



National University of Lesotho



Programme

National University of Lesotho International Science and Technology Innovation Conference and Expo (NULISTICE)

and

2nd Africa-EU Renewable Energy Research and Innovation Symposium (RERIS)

23-26 January 2018

Manthabiseng National Convention Center

Maseru, Lesotho



Welcome

Dear Delegate,

It gives us great pleasure and honour to welcome you to this auspicious occasion of the NUL International Science, Technology and Innovation Conference and Expo - NULISTICE 2018, and the second edition of the Africa-EU Renewable Energy Research and Innovation Symposium – RERIS 2018.

Innovative ideas through research and technology have emerged over the past two decades in a multidisciplinary approach to solve the problems of society and create jobs in the global economic agenda across all sectors. Sustainable use of resources with responsible entrepreneurship action represents a significant advance in understanding how innovation and business practices can help improve living standards of the society. Such a result is more predictable in its positive sense that the business environments between innovator, researcher and entrepreneur has to be supported by flexible policies to encourage all stakeholders to hold them accountable to reasonable standards and to be more creative for societal benefit.

This joint conference offers an opportunity to turn ideas into action. It is our collective duty to promote responsible business practices by mobilizing resources and assisting entrepreneurship actions in each sector to ensure self-employment and job creation amongst the youth to develop our nation and continent. One of the key messages to be conveyed here is that responsibility cannot be outsourced. We have to develop flexible policies that would help in promoting ideas and give confidence and support to those who want to build the future. Taking part in business means to take responsibility to adopt responsible business practices that take into account both the bottom line and the impact of their activities on society. Academia, governments and civil society organisations have responsibility to improve and provide a forum for dialogue, peer learning, standard setting, analysis, and best policy recommendations to promote the innovative practices in Lesotho, the African continent, and the world in general.

We hope that such a joint international conference and expo on Science, Technology and Innovation forum will allow us to take joint actions to assist the youth in our respective countries to bring positive changes in societal development and protect the environment.

We wish you an enjoyable stay in the Mountain Kingdom of Lesotho!

Sincerely,



Prof. Manthoto H. Lephoto

NUL PVC and Chairperson of the NULISTICE 2018



Niklas Hayek

Project Manager, Africa-EU Renewable Energy Cooperation Programme (RECP) and RERIS organizer



Introduction

National University of Lesotho International Science and Technology Innovation Conference and Expo (NULISTICE) 2018

In the recent global economic meltdown of 2008, Lesotho as a small nation experienced a serious decline in the job market for the graduates. This posed a serious challenge to the National University of Lesotho to respond to this 'national crisis' as declared by His Majesty King Letsie III, the Head of State, who is also the Chancellor of the University. Following this, the University shifted its research focus from purely basic only, to applied, innovative and impactful research that addresses the economic challenges of the society.

It is in this pursuit that the University held two Science and Technology Research and Innovation Expo in 2015 and 2016 showcasing on 60, and 180 projects, respectively, that had potential, for driving entrepreneurship to the community and hence, stimulating economic growth to the thousands of graduates who would otherwise be lost into poverty. These two expos also exposed the need to infuse international views and expertise; and thus, the idea of hosting an international conference originated.

This 2018 NUL International Science, Technology and Innovation Conference & Expo (NULISTICE 2018) is meant to provide an opportunity to turn ideas into action. It is expected that the attending scholars from all over the world will share their basic research findings, lessons in university-industry cooperation, successes and failures in commercialization and policy recommendations in any of the areas mentioned above.

NULISTICE 2018 Thematic Areas:

- Biotechnology and Food Safety
- Environment and Natural Resource Management
- Agriculture and Climate Change
- Entrepreneurship and information Technology

Africa-EU Renewable Energy Research and Innovation Symposium (RERIS) 2018

With more than 600 million Africans living without access to electricity and over 730 million relying on dangerous, inefficient forms of cooking, fast but sustainable development of African renewable energy markets is needed. Applied research and innovative business roll-outs play a key role in boosting this development, helping to secure energy supply in both rural and urban areas, increase generation capacities and energy system resilience.

