

CURRICULUM VITAE DR. VICTOR T. LANGENBERG

1 Proposed Position: Senior Advisor -Aquatic Ecology, IWRM

2 Name of Firm: DELTARES

3 Name of Staff: Victor T. Langenberg

4 Date of Birth: 10th June, 1966 **Nationality:** Netherlands

5 Education:

2008 University of Wageningen, The Netherlands, Ph.D. in Limnology
 1992 University of Amsterdam, The Netherlands, Master of Science in Aquatic Ecology
 1987 University of Groningen, The Netherlands, Bachelor of Science in Biology

6 Membership of Professional Associations:

Board member of the ACROPORA net consortium Research Institutes tropical aquatic biology
 Board member of the Netherlands African Business Council, NABC
 Member of the International Society of Limnology, SIL
 Member Scientific Board of the Aquatic Ecosystem Health and Management Society, AEHMS
 Specialist of the Great Lakes of the World scientific advisory group- Africa section, GLOW
 Vice-chairman of The Foundation for the Development of Sierra Leone, FDSL
 Board member of The Afro-European Environmental Consult group, AECG

7 Other Training:

2008 Communication training
 2008 Water quality modelling
 2004 Political Managerial Sensitivity
 2003-2007 Various institutions: Adaptive management, leadership, projectmanagement
 2000-2001 Designing model theories: hydrodynamics forcing hydrobiology in Africa
 1998-2000 Ecological GIS and (process-based) modelling (ECOPATH, CAEDYM)
 1996-1998 Modelling fishery dynamics (LFDA, Ceda)

8 Countries of Work Experience:

Netherlands, Belgium, Botswana, Burundi, DR Congo, Ethiopia, Finland, Germany, Indonesia, Ireland, Italy, Kenya, Liberia, Sierra Leone, S-Africa, Tanzania, Uganda, United Kingdom, Zambia, Zimbabwe.
Before: Netherlands

9 Languages

	<i>Writing</i>	<i>Speaking</i>	<i>Reading</i>
Dutch	mother tongue	mother tongue	mother tongue
English	excellent	excellent	excellent
French	fair	fair	good
German	fair	good	good

10 Employment Record

From (year): 2008 **To (year):** Present
Employer DELTARES Foundation
Positions held: Senior Advisor Water Quality and Ecology

From (year): 2003 **To (year):** 2008
Employer National Institute for Coast and Sea of The Ministry of Transport, Public Works and Water Management.
Positions held: Senior advisor monitoring and Assessment, information disclosure

From (year): 1998 **To (year):** 2006
Employer University of Wageningen

Positions held: Limnology specialist East African socio-ecological systems

From (year): 1995 **To (year):** 1998

Employer FAO

Positions held: Officer in Charge Regional Research Office Zambia

From (year): 1993 **To (year):** 1995

Employer FAO

Positions held: Water quality specialist FAO/FINNIDA LTR HQ, Burundi

From (year): 1992 **To (year):** 1993

Employer ORCA, The Netherlands

Positions held: Consultant environmental Impact Assessment

11 DETAILED TASKS ASSIGNED	12 WORK UNDERTAKEN THAT BEST ILLUSTRATES CAPABILITY TO HANDLE TASKS ASSIGNED
i. Water quality expert ii. Environmental Specialist iii. Sustainability expert	<p>Name: Delta programma, Tana / Lamu planning, Kenya Year: 2012-2014 Location: Delft, The Netherlands and Nairobi, Kenya Client: Office of the prime Minister and University of Nairobi, both Kenya. Main project features: Establishment of Tana/Lamu delta planning process linked to Kenyan National Delta board. The output will be a long-term strategic land and water use plan representing a “truly sustainable” delta future. Scientific, economic, social and environmental evaluation tools will be combined alongside extensive public participation involving the relevant ministries, agencies, countries, districts and communities, civil society, NGOs and international Partners and investors. Positions held: Senior advisor IWRM and Green adaptation technologies Activities performed: providing Technical advice to the Delta board</p>
	<p>Name: Zambezi EIA/ SEA -evaluation Year: 2011 Location: Delft, The Netherlands Client: Netherlands Commission for environmental assessment Main project features: Evaluating EIA / SEA on proposed coal transport on lower Zambezi river, Mozambique. Positions held: Senior advisor Activities performed: Technical advice Aquatic Ecology and Quality assurance.</p>
	<p>Name: Maasvlakte 2 port extension Rotterdam harbour Year: 2011-2013 Location: Delft, The Netherlands Client: Port of Rotterdam and Ministry of infrastructure and environment Main project features: Monitoring coordination of environmental compensation for port development with special reference to different end-user groups. Positions held: Senior advisor Activities performed: Technical advice Monitoring and Aquatic Ecology and Quality assurance.</p>
	<p>Name: Netherlands African Business Council (NABC) Year: 2011-present Location: The Hague, The Netherlands and Nairobi, Kenya Client: NABC Main project features: The NABC is an active organisation of Dutch entrepreneurs that do business in Africa and through their activities promote sustainable development of the African continent. Positions held: Board member Activities performed: As Senior Advisor Water sector, manage the</p>

