Career Highlights

Professor Makame Mbarawa has been a Member of Parliament since 2010 and currently is the Minister for Water since July 2, 2018. Prior to joining the Ministry of Water, Prof. Mbarawa was the Minister for Works, Transport and Communication from November 2015 until June 30, 2018. He also served as the Minister for Communication, Science and Technology from November 2010 to October 2015.

At the Ministry of Works, Transport and Communication, Prof. Mbarawa was supervised various large infrastructure projects including construction of the Standard Gauge Railway (SGR) line from Dar es Salam to Dodoma; revival of the National Carrier-Air Tanzania whereby 7 new aircrafts were purchased;modernization of the Port of Dar es Salam;construction of the berth 2 at the Mtwara Port; installation of 6 scanners at the Port of Dar es Salaam; acquisitionof four passenger surveillance radars; construction of the JNIA Terminal III,roads and bridges; the auctioning of the Spectrum-700 MHz; establishment of the Tanzania Shipping Agents Corporation; Tanzania Railway Corporation; and Tanzania Telecommunication Corporation.

At the Ministry of Communications, Science and Technology, he was deeply involved with the design and roll-out of the National ICT Broadband Backbone (NICTBB), Data Centre, implementation of Digital Broadcasting Migration, establishments of the Telecommunication Traffic Management System, Mobile Number Portability, Computer Emergency Response Team, Post-code System, among others.

In Parliament, he has moved several pieces of new legislations. These include: The Electronic Transactions Act, 2015; The Cybercrime Act, 2015; The Tanzania Railway Corporation Act, 2017; Tanzania Shipping Agencies Act, 2017 and the Tanzania Telecommunication Corporation Act, 2017.

During his political career, he also served two terms as a Member of the National Executive Committee of the Chama Cha Mapinduzi (CCM) from 2007-2017 and a member of Central Committee of the Chama Cha Mapinduzi (CCM) from 2012 to 2017.

Prior to his political career, he began his academic career in 1999 at the University of Stellenbosch in South Africa where he worked as a postdoctoral researcher. In 2000 he joined the Department of Mechanical Engineering, Tshwane University of Technology (previously known as Technikon Pretoria) in Pretoria, South Africa where he held various positions, including Professor and Head of the Department of Mechanical Engineering. Under these capacities, he coordinated numerous research projects and built networks of cooperation with a number of universities, research centres and scientists worldwide.These projects were funded by the Government of the Republic of South Africa (National Research Foundation-NRF); Government of the Republic of South Africa (NRF)/Hungary Inter-government Joint Project; Government of the Republic of South Africa (NRF)/India Inter-government Joint Project; South Africa/Kenya Inter-government Joint Project, Government of the Republic ofSouth Africa (SADC Programme); South African Power Utility (ESKOM), The Technology and Human Resources for Industry Programme (THRIP)-Government of the Republic ofSouth Africa. His research interests including: alternative fuels for diesel engines, gas fueling diesel engines, combustion of gaseous fuels, filtration combustion in porous media; flue gas desulphurization; soot formation in laminar diffusion flames, etc. He has extensive track record in human capacity development having supervised 12 Master's and 6 Doctoral students to completion. He has published over 94 papers in journals, proceedings, and book chapters. He has been a visiting scholar at Szent Istvan University, Budapest, Hungary; Seoul National University, Seoul, Korea; Russian Academy of Science, Institute of Chemical Kinetics and Combustion, Novosibirsk, Russia; and Belarus Academy of Science, A. V. Luikov Heat and Mass Transfer Institute, Laboratory of Hydrodynamics, Minsk, Belarus.

Professor Mbarawa has an educational background in Marine Engineering and holds a Master's Degree from the Astrakhan State Technical University (previously known as Astrkhan Institute of Fisheries) in Astrakhan, Russia and a PhD in Mechanical Engineering from the University of New South Wales, Sydney, Australia.

Some Selected Publications

1. Lennox Siwale, Lukacs Kristof, Torok Adam, Akos Bereczky, **Makame Mbarawa**, Antal Penninger and Andrei Kolesnikov, "n-Butanol-Diesel (D2) Blend Fired in a Turbo-Charged Compression Ignition Engine: Performance and Combustion Characteristics", **Chapter** (PDF Available). March 2018, DOI: 10.5772/intechopen.72879 In book: Improvement Trends for Internal Combustion Engines.