With the aim to foster research cooperation on renewable energy – both between universities in Africa and Europe and between academia, private and public sector - the Africa-EU Renewable Energy Cooperation Programme (RECP) organizes the second Africa-EU Symposium on Renewable Energy Research and Innovation (RERIS 2018) on occasion of NULISTICE 2018. Aiming to facilitate Africa-EU research collaboration, private and public sector participation in research, business innovation and university spin-offs, the symposium will address the following thematic areas:

- Power generation, distribution and transmission
- Decentralised and household energy solutions
- Energy socioeconomics
- Promotion of energy research, innovation, education and entrepreneurship

Conference Committees

Conference Chair

Prof. Manthoto H. Lephoto, Pro-Vice-Chancellor, National University of Lesotho

Organising Committee

Dr Thimothy Thamae, National University of Lesotho / NULSTICE lead organizer)

Mr Niklas Hayek, Africa-EU Renewable Energy Cooperation Programme (RECP) / RERIS lead organizer

Dr Moeketsi Mpholo, National University of Lesotho

Prof Himanshu Narayan, National University of Lesotho

Mrs Maleshoane Ramoholi, National University of Lesotho

Dr Pulane Nkhabutlane, National University of Lesotho

Dr Mosotho George, National University of Lesotho

Mr Rets'elisitsoe Thamae, National University of Lesotho

Dr Puleng Ranthimo, National University of Lesotho

Mr Kebitsamang Mothibe, National University of Lesotho

Dr Sissay Mekbib, National University of Lesotho

Scientific Committee NULISTICE

Prof. Himanshu Narayan, National University of Lesotho

Dr Thimothy Thamae, National University of Lesotho

Dr Mosotho George, National University of Lesotho

Dr Pulane Nkhabutlane, National University of Lesotho

Dr Puleng Rathimo, National University of Lesotho

Dr Sissay Mekbib, National University of Lesotho

Mr Joseph Thabana, National University of Lesotho

Mr Rets'elisitsoe Thamae, National University of Lesotho

Mrs Maleshoane Ramoholi, National University of Lesotho

Mr Kebitsamamng Mothibe, National University of Lesotho

Dr Maluke Letete, National University of Lesotho

Dr Motlalepula Nete, Senior Lecturer, University Of Freestate, Bloenfontein, South Africa

Prof. Nelson Torto, African Academy Of Sciences, Nairobi, Kenya

Prof. Hailemichael Alemu, National University Lesotho

Prof. Krish Bharuth-Ram, Prof. Emirates, University Of Kwazulu Natal, Durban, South Africa

Scientific Committee RERIS

Dr Moeketsi Mpholo, Energy Research Centre, National University of Lesotho, Lesotho (RERIS chair)

Prof. Benmansour Abdelhalim, Université Aboubekr Belkaid de Tlemcen, Algeria

Prof. Venkata Ramayya Ancha, Jimma University, Ethiopia

Dr Ed Brown, Loughborough University, United Kingdom

Prof. Thameur Chaibi, National Research Institute for Rural Engineering, Water and Forestry, Tunisia

Prof. Seladji Chakib, Université Aboubekr Belkaid de Tlemcen, Algeria

Dr Zivaye Chiguvare, Namibia University of Science and Technology, Namibia

Dr Jon Cloke, Loughborough University, United Kingdom

Prof. Emanuela Colombo, Politecnico di Milano, Italy

Prof. Abdellah Khellaf, Centre de Développement des Energies Renouvelables, Algeria

Prof. Izael Pereira Da Silva, Strathmore University, Kenya

Prof. Daniel Egbe, Johannes Kepler University Linz, Austria

Prof. Thomas Hamacher, Technische Universität München, Germany

Dr Jarkko Levänen, Aalto University School of Business, Finland

Prof. Angeles López Agüera, UNESCO-CLRLA / Universidade de Santiago de Compostela, Spain

Prof. Martin Meyer-Renschhausen, Hochschule Darmstadt, Germany

Prof. Joseph Mutale, University of Manchester, United Kingdom

Prof. Wikus van Niekerk, Stellenbosch University, South Africa

Prof. Armando C. Oliveira, University of Porto, Portugal

Prof. Marco Rupprich, MCI - The Entrepreneurial School®, Austria

Prof. Wim Sinke, University of Amsterdam, Netherlands tbc

Prof. Abdelilah Slaoui, University of Strasbourg, France

Prof. Anthony Staak, Cape Peninsula University of Technology (CPUT), South Africa

Dr Dirk Steuerwald, Swiss Academy for Development, Switzerland

Dr Sandor Szabo, European Commission Joint Research Centre, Italy

Dr Leboli Zak Thamae, Energy Research Centre, National University of Lesotho, Lesotho

Dr Daniel Yamegueu, International Institute for Water and Environmental Engineering (2iE), Burkina Faso

Prof. Abdellatif Zerga, Pan African University Institute of Water and Energy Sciences incl. climate change (PAUWES), Algeria