	<p>integrated water resource developments and identifying new investments opportunities and durable public private partnerships.</p>
	<p>Name: East African Great Lakes observatory Network (EAGLOnet) Year: 2010-2013 Location: Delft, The Netherlands and Nairobi, Kenya Client: Ecosystem services for Poverty Alleviation (ESPA) programme of the NERC-DFID, United Kingdom. Main project features: Developing adaptive monitoring instruments to evaluate and support national, regional and international efforts to sustainably manage the ecosystem services of African Lake systems for the benefit of the populations in Burundi, Kenya, Uganda, Tanzania, Malawi, Rwanda, DR Congo, Mozambique, and Ethiopia. We apply Deltares Ecosystem based standards with regard to the evidence based information dissemination, the adaptive management implementation and the participatory approach. Positions held: Co-PI IWRM and ecosystem ecologist Activities performed: Creating and implementing EAGLO-net. The instruments and practices will provide and strengthening stakeholders with the information and tools necessary to monitor and manage, and adapt to future scenarios of climate change, evolving socio-economic conditions and cultural legacy. Cross boundary analyses and disclosure of traditional knowledge.</p>
	<p>Name: Adaptive Monitoring Management systems Year: 2010-2011 Location: Delft and Dordrecht, The Netherlands Client: ECOshape foundation (building with nature-programme) Main project features: Developing protocols and guidelines for the adaptive execution of low impact dredging works. The guidelines are in support of national, regional and international efforts to sustainably develop and manage sensitive coastal ecosystem. Introduction of new Ecosystem services indicators addressing the dredging impact on the sustained delivery of ecosystem services of coral reefs, Seagrass and mangroves systems. Positions held: Monitoring specialist Activities performed: Attuning best practices in adaptive monitoring, assessment and information management for process application of modern low-impact dredging operations in sensitive environments. Involving multi-sectoral stakeholders.</p>
	<p>Name: Foundation for the Development of Sierra Leone (FDSL) Year: 2007-present Location: Freetown, Sierra Leone and The Hague, The Netherlands Client: Govern. Sierra Leone, UNEP, CTA-ACP-EU, Heineken. Damen shipyards and Rutchten trucks bv. Main project features: Development and management of the marine and fresh water resources of Sierra Leone. Positions held: Aquatic Specialist and Co-Chair Activities performed: Connecting policy and sustainable management strategies for socio-ecological valuable waters. Establishing daughter foundation in Sierra Leone, creating capacity and awareness and identifying innovative projects in framework of NGOs, Local communities, Private sector, Knowledge centers and Government.</p>
	<p>Name: National Information and monitoring program North Sea Year: 2004-2008 Location: London, United Kingdom and The Hague, the Netherlands Client: North Sea Directorate of The Ministry of Transport, Public Works and Water Management Main project features: Water quality Policy making for Oslo Paris Commission. North-Atlantic. Positions held: Aquatic ecologist / monitoring specialist Activities performed: Guiding two OSPAR subgroups for Designing</p>