2. Lennox Siwale, Lukacs Kristof, Torok Adam, Akos Bereczky, **Makame Mbarawa**, "Combustion and Emission Characteristics of Blends: -n-Butanol-Diesel (D2); and Dual Alcohols: n-Butanol-Methanol with Gasoline in Internal

Combustion Engines", **Chapter**October 2016, DOI: 10.5772/64747, In book: Developments in Combustion Technology, Chapter: 7, Publisher: In Tech, Editors: Konstantinos G. Kyprianidis and Jan Skvaril, pp.169-186.

3. Lennox Siwalea, Luk**ács Kristóf, Akos Bereczky, Makame Mbarawa, Andrei Kolesnikov,** "Performance, combustion and emission characteristics of n-butanol additive in methanol–gasoline blend fired in a naturally-aspirated spark ignition engine", Fuel Processing Technology, **118**, 318-326, 2014.

4. Siwale, L., Kristof, L., Adam T,. Bereczky A,. **Mbarawa, M**., Penninger,A., Kolesnikov, A., "Combustion and emission characteristics of n-butanol/diesel fuel blend in a turbo-charged compression ignition engine", Fuel, **107**, 409-418, 2013.

5. Frank Lujaji, Sameer Hameer, Geoffrey John, Akos Bereczky, **Makame Mbarawa**, "Experimental investigation of NOx emission on croton oil-1-butanol-diesel in compression ignition (CI) engine", Journal of Mechanical Engineering Research **5** (6), 104-111, 2013.

6. Siwale, L., Kristof, L., Adam T., Bereczky A., **Mbarawa, M**., Penninger, A., Kolesnikov, A., "Performance Characteristics of n-Butanol-Diesel Fuel Blend fired in a Turbo-charged Compression Ignition Engine**", Journal of Power and Energy Engineering, 1, 77-83, 2013.**

7. Paul Maina and **Makame Mbarawa**, **"Use of fly ash, bottom ash and zeolite as additives for enhancing lime reactivity towards flue gas desulfurization"**, Environmental Progress & Sustainable Energy, **32** (1), 75-83, 2013.

8. G. Kafuku, and **M. Mbarawa**, "**Influence of Fatty Acid Profiles during Supercritical Transesterification of Conventional and Non-Conventional Feedstocks: A Review"**, American Journal of Analytical Chemistry, **4**, 469-475, 2013.

9. Paul Maina and **Makame Mbarawa**, "**Blending lime and iron waste to improve sorbents reactivity towards desulfurization**", Fuel, **102**, 162-172, 2012.

10. Paul Maina and **Makame Mbarawa**, "Waste Activated Sludge as an Additive for Increment of Lime Sorption Capacity", Water, Air & Soil Pollution, **223** (1), 267-273, 2012.

11. Paul Maina and **Makame Mbarawa**, **"**Enhancement of lime reactivity by addition of diatomite"**, Fuel Processing Technology**,**92** (10), 1910-1919, 2011.

12. Paul Maina and Makame Mbarawa, "Investigating Effects of Zeolites As an Agent to Improve Limestone Reactivity toward Flue Gas Desulfurization", *Energy & Fuels*, **25** (5), 2028–2038, 2011.

13. T.T. Kivevele, **M. Mbarawa**, A. Bereczky, T. Laza, J. Madarasz, "Impact of antioxidant additives on the oxidation stability of biodiesel produced from Croton *Megalocarpus* oil", Fuel Processing Technology, **92** (6), 1244-1248, 2011.

14. T. T. Kivevele, Lukács Kristóf, Ákos Bereczky, **M. Mbarawa, "**Engine performance, exhaust emissions and combustion characteristics of a CI engine fuelled with croton *megalocarpus* methyl ester with antioxidant", *Fuel*, **90** (8), *2782-2789*, 2011.

15. KIVEVELE, T. T. **Mbarawa, M. M**., AGARWAL, A. K. & GUPTA, T. 2010, "Oxidation Stability of Biodiesel Produced from Non-Edible Oils of African Origin", SAE Technical Paper 2011-01-1202, 2011, doi: 10.4271/2011-01-1202.

16. G. Kafuku K. T. Tan K. T. Lee M. Mbarawa, "Noncatalytic Biodiesel Fuel Production from Croton megalocarpus Oil", Chemical Engineering & Technology, 34 (11), 1827-1834, 2011.

17. Gerald Kafuku; Man Kee Lam; Jibrail Kansedo; Keat Teong Lee, and **M. Mbarawa**, "Croton Megalocarpus oil: A feasible non-edible oil source for biodiesel production", Journal of Bioresource Technology, **101,** 7011–7015, 2010.

18. KIVEVELE, T. T. & **MBARAWA, M. M.** "Comprehensive analysis of Fuel Properties of Biodiesel from Croton *Megalocarpus* Oil", *Energy &* Fuels, **24** (11), 6151-6155, 2010.