Conference Programme

Tuesday, 23 January 2018

8.00	<i>Shuttle from hotels, registration</i>	Room
9.00	<p>Opening Session</p> <p><u>Welcome Remarks:</u></p> <p>His Majesty King Letsie III of Lesotho, NUL Chancellor</p> <p>The Prime-Minister of Lesotho tbc</p> <p>Minister of Communications, Science and Technology, Lesotho tbc</p> <p>Prof. Nqosa Mahao, Vice Chancellor, National University of Lesotho tbc</p> <p>Head of Cooperation, EU delegation to Lesotho tbc</p> <p><u>Conference programme:</u></p> <p>Dr. Timothy Thamae, Senior Lecturer in the Department of Chemistry and Chemical Technology and Coordinator NUL Innovations Committee</p> <p>Mr Niklas Hayek, RERIS lead organizer, Africa-EU Renewable Energy Cooperation Programme (RECP)</p>	Machache
10.00	<i>Tea break and group picture</i>	
10:30	<p>Plenary Session: “Translate research into practice!” (Plenary)</p> <p><u>Keynote:</u></p> <p>Prof. Wikus van Niekerk, Dean, Faculty of Engineering, Stellenbosch University, South Africa</p> <p><u>Panel:</u></p> <p>Ms. Mantopi Lebofa, Director, Technologies for Economic Development (TED), Lesotho</p> <p>Ms. Noara Kebir, Managing Director, Microenergy International, Germany</p> <p>Dr. Pulane Nkhabutlane, Lecturer, Department of Agricultural Economics and Extension-Consumer Science, Head SanBio-Fisa Incubation Unit, National University of Lesotho</p> <p>Mr. Kuda Ndhlukula, Executive Director, the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE), Namibia</p> <p>Prof. Wikus van Niekerk, Centre for Renewable and Sustainable Energy Studies, Stellenbosch University, South Africa</p> <p><i>Moderator:</i> Dr Albert Butare, Former Minister of State in charge of Energy, Communication and Water in the Republic of Rwanda</p>	Machache
12.30	<i>Lunch</i>	
14.00	Thematic sessions I	
	<p><u>RERIS.I.1: Energy socioeconomics I</u></p> <p><i>Keynote:</i> Economic viability and social impact of renewable energy deployment in Africa - Prof. Abdellah Khellaf, Centre de Développement des Energies Renouvelables, Algeria</p> <p><i>Chair:</i> Dr Ed Brown, Loughborough University, United Kingdom</p>	Phuthiatsana 1

	<p><i>Presentations:</i> Smart grids in the European Union: Assessing energy security, regulation & social and ethical considerations. Possible synergies with Africa – Prof. Rafael Leal-Arcas, Queen Mary University of London, United Kingdom</p> <p>Optimising Europe’s efforts to support Africa’s electrification – Dr Simone Tagliapietra, Fondazione Eni Enrico Mattei, Italy</p> <hr/> <p>A thermo-economic model for objective solar collector choice and sizing of a solar water heating system – Mr Tawanda Hove, University of Zimbabwe</p>	
	<p><u>RERIS.I.2: Decentralised renewable and household energy solutions I</u></p> <p><i>Keynote:</i> Simulation and optimization of renewable energy hybrid power system for Semonkong, Lesotho - Dr Leboli Zak Thamae, National University of Lesotho</p> <p><i>Chair:</i> Prof. Marco Rupprich, MCI - The Entrepreneurial School®, Austria</p> <p><i>Presentations:</i> Integrating a solar PV system with a household based backup generator for hybrid swarm electrification in sub-Sahara Africa: case study of Nigeria – Mr Rolex Muceka, Pan African University Institute of Water and Energy Sciences, Algeria</p> <p>Baseline Assessment for the Smooth Operation of Solar Mini Grid Facility in Umon Island and Bagana Community in Southern Nigeria – Mr Etiosa Uyigue, Community Research and Development Centre, Nigeria</p> <p>Minigrid electricity service based on renewable generation for isolated or rural areas: sizing criteria, management and sustainability models, and case studies in Africa and Europe – Mr Pol Arranz Piera, UPC Technical University of Catalonia</p>	<p>Phuthiatsana 2</p>
	<p><u>RERIS.I.3: Power generation, distribution and transmission</u></p> <p><i>Keynote:</i> Wide scale deployment & integration of solar PV into electricity grids: Technical and economic implications for utilities - Prof. Joseph Mutale, University of Manchester, United Kingdom</p> <p><i>Chair:</i> Prof. Abdellatif Zerga, Pan African University Institute of Water and Energy Sciences (PAUWES), Algeria</p> <p><i>Presentations:</i> Prospects For Electricity Generation From The Wind Potential Of Zamala In Cameroon – Mr Myrin Ymele, University Of Ngaoundere, Cameroon</p> <p>Printing Powder-based Photovoltaic Modules: An appropriate technology to make African countries energy-self-sufficient – Prof Dieter Meissner, Tallinn University of Technology, Estonia</p> <p>Feasibility study of linear Fresnel solar thermal power plant in Algeria – Dr Hani Beltagy, University of Blida, Algeria</p>	<p>Qiloane</p>
	<p><u>NULISTICE Keynote 1</u></p> <p>Linking Bio energy with Carbon Sequestration and Soil Fertility for achieving SDGs in Africa - Prof. Venkata Ramayya Ancha, Jimma University, Ethiopia</p>	<p>Machache</p>
	<p><u>NULISTICE.I.1: Entrepreneurship and information Technology</u></p>	<p>Machache 1</p>