	<p>Decision Systems for phasing out hazardous substances and creating a healthy North Sea. Implementing DPSIR and UN-ECE monitoring cycles principles for ecosystem approaches, including qualitative and sustainable, cross-boundary standardized monitoring, management and knowledge dissemination on chemical constituents and biota health.</p>
	<p>Name: Assessment and monitoring quality status national waters Year: 2003-2008 Location: The Hague, The Netherlands Client: The Ministry of Transport, Public Works and Water Management. Main project features: Coordination of biological and chemical monitoring, assessment and information management Positions held: Programme Leader Activities performed: Standardization and maintenance of information flows and quality assurance of monitoring and analyses for proper management of water quality and other related issues. Development and implementation of Ecological Quality indicators (biota and habitats). Head of Delegation in intergovernmental expertise-networks related to OSPAR (Oslo Paris convention). Engaged with ICES (International Council for the Exploration of the Sea), TMAP (trilateral monitoring and assessment Program), EU-WFD (European water framework directive) and EU-EMS (European Marine strategy). Scientific and policy advisory role to stakeholders.</p>
	<p>Name: Modeling Ecosystems in African Lakes (MEAL-project) Year: 1998-2006 Location: Turku and Helsinki, Finland Client: Center for International Mobility (Finland) and Dutch Universities Main project features: modeling water resources Tanganyika region Positions held: Project leader IWRM Activities performed: Project management (productivity and quality outcome). Modeling decade century scale changes in large tropical water bodies, wetlands and river systems with focus on links to climate change and solar forcing. Improving international cooperation by facilitating collaboration between research and policy makers. Developing sustainable monitoring and training programs and strategies. Network development, data management, dissemination, capacity building and strategic long term sustainable exploitation and management of large water bodies and river catchments in sub-Saharan regions.</p>
	<p>Name: Great Lakes of the World (GLOW-Africa section). Year: 1999-present Location: Tanzania, Kenya and Ethiopia, The Netherlands Client: Aquatic ecosystems health and Management Society Canada (AEHM Society), and East African great lakes countries Main project features: Capacity building and information management Positions held: Member Scientific Advisory Board Activities performed: Senior Advisor. Promoting interaction and communication between African Great Lakes scientists across the world by establishing a platform where understanding of structure, function and performance of healthy and damaged ecosystems from integrated, multi-disciplinary and sustainable perspectives is promoted. Co-organizing series of international symposia and workshops. E.g., Shannon, Ireland (2000), Arusha, Tanzania (2002), Bagamoyo, Tanzania (2006), Addis Ababa, Ethiopia (2008), Sienna, Italy (2011), Bujumbura, Burundi (2012).</p>
	<p>Name: The Lake Tanganyika Research project (LTR) Year: 1995-1998 Location: Mpulungu, Zambia Client: FAO-UN, Governments of Burundi, DR Congo, Zambia, Tanzania and Netherlands Ministry of Foreign Affairs. Main project features: Regional research station of the Lake Tanganyika Research (LTR) project executed by the Food and Agriculture</p>

