Liverpool (UK),</b></li> <li>• <b>Prof. Val Smith -University of st. Andrews (UK),</b></li> <li>• <b>Prof. PadKumar - Kerala university of Fisheries and Ocean studies - India),</b></li> <li>• <b>Dr. Toms -Cochin University of Science and Technology ( India),</b></li> <li>• <b>Prof. Bright Sigh - Central Institute of Fisheries Technology (India),</b></li> <li>• <b>Dr. Mohammad Haque - Bangladesh Agricultural University (Bangladesh),</b></li> <li>• <b>Dr. Meezanur Rahman WorldFish (Bangladesh),</b></li> <li>• <b>Ms. Mary Opiyo – Kenya marine and Fisheries Research Institute,</b></li> <li>• <b>Dr. Rezin Odede - Sidai (Kenya)</b></li> </ul> <p>Collaborative research on Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE)</p>
2017 - 2019	<p><b>Dr. Charles Ndungu – South Eastern Kenya University;</b>  <b>Dr. Monica Mucheru – Kenyatta University;</b></p> <p>Collaborative research on Climate smart rainwater harvesting and conservation technologies for improved food security in selected parts of kitui county</p>

12. TRAININGS /WORKSHOPS/SYMPOSIA ATTENDED	
1 <sup>st</sup> – 3 <sup>rd</sup> February 2019	<b>Oral Presentation:</b> Development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH), 3 <sup>rd</sup> annual review Workshop, University of Delhi, India
15 <sup>th</sup> – 16 <sup>th</sup> January 2019	<b>Oral Presentation:</b> Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE), Final project workshop, Machakos University, Kenya
19 <sup>th</sup> – 20 <sup>th</sup> Nov. 2018	<b>Moderator &amp; Participant:</b> pre-conference training Workshop on Science, technology & innovation for sustainable livelihoods in the Era of Climate Change
17 <sup>th</sup> – 19 October 2018	<b>Organiser &amp; Participant:</b> Training on resource Mobilization and Grant Writing. Machakos University, Kenya
28 <sup>th</sup> Feb – 3 <sup>rd</sup> March 2018	<b>Oral Presentation:</b> Development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH), 2 <sup>nd</sup> annual review Workshop, Sokoine University, Tanzania
7 <sup>th</sup> – 9 <sup>th</sup> Feb. 2018	<b>Organiser &amp; Participant:</b> Training on grant Proposal Writing. Machakos University, Kenya
9 <sup>th</sup> – 11 <sup>th</sup> Jan 2018	<b>Oral Presentation:</b> Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE), 2 <sup>nd</sup> annual review workshop, Andhra Pradesh, India
6 <sup>th</sup> – 9 <sup>th</sup> March 2017	<b>Oral Presentation:</b> Development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH), 1 <sup>st</sup> annual review Workshop, Goa University, India
22 <sup>nd</sup> – 25 <sup>th</sup> January 2017	<b>Oral Presentation:</b> Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE), 1 <sup>st</sup> annual review workshop, Khulna, Bangladesh
27 <sup>th</sup> – 28 <sup>th</sup> June 2016	<b>Oral Presentation:</b> Development of alternative sustainable fish feeds to promote human health using novel non-conventional indigenous ingredients (SNIPH), Inception Workshop, Stirling University, UK
19 <sup>th</sup> – 21 <sup>st</sup> June 2016	<b>Oral Presentation:</b> Evaluating Costs and Benefits of prophylactic Health Products and Novel Alternatives on Small Holder Aquaculture Farmers in Asia and Africa (IMAQLATE), Inception workshop, Stirling University, UK
17 <sup>th</sup> – 21 <sup>st</sup> Feb. 2014	<b>Participant:</b> Training on value Chain Management, Jimma University, Addis Ababa, Ethiopia
5 <sup>th</sup> – 7 <sup>th</sup> November 2013	<b>Participant:</b> Training on didactical/pedagogy training, South Eastern University College, Kitui, Kenya (Funded by Nuffic through Niche Project)
16 <sup>th</sup> – 18 <sup>th</sup> July 2013	<b>Participant:</b> Training on strategic leadership & management, Machakos, Kenya (Q-point consultants, Niche Kenya project)
15 <sup>th</sup> Oct. – 2 <sup>nd</sup> Nov. 2012	<b>Participant:</b> Training on fisheries Governance, Center for Development and Innovation (CDI), Wageningen UR, Netherlands
11 <sup>th</sup> – 29 <sup>th</sup> October, 2010	<b>Participant:</b> Training on Environmental Impact Assessment and Audit, South Eastern University College, Kitui, Kenya,