	<p><i>Chair:</i> Dr. Pulane Nkhabutlane, Department of Agricultural Economics and Extension-Consumer Science, Head SanBio-Fisa Incubation Unit</p> <p><i>Presentations:</i> tba</p>	
	<p><u>Session N.I.2: Environment and Natural Resource Management</u></p> <p><i>Chair:</i> Dr Puleng Matebesi, Department of Animal Science, National University of Lesotho</p> <p><i>Presentations:</i> tba</p>	Machache 2
	<p><u>NULISTICE.I.3: Material Science and Nano-Technology</u></p> <p><i>Chair:</i> Prof Prof Himanshu Narayan, Head, Department of Physics and Electronics</p> <p><i>Presentations:</i> tba</p>	Mokorotlo
16.00	Poster session	Foyer
17.30	<i>Shuttle to hotels</i>	

Wednesday, 24 January 2018

8.00	<i>Shuttle from hotels</i>	
9.00	<p>EU-Africa Joint Programmes for Research & Innovation</p> <p>Ms Irene Bonvisutto, DG Research & Innovation, European Commission</p> <p><i>Chair:</i> Ms. Eva Kagiri, Finnish University Partnership for International Development (UniPID)</p>	Machache
10.00	<i>Tea break</i>	
10:30	Thematic Sessions II	
	<p><u>RERIS.II.1: Energy socioeconomics II</u></p> <p><i>Keynote:</i> Why we need a social sciences agenda in international energy research - Dr Ed Brown, Loughborough University, United Kingdom</p> <p><i>Chair:</i> Prof. Thameur Chaibi, National Research Institute for Rural Engineering, Water and Forestry, Tunisia</p> <p><i>Presentations:</i> A qualitative analysis of renewable sources of energy used and policies in Lesotho – Mr Thato Clement Ramoetsi, Limkokwing University of Creative Technology, Lesotho</p> <p>Renewable Energy Law and Policy in Ghana: A Legal Analysis of the Support Schemes under the Regulatory Framework and Some Lessons from the EU Experience – Mr Dayann Obeng-Darko, University of Eastern Finland</p> <p>Solar PV Training Kit, a Novel Community Outreach Programme in Lesotho – Dr Robinson Musembi, University of Nairobi, Kenya</p>	Phuthiatsana 1
	<u>RERIS.II.2: Decentralised renewable and household energy solutions II</u>	Phuthiatsana 2

	<p><i>Keynote:</i> Development of decentralized rural household biogas digesters, a case study from South Africa - Prof Sampson Mamphweli, Stellenbosch University, South Africa</p> <p><i>Chair:</i> Prof. Venkata Ramayya Ancha, Jimma University, Ethiopia</p> <p><i>Presentations:</i> Plasma gasification of biomass using nitrogen plasma reactor to produce synthesis gas for small scale communities – Mr Ralph Farai Muvhiwa, University of South Africa</p> <p>Storage as the weak link of the biomass supply chain – Ms Sabrina Dumfort, Management Center Innsbruck, Austria</p> <p>Energy Efficiency Optimization of Biochar Cook Stoves through Computational Simulation – Dr Getachew Shunki Tibba, Mettu University, Ethiopia</p>	
	<p><u>RERIS.II.3: Energy research, innovation, education and entrepreneurship</u></p> <p><i>Keynote:</i> A Pan-African Research Agenda on Water, Energy and Climate Change - Prof. Abdellatif Zerga and Dr Erick Tambo, Pan African University Institute of Water and Energy Sciences incl. climate change (PAUWES), Algeria <i>tbc</i></p> <p><i>Chair:</i> Prof. Joseph Mutale, University of Manchester, United Kingdom</p> <p><i>Presentations:</i> Entrepreneurship as a Leverage for Innovative Energy Technologies in Africa: An Investigation of the Entrepreneurial Framework in Zimbabwe – Ms Hajer Ben Charrada, Technical University of Munich, Germany</p> <p>Promotion of energy research, innovation and entrepreneurship by bilateral and international projects between Tunisian research center and private/public European institutions – Mr Mohamed Barbouche, Research and Technologies Center of Energy CRTEn, Tunisia</p> <p>The Status of Large-Scale Solar Thermal Systems for Industrial Applications in South Africa and the Promotion of Solar Thermal Research at CRSES Stellenbosch University - Mr Angelo Buckley, Stellenbosch University, South Africa</p>	Qiloane
	<p><u>NULISTICE Keynote:</u></p> <p>Decentralised water purification systems - Prof. Marco Rupprich, MCI - The Entrepreneurial School®, Austria</p>	Machache
	<p><u>NULISTICE.II.1: Agriculture and Climate Change</u></p> <p><i>Chair:</i> Dr Puleng Matebesi, Department of Animal Science, National University of Lesotho</p> <p><i>Presentations:</i> tba</p>	Machache
	<p><u>NULISTICE.II.2: Environment and Natural Resource Management</u></p> <p><i>Chair:</i> Mr Rets'elisitsoe Thamae Department of Economics, National University of Lesotho</p> <p><i>Presentations:</i> tba</p>	Machache 2

