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**CURRICULUM VITAE: JOSEPHINE KAVITI MUSANGO**

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Institution	: Stellenbosch University
Profession	: Resource Economist, Technology Analyst, System Dynamicist
Specialization	: System Dynamics Modelling for Sustainable Development
Position in Institution	: Associate Professor
Year appointed	: 2013
Nationality	: Kenyan (with South Africa Permanent Residence)
Year of Birth	: 1977
Language Proficiency	: English, Swahili

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**EDUCATION AND PROFESSIONAL STATUS**

Qualification	Institution	Year
PhD (Sustainable Development)	Stellenbosch University, South Africa	2012
MSc (Agricultural Economics)	Stellenbosch University, South Africa	2005
Bsc Hons (Agribusiness Management)	Egerton University, Kenya	2002

  

Memberships: System Dynamics Society	Since 2009
South Africa System Dynamics Chapter	Since 2014

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**EMPLOYMENT AND EXPERIENCE OVERVIEW**

**Josephine K Musango** is an Associate Professor with the School of Public Leadership (SPL), Stellenbosch University. She previously worked for Gauteng City-Region Observatory as Senior Researcher, Department of Energy as Deputy-Director, and Council for Scientific and Industrial Research (CSIR) as Resource Economist. She holds a Transdisciplinary Doctoral in Sustainable Development and Masters Degree in Agricultural Economics, both from Stellenbosch University. For over more than ten years, she has utilised system dynamics modelling in various contexts including resource flows analysis, aquaculture management, energy assessment, technology assessment and green economy. She was recently contracted both by Department of Environmental Affairs, where she managed the team responsible for the South African Green Economy Modelling Report, as well as by UNEP to conduct the green economy modelling for the Energy Sector in Rwanda. She also has expertise in other modelling approaches including material flow analysis; agent based modelling, discrete event modelling, Bayesian networks and econometrics. She is NRF-rated researcher and her on-going research relates to the application of system dynamics modelling in managing change in resource management and policy related challenges – especially in the energy, green economy and African urban resources issues. She is also the Research Group Leader for *Urban Modelling and Metabolism Assessment (uMAMA)* Research Team ([www.umama-africa.com](http://www.umama-africa.com)) at the Centre for Complex Systems in Transitions (CST, <http://www0.sun.ac.za/cst/>). Josephine was one of the Founding Members of South Africa System Dynamics Chapter where she served as Organizing Secretary and vice-President, and currently serving as an Advisor of the Chapter. She is also serving as a Policy Council Member of the International System Dynamics Society. She has published widely in peer reviewed Journals and in international and local Conferences

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## PUBLICATIONS

Author and co-author of over 45 articles in scientific journals and chapters in books. Co-Editor of 1 book. Author and co-author of 15 technical reports for external contract clients. Presented over 60 papers at local and international conferences. A full publications list is available on request, but those key to the energy sector, African cities and green economy are as follows:

Batinge B, **Musango JK**, Brent AC (Forthcoming). Sustainable energy transition framework for unmet electricity markets, Paper accepted in *Energy Policy*, 12 March 2019

Smit S, **Musango JK**, Brent AC (2019). Understanding electricity legitimacy dynamics in an urban informal settlement in South Africa: A Community Based System Dynamics approach. *Energy for Sustainable Development* 49: 39-52

Smit S, **Musango JK**, Kovacic Z, Brent AC (2019). Towards measuring the informal city: a societal metabolism approach. *Journal of Industrial Ecology*, <https://onlinelibrary.wiley.com/doi/abs/10.1111/jiec.12776>

Pillay NS, Brent AC, **Musango JK** (2019). Affordability of Battery Electric Vehicles based on Disposable Income and the Impact on Provincial Residential Electricity Requirements in South Africa. *Energy* 171: 1077-1087

Smit S, **Musango JK**, Brent AC, Kovavic Z (2017). Conceptualising slum in an urban African context. *Cities*, 62: 107-119

Currie P, **Musango JK** (2016). African urbanisation: assimilating urban metabolism into sustainability discourse and practice. *Journal of Industrial Ecology*, <http://onlinelibrary.wiley.com/doi/10.1111/jiec.12517/abstract>

Kovavic Z, Smit S, **Musango JK**, Brent AC, Giampietro M (2016). Probing uncertainty levels of electrification in informal urban settlements: A case from South Africa. *Habitat International*, 56: 212-221

**Musango JK** (2014). Household electricity access and consumption behaviour in an urban environment: the case of Gauteng in South Africa. *Energy for Sustainable Development* (2014): 305-316

**Musango JK**, Brent AC, Tshagela M (2014). Green economy transitioning of the South African power sector: A system dynamics analysis approach. *Development Southern Africa* 31(5): 744-758

**Musango JK**, Brent AC, Bassi AM (2014). Modelling the transition towards green economy in South Africa. *Technology Forecasting and Social Change*. *Technology Forecasting and Social Change* 87:257-273

Ncube M, Zikhali P, **Musango JK** (2013). The impact of climate variability on water and energy demand: the case of South African local governments. *Water and Environment Journal* 27: 29-41

**Musango JK**, Brent AC, Amigun B, Pretorius L, Müller H (2012). A system dynamics approach to technology sustainability assessment: the case of biodiesel development in South Africa. *Technovation* 32: 639-651

**Musango JK**, Brent AC, Amigun B, Pretorius L, Müller H (2011). Technology sustainability assessment of biodiesel development in South Africa: a system dynamics approach. *Energy* 36: 6992-6940

Amigun B, **Musango JK** (2011). An analysis of potential feedstock and location for biodiesel production in Southern Africa. *International Journal of Sustainable Energy* 30: S35-S58

**Musango JK**, Brent AC (2011). Assessing the sustainability of energy technological systems in Southern Africa: A review and way forward. *Technology in Society* 33: 145-155



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SUSTAINABLE ENERGY STUDIES



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Amigun B, **Musango JK**, Brent AC (2011). Community perspectives on the introduction of biodiesel production in the Eastern Cape province of South Africa: questionnaire survey results. *Energy* 36: 2502-2508

**Musango JK**, Brent AC (2011). A conceptual framework for energy technology sustainability assessment. *Energy for Sustainable Development* 15: 84-91

Amigun B, **Musango JK**, Stafford W (2011). Biofuels and sustainability in Africa. *Renewable and Sustainable Energy Reviews* 15:1360-1372

**Musango JK**, Amigun B, Brent AC (2011). Sustainable electricity generation technologies in South Africa: Initiatives, challenges and policy implications. *Energy and Environment Research* 1:124-138

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