	<p>Organisation of the UN.</p> <p>Positions held: Officer In Charge</p> <p>Activities performed: Coordination of Research station in Zambia. Coordinating multidisciplinary research teams. Implement education, capacity building, training and awareness-creation related to main goals of LTR-FAO and National governments. Strengthening national fisheries departments, local communities and other stakeholders. Organizing conferences and workshops on sustainable conservation practices in a warming world. Implementing new approaches for involving and improving the remote villagers' engagement and direct participation in the formulation and implementation of environmental resource management policies and approaches regarding sustainable fisheries and climate change.</p>
	<p>Name: The Lake Tanganyika Research project (LTR)</p> <p>Year: 1995</p> <p>Location: Kalemie, D.R. Congo</p> <p>Client: FAO-UN, FINNIDA</p> <p>Main project features: Tanganyika Research</p> <p>Positions held: Team Leader</p> <p>Activities performed: Leader Appraisal mission local communities, research facilities and capacity in major river basin system to Lake Tanganyika. Lukuga (upper Congo river). Strengthening local capacities in assessing the hydrobiological changes and aquatic resources quality.</p>
	<p>Name: The Lake Tanganyika Research project (LTR)</p> <p>Year: 1994</p> <p>Location: Tanzania, DR Congo, Zambia</p> <p>Client: FAO-UN, UNDP</p> <p>Main project features: Socio-economical studies remote Fisheries communities</p> <p>Positions held: Institutional specialist</p> <p>Activities performed: Leader assessment team for socioeconomic screening remote fishing villages. Identification local knowledge and practices I relation to changing lake climate, fishing pressures and adaptations to current Socioeconomic settings. Information used for formulating basin scale and regional policies regarding sustainable fisheries.</p>
	<p>Name: The Lake Tanganyika Research project (LTR)</p> <p>Year: 1993-1994</p> <p>Location: Burundi, Bujumbura</p> <p>Client: FAO-UN, UNDP, Netherlands Ministry of Foreign Affairs</p> <p>Main project features: Resource management Tanganyika</p> <p>Positions held: Water quality specialist</p> <p>Activities performed: Capacity building in monitoring, information management, quality assurance, standardization of methodologies, communication and data flow among stake holders. Setting up research facilities and expert teams in Burundi, Tanzania, DR Congo and Tanzania. Coordinating, implementing modern data-analyses en integrated and adaptive monitoring strategies. Processing, interpretation, project evaluation. Dissemination of knowledge, training en coaching.</p>
	<p>Name: Buginesia 5 project</p> <p>Year: 1991-1992</p> <p>Location: Ujung Pandang, Sulawesi, Indonesia</p> <p>Client: Royal Netherlands Academy of Arts and Sciences and National Nature Historic Museum (The Netherlands) and Hassanudin University , Indonesia</p> <p>Main project features: Coastal zones Management</p> <p>Positions held: Coral reef Ecologist</p> <p>Activities performed: Team leader of scientific exploration in Spermonde archipelago to investigate riverine impact on coastal zones' ecology and coral reef integrity and associated biodiversity.</p>

	<p>Name: Carmabi research Program</p> <p>Year: 1990-1991</p> <p>Location: Netherlands Antilles, Caribbean</p> <p>Client: the Netherlands Foundation for Scientific research of tropical zones and development countries (WOTRO). Netherlands Antilles National Parks Foundation (STINAPA) and University of Amsterdam.</p> <p>Main project features: Coastal zone research</p> <p>Positions held: Marine Biologist</p> <p>Activities performed: Researching Environmental Impact Assessment of tropical coastal zones with focus on resilience of coral reef ecosystems.</p>
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13. Key qualifications

Technical skills: Dr. Victor Langenberg has over 20 years of experience in the monitoring, researching and assessing large water systems. He has coordinated multidisciplinary scientific teams carrying out limnological and socioeconomic programs on the sustainable management of Tanganyika resources for UNFAO, and acted as senior advisor for the Ministry of Transport, Public Works and Water Management. As senior advisor at Deltares, he coordinates research and advises in the field of integrated ecosystem based approaches and techniques for more durable water resource management. He has international know-how and proficiency in the fields of aquatic ecology and limnology, in particular specialised knowledge on assessing ecosystem structures and functioning of tropical waters. During his studies, he focussed on the environmental and human drivers determining the ecosystem functioning and production in large inland water bodies and coastal zones. This included the change in tropical systems due to climatic and anthropogenic drivers, all in the context of conservation and development. He completed numerous appraisal missions, reconnaissance surveys and environmental assessments in tropical and temperate zones. In particular missions that include involving methods, processes, procedures, and durable techniques.

He is currently involved in the management and initiation of integrated, multidisciplinary, specialist work that develops and applies research, advice and monitoring and assessment strategies for implementing sustainable Ecosystem Based Management tools for aquatic resources in Sub-Saharan region.

Managerial skills: As station director for the Food and Agriculture Organization of the UN in Zambia, Africa, he coordinated international, multicultural and multidisciplinary teams carrying out monitoring and assessment programs related to the sustainable resource management in sub-Saharan Africa. Next, as senior advisor for the Ministry of Transport, Public Works and Water Management, he held the water quality ambassadorship for Dutch marine areas and coastal zones and helped coordinating the teams that execute the national environmental monitoring, assessment and information management.