	<p><u>NULISTICE.II.3: Biotechnology and Food Safety</u></p> <p><i>Chair:</i> Dr Sissay Bekele Mekbib, Department of Biology and Biotechnology, National University of Lesotho</p> <p><i>Presentations:</i> tba</p>	Mokorotlo
12.30	<i>Lunch</i>	
14.00	Thematic sessions III	
	<p><u>RERIS.III.3: Energy socioeconomics III</u></p> <p><i>Keynote:</i> Lessons from Kenya about what's holding back solar technology in Africa - Prof. Izael Pereira Da Silva, Strathmore University, Kenya</p> <p><i>Chair:</i> Dr Albert Butare, Former Minister of State in charge of Energy, Communication and Water in the Republic of Rwanda, tbc</p> <p><i>Presentations:</i> Energy system planning models for cities: On the limits of existent modeling tools and a new approach for models tailored to the needs of developing countries – Mrs Aminata Fall, Technical University of Vienna, Austria</p> <p>Status of Rooftop PV Generation in South Africa – Mr Ndamulelo Mararakanye, Center for Renewable and Sustainable Energy Studies, Stellenbosch University, South Africa</p> <p>Impacts of electrification under the perspective of the Multi-Tier-Framework in Southern Tanzania – Ms Annika Groth, Europa University Flensburg, Germany</p>	Phuthiatsana 1
	<p><u>RERIS.III.2: Decentralised renewable and household energy solutions III</u></p> <p><i>Keynote:</i> Private sector involvement in off-grid electrification - Mr Balthasar Klimbie, Key Expert of the SE4ALL EU Technical Assistance Facility</p> <p><i>Chair:</i> Prof Sampson Mamphweli, Stellenbosch University, South Africa</p> <p><i>Presentations:</i> Parametric sensivity in sunflower oil ethanolysis using Shea nut shell based catalyst – Mr Aristide Dejean, International Institute for water and environment engineering, Burkina Faso</p> <p>Promoting rural electrification in Sub-Saharan Africa: Least-cost modelling of decentralized energy-water-food systems – Mr Johannes Winklmaier, Technical University of Munich, Germany</p> <p>Assessment of decentralized hybrid mini-grids in Sub-Saharan Africa: Market analysis, Least-cost modelling, and Job creation analysis – Mr Ayodeji Okunlola, Technical University of Munich, Germany</p>	Phuthiatsana 2
	<p><u>RERIS.III.3: Energy resource mapping and planning</u></p> <p><i>Keynote:</i> Rural Household Electrification in Lesotho - Dr Moeketsi Mpholo, Energy Research Centre (ERC) / National University of Lesotho</p> <p><i>Chair:</i> Prof. Abdellah Khellaf, Centre de Développement des Energies Renouvelables, Algeria</p> <p><i>Presentations:</i></p>	Qiloane