27 <sup>th</sup> Nov. – 12 Dec. 2009	<b>Participant:</b> Field IT for East Africa workshop, Lake Natron, Tanzania
April 2011 & Oct. 2011	<b>Participant:</b> Higher education management training for managers of newly established university colleges, Nairobi, Kenya (Organized by DAAD)
28 <sup>th</sup> April, 2011:	<b>Participant:</b> Training on performance and Contracting management, South Eastern University College, Kitui, Kenya
30 <sup>th</sup> Sept. – 1 <sup>st</sup> Oct., 2010:	<b>Participant:</b> Training on Public Procurement and Disposal Act 2005 and Regulations 2006, South Eastern University College, Kitui, Kenya
5 <sup>th</sup> - 7 <sup>th</sup> May, 2010:	<b>Participant:</b> Training on Implementation of a Quality Management System based on ISO: 9001:2008 Standard for South Eastern University College.
23 <sup>rd</sup> – 24 <sup>th</sup> September, 2009	<b>Participant:</b> Seminar on alternatives to use of Animals in Experiments in education and Training, Nairobi, Kenya
25 <sup>th</sup> – 28 <sup>th</sup> may 2006	<b>Oral presentation:</b> Symposium on Fish Ponds in Farming Systems, Can Tho, Viet Nam
22 <sup>nd</sup> to 27 <sup>th</sup> aug. 2005	<b>Participant:</b> Training on fresh water Aquaculture and the environment, Szarvas, Hungary
13th Nov. to 2nd Dec. 2000:	<b>Participant:</b> Training on pond construction and Commercial fish farm Management, Sagana Fish Farm, Kenya.
17 <sup>th</sup> -22 <sup>nd</sup> December 1999:	<b>Participant:</b> Regional Aquaculture Workshop for the Catchment Areas of Lake Victoria at Sagana Fish Farm, Kenya. Organized by Lake Victoria Environment Management Programme (LVEMP)
6th July - 5th Sept. 1997	<b>Participant:</b> Training course on tropical Coastal Ecology in Management and Conservation, Kenya Marine and Fisheries Research Institute, Mombasa, Kenya.

#### 14. MEMBERSHIP TO PROFESSIONAL ASSOCIATIONS /BODIES

<b>Member</b>	Kenya DAAD Scholars Association (KDSA)
<b>Member</b>	Sustainable Aquaculture Research Networks In Sub-Saharan Africa (SARNISSA)

#### 15. LANGUAGE PROFICIENCY

<b>Excellent</b>	English, Kiswahili, Kikamba
Elementary	Arabic

#### 16. CONFERENCES ATTENDED

26th – 28th Nov., 2018	Global Conference on sustainable Blue Economy, Nairobi, Kenya
21 <sup>st</sup> – 23 <sup>rd</sup> , Nov. 2018	International Conference on Harnessing dryland natural resources for sustainable livelihoods in the Era of Climate Change, Umma University, Kajiando, Kenya
17th to 21st April 2018	Machakos University 1st Annual International Conference, on Harnessing Scientific Research, Innovation & Technology for sustainable Development Machakos, Kenya
7 <sup>th</sup> – 9 <sup>th</sup> July 2011	1 <sup>st</sup> Aquaculture Conference & Exhibition: East and Southern Africa, Nairobi, Kenya
9 <sup>th</sup> – 13 <sup>th</sup> may 2005	World Aquaculture Society conference –Bali, Indonesia