Conceptual and human skills: He has proven ability to work with, understand, motivate and involve other stakeholders and communities in remote and difficult duty stations worldwide. As member of the advisory board of the Aquatic Ecosystem Health and management Society in Canada/USA (AEHMS), as co-chair of the foundation of the development of Sierra Leone (FDSL), as co-founder of the Afro-European Environmental Consult Group (AECG) and the East African Great Lakes Observatory network (EAGLOnet), and as board member of the Netherlands-African Business council (NABC) he furthermore advises on Ecosystem-Based approaches that enhance our understanding of the structure, functioning and performance of healthy and damaged aquatic ecosystems, their communities and businesses from integrated, multi-disciplinary and sustainable perspective.

He coordinates PhD and MSc students and is an ad hoc lecturer at UNESCO-IHE on Ecosystem-Based management approaches and helps creating innovative projects for the management of valuable water resources worldwide by connecting policy and sustainable management strategies in a framework of NGOs, the private sector, research centres and government organizations.

14. Publications (peer-reviewed only)

- Ascidiars, macro-algae, corals and coral-associated gastropods as indicators of coral reef bioregions off Halmahera, Moluccas, Indonesia. A. Gittenberger, S.G.A. Draisma, U.Y. ArbiSSI, V.T. Langenberg, P.L.A. Erftemeijer, Y. Tuti and B.W. Hoeksema. Submitted to Marine Ecology progress Series.