	<p>An application of the Multilayer Perceptron: Estimation of Global Solar Radiation and the Establishment of Solar Radiation Maps of Togo – Dr Komi Apéléte Amou, University of Lomé, Togo</p> <p>Remote sensing techniques for village identification: Improved electrification planning for Zambia – Mr Alin Radu, Reiner Lemoine Institute, Germany</p> <p>Analysis of Solar Radiation Models and Three-Dimensional Modelling Of Irradiance – Dr Al-Mas Sendegeya, Namibia University of Science and Technology, Namibia</p>	
	<p><u>NULISTICE 2018 Keynote 3</u></p> <p>Could Renewable Energy Driven Systems Save Agriculture in African Arid Areas? - Prof. Thameur Chaibi, National Research Institute for Rural Engineering, Water and Forestry, Tunisia</p>	Machache
	<p><u>NULISTICE 2018 Keynote 4</u></p> <p><i>Chair:</i> Research, Innovation and Entrepreneurship in Knowledge Era: Issues of Values and Ethics – Prof. Suresh Chand Garg, Usha Martin University, Ranchi, India</p> <p><i>Presentations:</i> tba</p>	
	<p><u>NULISTICE.III.1: Entrepreneurship and information Technology</u></p> <p><i>Chair:</i> Dr T Thamae</p> <p><i>Presentations:</i> tba</p>	Machache 1
	<p><u>NULISTICE.III.2: Environment and Natural Resource Management</u></p> <p><i>Chair:</i> Dr MJ George</p> <p><i>Presentations:</i> tba</p>	Machache 2
	<p><u>NULISTICE.III.3: Material Science and Nano-Technology</u></p> <p><i>Chair:</i> Prof H Narayan</p> <p><i>Presentations:</i> tba</p>	Mokorotlo
16.00	Poster session	Foyer
17.30	<i>Shuttle to hotels</i>	

Thursday, 25 January 2018

8.00	<i>Shuttle from hotels</i>	
9.00	<p>Cooperation Pitch session</p> <ul style="list-style-type: none"> - Mr. Niklas Hayek, RECP - Dr Ed Brown, LECDN - Ms. Eva Kagiri, UniPID - Ms. Ranisha Banset, Energypedia - Ms. Noara Kebir, Microenergy International tbc - Mr. Kuda Ndhlukula, SACREEE - Prof. Abdellatif Zerga, PAUWES 	Machache

	- Mr Saleem Ismail, Enigma - Mr Phelane Phomane, Tangerine	
10.00	Tea break	
10:30	RERIS Training workshop <i>“Energise the base of the pyramid”</i> Ms. Noara Kebir, Managing Director, Microenergy International	Machache
	NULISTICE roundtable <i>“Technology Innovation and Entrepreneurship in Lesotho”</i> Dr. Timothy Thamae, Senior Lecturer in the Department of Chemistry and Chemical Technology and Coordinator NUL Innovations Committee	
12.30	Lunch	
14.00	Open Poster Session and visit to NULISTICE EXPO and Innovation market	
17.30	<i>Shuttle to Gala Dinner</i>	

Friday, 26 January 2018

9.00	Field trip the outskirts of Maseru for international participants (registration required) <i>Pick-up from hotels at 9.00 am</i>	
	NULISTICE EXPO and Innovation market All day (free entry for NULISTICE and RERIS participants)	

RERIS Training Workshop “Energise the base of the pyramid”

Research and practical implementation in the field of decentralized energy have a synergistic relationship, with each one more effective if and when informed by the other. Indeed, the work of practitioners is more effective if guided by established research findings. The work of researchers is more effective if hypotheses stem from practical experience, which betters research, and in turn, practice.

In reality, energy research and practice often run in parallel, with little knowledge exchange and consideration of the other. Energy practitioners, for example, rarely refer to research outputs, even if peer reviewed and reputable, often having discovered early on the irrelevance / unfit of research findings to the practical issues faced. Energy researchers, on the other hand, rarely prioritize engaging in actual practice / implementation, thereby generating research which by no surprise lacks apparent practical relevance. Objectives of the workshop include:

- Provide international and local researchers/ academics and local practitioners in Lesotho with a platform for discussion on how to make research more relevant/ fit for practice
- Enable match making and establishing paths for further joint work between local and international researchers / academics and local private sector actors in Lesotho
- Inform participants about different product-service systems in the field of energy access in developing economies (e.g. mini grids, distribution models for decentralized RE & EE).
- Inform participants about different product-service systems in the field of energy access in developing economies (e.g. mini grids and distribution models).

NULISTICE roundtable “Technology and Entrepreneurship”

Info tba

NULISTICE Expo & Innovation Market

2018 Expo will be the continuation of the first two (held in 2015 and 2016). This event is mainly targeting the local audience and it is meant to help the society appreciate an important role that can be played by science, technology and innovation in daily life and to help attract funding and commercialization of academic projects.

For the past two years, the event has generated an amazing interest in the country. While most people appreciate and communicate with the NUL through the media outreach platforms, the Expo is unique in the sense that it provides a means for members of the society get a tangible feel of the projects. The result has been an intensive networking and in some cases, emergence of new companies.