30 <sup>th</sup> Nov. – 4 <sup>th</sup> Dec. 2004	7 <sup>th</sup> Asia Fisheries Forum Conference, Penang, Malaysia
11 <sup>th</sup> -16 <sup>th</sup> April 1999:	International Conference for Science and Sustainable Management of Tropical Waters, Naivasha, Kenya.
<b>17. ABSTRACTS PRESENTED FOR CONFERENCES</b>	
<b>1</b>	Michael Ouya, Mary A. Opiyo, Rezin Odede, Julius Nzeve, William, Leschen, Francis Murray and <b>Patriciah Muendo</b> . Possibilities of Prophylactic Health Products Usage in Tilapia Production Systems In Kenya. International Conference on Aquatic Resources and Aquaculture for Sustainable Development, Hawassa University, Ethiopia 8th to 10th January, 2019.
	<b>Muendo P. N.</b> , J.J. Stoorvogel, E.N. Gamal, A. Milstein, A. Van Dam and M.C.J. Verdegem, 2005: Evaluation of the fertilizing effect of pond sediments harvested from different tilapia culture environments. <i>In: Proceedings of the World Aquaculture Conference, May 9 – 13, 2005, Bali international conference center – Nusa Dua, Bali – Indonesia.</i>
<b>2</b>	<b>Muendo, P.N.</b> , J.J. Stoorvogel, E.N. Gamal, A. Milsein, A. Van Dam and M.C.J. Verdegem, 2004. Sediment accumulation in fish ponds; its quantity and quality as a crop fertilizer. <i>In: Proceedings of the 7<sup>th</sup> Asian Fisheries Forum 04. The triennial meeting of the Asian Fisheries Society, 30 Nov. – 4 Dec. 2004, Penang, Malaysia</i>
<b>3</b>	<b>Mwau P.N.</b> , K.M. Mavuti and K.L. Veverica, 1999: Nitrogen and Phosphorus budgets in tilapia/ <i>Clarias</i> polyculture ponds in Kenya. <i>In: Proceedings of the International Conference for Science and Sustainable Management of Tropical Waters, Naivasha, Kenya. April 11-16, 1999.</i>
	Gichuri W.M., K.L. Veverica, J.G. Omondi, <b>P.N. Mwau</b> , P.I. Bilal and K.M. Mavuti, 1998: Semi-Intensive <i>Oreochromis niloticus</i> (Cichlidae) polyculture in ponds receiving rice bran and chemical fertiliser in Kenya. <i>In: proceedings of PARADI/FISA conference, Grahamstown, South Africa, September 1998. FISA; PARADI 1998 p. 209</i>