- Langenberg, V.T., 2012. Book review of "Africa in Transition, The journey from traditional to modern in Africa" by George Coulter. Hardcover: 352 pages. Publisher: Book Guild Ltd, Pavilion View, 19 New Road, Brighton BN1 1UF, UK. In International Society of Limnology, volume 60: P20.
- Bio-optical dynamics of the African Great Lakes: insights to the drivers of lake dynamics in the East African Great Lakes region. S. Loiselle, G.M.S.Chavula, G. Cozar, JP. Descy, D. Harper, F. Kansiime, I. Kimirei, V.T. Langenberg, and E.Odada (Submitted).
- V.T. Langenberg, V.T., M. Vis, H. Duel, J. Brils and D. Burger. Ecosystem-Based approaches in support of science-based management for African Great Lakes. (In Prep.)
- Odada, E.O., V.T. Langenberg, S. Loiselle, F. Kansiimi, W. Ochola, C. Upton, D. Harper and C. Omuombo. Managing and Monitoring African Great Lakes Ecosystems (In Prep. For Aquatic Ecosystem Health and management Society, AEHMS).
- K. Salonen, P. Högmander, V.T. Langenberg, H. Mölsä, J. Sarvala, A. Tarvainen and M. Tirola, 2012 Jellyfish, *Limnocyclus tanganyicae* - A semiautonomous microcosm in the food web of Lake Tanganyika, East Africa rift Valley system. Hydrobiologia Volume 685: 16pp.
- Langenberg, V.T. and E. Odada (2011). A Review of the impact of climate change on East African lake productivity: implications for future carrying capacity. Submitted to the NASAC-KNAW COLLABORATION INITIATIVE ON "IMPACT OF AND ADAPTATION TO CLIMATE CHANGE IN RELATION TO FOOD SECURITY IN AFRICA, Feb. 2011 Nairobi, Kenya.
- Sarvala, Jouko, S. Badende, D. Chitamwebwa, E. Coenen, P. Kotilainen, V. T. Langenberg, L. Makasa, N. Mulimbwa, K Salonen & H. Mölsä (2011). Fish catch composition in Lake Tanganyika and its implications for productivity changes (Submitt.).
- V.T. Langenberg, Odada, E., D. Harper, S. Loiselle, and F. Kasiime (2010). Introducing of the East African Great Lakes Observatory network (EAGLOnet): A new participatory approach for lake management. SIL proceedings, Capetown-August 2010.
- Knaap van der M., F. Roest, M. Munawar, M. Gaden and V. T. Langenberg, 2008. Changing Great Lakes of the World (GLOW). Aquatic Ecosystem Health & Management Vol 11 (1):75-77.
- Langenberg, V. T. J-m. Tumba, K. Tshibangu, C. Lukwesa, D. Chitamwebwa, D. Bwebwa, L. Makasa and R. Roijackers (2008). Heterogeneity in physical, chemical and plankton-community structures in Lake Tanganyika. Aquatic Ecosystem Health & Management Vol 11 (1):16-28.
- Langenberg, V. T., (2007), (Ed.). Debating the challenges and opportunities for marine and freshwater management for Sierra Leone, West Africa. Proc. 2nd int. FDSL conference, Freetown, Sierra Leone: 72 pp.
- Sarvala, J., V. T. Langenberg, K. Salonen, D. Chitamwebwa, G. Coulter, T. Huttula, P. Kotilainen, N. Mulimbwa and H. Mölsä (2006). Change in dissolved silica and transparency are not sufficient evidence for decreased primary productivity due to climate warming in lake Tanganyika. Verh. Internat. Verein. Limnol. 29:2339-2342.
- Coulter, G., V. T. Langenberg, R. Lowe-McConnell, F. Riedel, F. Roest, J. Sarvala and O. Timoshkin (2006). The problems confronting survival of Biodiversity in ancient lakes. Verh. Internat. Verein. Limnol. 29: 1178-1181
- Sarvala, J., V. T. Langenberg, K. Salonen, D. Chitamwebwa, G. Coulter, T. Huttula, R. Kanyaru, P. Kotilainen, L. Makasa, N. Mulimbwa and H. Mölsä (2006). Fish catches from Lake Tanganyika mainly reflect changes in the fishery practices, not climate. Verh. Internat. Verein. Limnol. 29: 1182-1188.
- A. S. Cohen, K. E. Lezzar, J. Cole. D. Dettman, G. Ellis, V. T. Langenberg, M. Eagle, K. Chororoka. Pd. Plisnier, V. Michelo, and D. Zilifi (2006). Decade century scale changes in tropical lake productivity: links to climate change and solar forcing. J Paleolimnol DOI 10.1007/s10933-006-9004-y.
- Bovelander, R. W. & Langenberg, V. T. (2004-2007). National Evaluation Report on the Joint Assessment and Monitoring Programme of the Netherlands 2002. Rapport RIKZ, 2004.006. RIKZ: Middelburg, The Netherlands. 44 pp. (yearly updated up to 2008).
- Langenberg, V. T., J. Sarvala and R. Roijackers (2004). Effect of wind induced water movements on nutrients, chlorophyll a and primary production in Lake Tanganyika. Journal of Aquatic Ecosystem Health & Management Vol 6(3): 279-288.
- Langenberg, V.T., S. Nyamushahu, R. Roijackers and B. Koelmans (2003). External nutrient sources for Lake Tanganyika. Journal of Great Lakes Research 29(2): 169-180.
- Langenberg, V. T., L. M. Mwape, K. Tshibangu, J-m. Tumba, A. A. Koelmans, R. Roijackers & K. Salonen, J. Sarvala & H. Mölsä. 2002. Comparison of thermal Stratification, light attenuation and chlorophyll-a dynamics between the ends of Lake Tanganyika. Aquatic Ecosystem Health & Management Vol 5 (3).

- P.-D. Plisnier, D. Chitamwebwa, L. Mwape, K. Tshibangu, V. T. Langenberg & E. Coenen. 1999. Limnological annual cycle inferred from physical-chemical fluctuations at three stations of Lake Tanganyika. *Hydrobiologia* 407: 45-58.
- Sarvala, J., K. Salonen, M. Järvinen, E. Aro, T. Huttula, P. Kotilainen, H. Kurki, V. T. Langenberg, P. Mannini, A. Peltonen, P.-d, Plisnier, I. Vuorinen, H. Mölsä and O. Lindqvist. 1999. Trophic structure of Lake Tanganyika: carbon flows in the pelagic food web. *Hydrobiologia* 407 (149-173).
- Salonen, K., J. Sarvala, M. Järvinen, V. T. Langenberg and M. Nuottajarvi, K. Vuorio & D. B. R. Chitamwebwa. 1999; Phytoplankton in Lake Tanganyika- Vertical and horizontal distribution of in vivo fluorescence. *Hydrobiologia* 407 (89-103).

13. Certification

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.



[Signature of staff member or authorized representative of the staff]

Date: 27 July 2012
Day/Month/Year