Traditionally, the main people who exhibit their products and projects in this expo are NUL teachers, students and graduates. However, the following expo will encourage the participation of innovators from all over the country.

Under this category, we are expecting more than 250 innovators to showcase their products and small businesses. Anyone can apply to this category and the fee charged is only M360.00 for four days from January 23 to January 26. The only limit is that businesses should display only products they produce first-hand, not those that they buy and sell.

Information for International Participants

Visa

Visitors can apply for an electronic visa online at <http://evisalesotho.com>. An overview of visa exemptions is available at <http://evisalesotho.com/visa-exemptions/>.

Maseru, capital city of Lesotho¹

Maseru has always been one of Africa's quieter cities, but the capital of Lesotho has rapidly expanded in recent years. Today, the city is home to a decent selection of accommodations and restaurants, well-stocked shops, friendly people and a host of other modern amenities. Although there are very few traditional tourist attractions, the city is a great place to recharge and stock up before venturing further into Lesotho.

One of the most monumental buildings in the country stands near central Maseru. Called the Mokorotlo, the site is a traditional hut redesigned in a more modern and sophisticated style. The revamped hut houses a museum where visitors can learn more about the nation's history, culture and traditions.

Just south of Maseru is the village of Thetsane, where a cluster of factories produce clothing like jeans and tee-shirts for American chain stores. While downtown Maseru has a slow, easy-going pace, Thetsane's industrial atmosphere creates a chaotic hustle and bustle.

There are many opportunities for outdoor adventures in and around Maseru. The city is home to some excellent gyms, tennis courts and golf courses, and canoeing down the Caledon river is a great way to explore the area's flora and fauna. Visitors can also ride horses in more off-the-beaten-trail parts of the capital and hike up the city's largest hill to catch great views of the capital.

Shopping is another popular activity in Maseru, and visitors can likely find everything they need before venturing further into the country, where Western-style shops are nearly nonexistent. In the capital, visitors can find shopping centers similar to European supermarkets, but there are also a number of cellphone and electronics stores. For local crafts, head to the Basotho Hat, a small shop run by the government. There, visitors can purchase beautiful hand-made items like ceramics, jewelry, toys and clothing.

Maseru is home to a number of outstanding restaurants, and it is easy to get a good meal within the city on any budget. Visitors can feast on a variety of cuisines, including Mediterranean, American, Chinese, Ethiopian, Italian and Indian. At night, the city comes alive as locals get off work and want to relax. There are many popular bars and clubs in the area, most of which are filled with young expats or government workers. It is not too hard to find decent live music, and the drinks are cold and reasonably priced.

One of Lesotho's most remarkable sights is only about three hours away from the capital by car. The Semonkong Falls drop over 200 meters, and visitors can swim in the pond below during the summer months. In the winter, the pond freezes and the falls become trapped in ice.

Thirty-five kilometers south of Maseru is the town of Morija. There, visitors can see well-preserved footprints of dinosaurs that once lived in Mozambique. Visitors to the town can also explore the Lesotho Evangelical Church and the Maeder House and Arts Center. There are also many opportunities for mountain climbing, hiking and pony-trekking in the town.

¹ Source: VisitCapitalCity.com

Maseru Geographical Location

Maseru is located on the west central border between Lesotho and South Africa on the Caledon River. The approximate population of Maseru is 230,000.

Maseru Climate

Maseru experiences warm summers and mild, chilly winters. Rainfall is more common during the hotter months although it does rain throughout the year.

Languages in Lesotho

Sesotho and English are the official languages of Lesotho.

Lesotho Predominant Religions

Christianity is the dominant religion in Lesotho, with an approximately 90 percent of the population being Christian belonging to different denominations. The Lesotho constitution provides freedom of religion.

Lesotho Currency

The Loti is the official currency of Lesotho. Current exchange rate: 1 LSL = 0.061 EUR (Nov. 2017)

Venue

'Manthabiseng National Convention Center is a premium centre for conventions and conference in Lesotho with the following address: Main South 1, Opp Iketsetseng Primary School, and Maseru, Lesotho.