## 18. PUBLICATIONS

- Opiyo, M.A., Marijani, E., **Muendo, P.N.**, Odede R., Leschen W., Charo H.K, 2018: A review of aquaculture production and health management practices of farmed fish in Kenya. *International Journal of Veterinary Science and Medicine* 6 (2018) 141 – 148
- Onura C. N., W. D., Broeck., Nevejan N., **Muendo P.N** and Van Stappen G. 2018.: Growth Performance and Intestinal morphology of African Catfish (*Clarias gariepinus*, Burchell, 1822) larvae fed on live and dry feeds . *Aquaculture* 489: 70 - 79
- Mutunga E. J., C. K., Ndungu and **P. Muendo** 2018: Factors influencing Smallholder Farmers Adaptations to Climate Variability in Kitui County, Kenya. *International journal of Environmental Sciences and Natural Resources*, 8(5): DOI: 10.19080/IJESNR.2018.08.555746
- Mutunga E. J., C. K., Ndungu and **P. Muendo** 2017: Smallholder Farmers' Perceptions and Adaptations to Climate Change and Variability in Kitui County, Kenya. *Journal of Earth Science & Climate Change*, 8:3 DOI: 10.4172/2157-7617.1000389
- Aywa J. O., P. G. Njuru and **P. Muendo** 2016: Suitability of Athi River Water for Irrigation within Athi River Town and Its Environs. *Archives of Current Research International* 6(4): 1-13.
- Muendo P. N.**, M.C.J. Verdegem, J.J. Stoorvogel, A. Milstein, E.N. Gamal, P.M. Duc and J.A.J. Verreth, 2014: Sediment accumulation in fish ponds; its potential for agricultural use. *International Journal of Fisheries and Aquatic Studies (IJFAS)* 1(5):228- 241
- Muendo P. N.**, J. J. Stoorvogel, M. C. J. Verdegem, Alejandra Mora-Vallejo and J. A. J. Verreth, 2011. Ideotyping integrated aquaculture systems to balance soil nutrients. *Journal of agriculture and rural development in the tropics and sub-tropics* 112(2):157- 168
- Muendo P. N.**, J.J. Stoorvogel, M.C.J. Verdegem, E.N. Gamal and J.A.J. Verreth, 2007: Roles of ponds in integrated agriculture-aquaculture systems. *In: Van der Zijpp, A. J., J.A.J. verreth, L.Q. Tri, M.E.F. van Mensvoort, R.H. Bosma, and M.C.M. Beveridge (eds.). Fishponds in farming systems*, Wageningen Academic Publishers, Wageningen, The Netherlands, pp. 125 – 133.
- Muendo P. N.**, A. Milstein, A.A. Van Dam, E.N. Gamal J.J. Stoorvogel, and M.C.J. Verdegem, 2006: Exploring the trophic structure in organically fertilized and feed driven tilapia culture environments using multivariate analyses. *Aquaculture Research* 37: 151 – 163.
- Muendo P. N.**, J.J. Stoorvogel, E.N. Gamal and M.C.J. Verdegem, 2005: Rhizons improved estimation of nutrient losses because of seepage in aquaculture ponds. *Aquaculture Research* 36: 1333 - 1336.
- Veverica K., J. Bowman, W. Gichuri, P. Izaru, **P.N. Mwau**, and T. Popma, 2000: Relative Contribution of supplemental feed and inorganic fertilizers in semi-intensive tilapia production. *In: K. McElwee, D. Burke, M. Niles, X. cummings, and H.*
- Muendo P. N.**, 2006: The role of fish ponds in the nutrient dynamics of mixed farming systems. PhD. Thesis, Wageningen University, The Netherlands. 120 PP.
- Mwau P. N.**, 2000: Nutrient dynamics with special reference to nitrogen and phosphorus in tilapia (*Oreochromis niloticus*)/Catfish (*Clarias gariepinus*) polyculture ponds at Sagana Fish Farm, Central Kenya. MSc. Thesis, University of Nairobi, Kenya,



**19. POSTGRADUATE STUDENTS SUPERVISION**

<i>Year</i>	<i>Student Details/Status</i>
2016 - 2018	<b>Guguletho Moyo:</b> Evaluation of a commercial probiotic on the biological performance of Nile tilapia ( <i>Oreochromis niloticus</i> ) during sex-reversal and extended nursing in Kenya. Graduated - 2018
2015 - 2017	<b>Michael Ouya:</b> Investigating the applications of prophylactic health products (PHPs) as a component of Kenyan tilapia farmers' health management practices: A mixed methods study. Graduated - 2017
2015 - 2017	<b>John Aywa:</b> Pollution of Athi River and its impact on irrigation water quality in Athi River. Graduated - 2017
2015 - 2017	<b>Everlyn Mutunga:</b> Small scale farmers' perceptions and adaptations to climate change and variability in kitui county; a case study of kaveta. Graduated - 2017

**21. REFEREE: Available upon request**