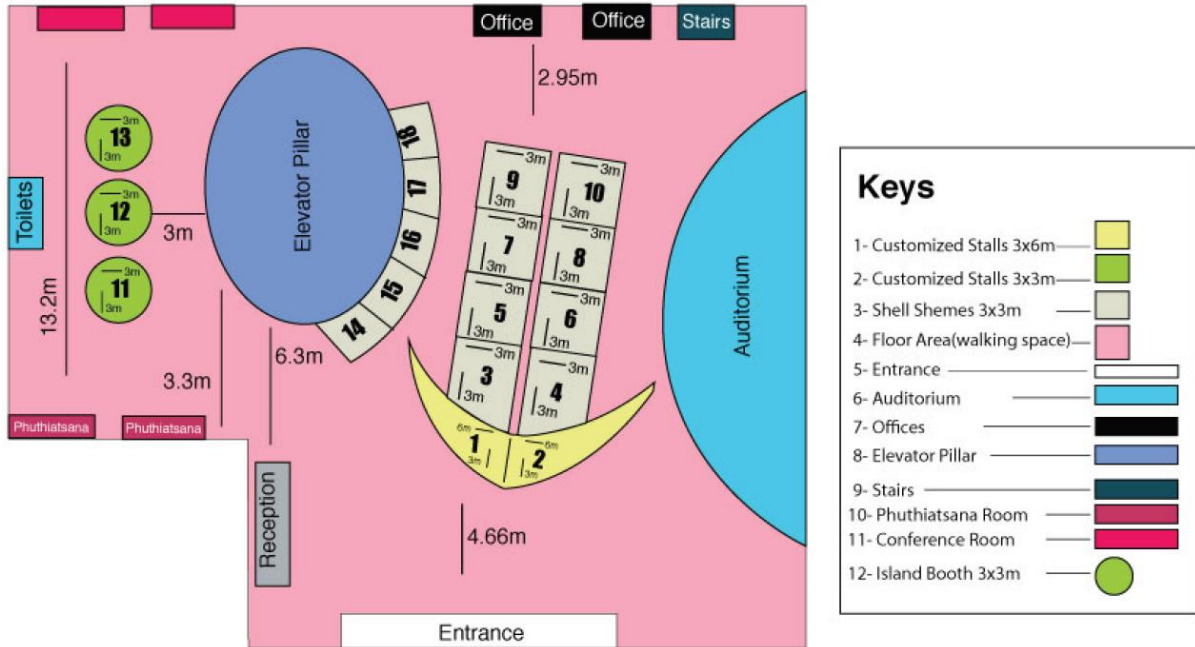


Figure 1: Ground Floor Layout and the Exhibition Plan at 'Manthabiseng National Convention Center

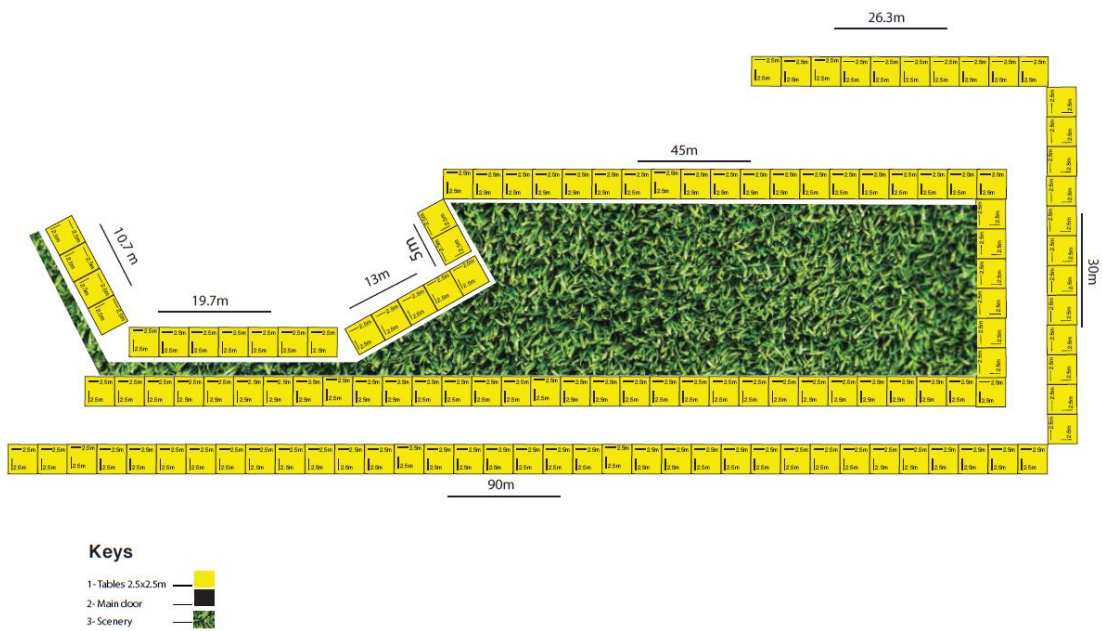


Figure 2: Out-door Innovation Market Plan at 'Manthabiseng National Convention Center