SA-YSSP Final Colloquium: 20-21 February 2014
CR Swart Auditorium

20 February 2014

8.30 - Welcome and introduction to proceedings                           Prof Martin Ntwaeaborwa
8.40 – Message from Director General and CEO of IIASA              Prof Pavel Kabat

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<tr>
<td>THEME 15. WATER FUTURES AND SOLUTIONS</td>
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<tr>
<td><strong>Supervisors</strong></td>
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<tr>
<td>Prof. Jacqueline Goldin</td>
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<tr>
<td>Department of Earth Sciences, UWC, Cape Town, South Africa</td>
<td>9:00</td>
<td>Ms. Fatima Sumbul from India, PhD student at Aligarh Muslim University</td>
<td>Strategic Importance of water governance in virtual water trade</td>
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<tr>
<td>Dr. Sylvia Tramberend</td>
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<td>Water Program, IIASA, Laxenburg, Austria</td>
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<td>Dr. David Wiberg</td>
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<td>Water Program, IIASA, Laxenburg, Austria</td>
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## THEME 2. SYSTEMS ANALYSIS FOR SUSTAINABLE GREEN CITY DEVELOPMENT

### Supervisors:

- **Dr. Dillip Kumar Das**  
  Department of Civil Engineering, CUT, Bloemfontein, South Africa

- **Dr. Michael Thompson**  
  Risk, Policy and Vulnerability Program, IIASA, Laxenburg, Austria

- **Prof. M. Bruce Beck**  
  Wheatley-Georgia Research Alliance Professor & Eminent Scholar  
  Environmental Informatics & Control Program, Warnell School of Forestry & Natural Resources, University of Georgia, USA

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<th>Topic</th>
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<tr>
<td>9:40</td>
<td>Mr. Everardt Burger</td>
<td>South Africa. PhD student at Central University of Technology, South Africa</td>
<td>Re-Engineering of public transportation systems for suitable green city’s in central region of South Africa.</td>
</tr>
<tr>
<td>10:00</td>
<td>Mr. Innocent Chirisa</td>
<td>Zimbabwe. PhD student at Central University of Technology, South Africa</td>
<td>Prospects for nutrient-water-energy recovery and reuse in Harare metropolitan, Zimbabwe: case for systems dynamics and material flow modelling</td>
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</table>
THEME 3. UNDERSTANDING INDIVIDUAL AND COMMUNITY RESPONSES TO SLOW AND SUDDEN-ONSET CHANGE: DRIVERS AND OPTIONS FOR BUILDING RESILIENCE IN THE EDEN DISTRICT OF SOUTH AFRICA

Supervisors:
Prof. Christo Fabricius  
Sustainability Research Unit, NMMU, South Africa

Dr. Reinhard Mechler  
Risk, Policy and Vulnerability Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

10:20 Mr. Emmanuel Mavhura from Zimbabwe. PhD student at Bindura University of Science Education, Zimbabwe

Rural communities’ livelihoods and their resilience to floods
THEME 4. TRANSFORMATION OF THE SOUTH AFRICAN ENERGY SYSTEM: TOWARDS ENVIRONMENTAL LEADERSHIP AND PARTICIPATORY GOVERNANCE

Supervisors:
Dr. Vain Jarbandhan
Department of Public Governance, University of Johannesburg, Johannesburg, South Africa

Dr. Nadejda Komendantova-Amann
Risk, Policy and Vulnerability Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

10:40 Mr. Romao Xavier from Mozambique. PhD student at University of the Witwatersrand, South Africa

Participatory governance in the transformation of the South African energy sector: critical success factors for environmental leadership

TEA 11:00 - 11:20
THEME 6. ECONOMIC GROWTH UNDER ENVIRONMENTAL CONSTRAINTS: TOWARD A LOW CARBON FUTURE IN SOUTH AFRICA

Supervisors:
Dr. Clovis Noutchie  
School of Mathematical and Physical Sciences, North-West University, South Africa

Dr. Matthias Jonas  
Advanced Systems Analysis Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

11:20 Mrs. Onawumi Adeyinka from Nigeria. PhD student at KNUST, Ghana  
Strategic land use practice to combat greenhouse gas emission (GHGs). Comparative analysis of South Africa and Ghana

11:40 Mr. Given Mutimudye from Zimbabwe. PhD student at University of the Witwatersrand, South Africa  
Integrating the greenhouse effect in economic growth: strategic concerns for South Africa
## THEME 7. MITIGATION OF AIR POLLUTION AND GREENHOUSE GASES

### Supervisors:
- **Prof. Charles Mbohwa**  
  Faculty of Engineering and the Built Environment,  
  University of Johannesburg, Johannesburg, South Africa

- **Dr. Hans-Holger Rogner**  
  Energy Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

- **Prof. Manfred Strubbegger**  
  Energy Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

### Presentations:

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<th>Time</th>
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| 12:00 | Mr. Noor Jamal from Pakistan.                | PhD student at University of Flensburg, Germany  
  Techno economic and environmental analysis of electrification options in low income remote/rural areas of South Africa |
| 12:20 | Mr. Erkka Rinne from Finland.               | PhD student at VIT Technical Research Centre of Finland  
  Value and usage of energy storages with large-scale variable generation |
| 12:40 | Ms. Hui Zhang from China.                   | PhD student at Nanjing University, China  
  Air pollution control of coal-fired Power Plants in South Africa |
| 13:00 | Mr. Nathaniel Tindall from USA.             | PhD student at Georgia Institute of Technology, USA  
  Understanding the energy systems of South Africa: an analysis of energy demand, reduction and environmental impact |

**LUNCH 13:00 – 13:40**
THEME 8. DOMESTIC ENERGY ACCESS AT THE BOTTOM OF THE PYRAMID: HEALTH, SOCIAL, ENVIRONMENTAL AND ECONOMIC ASPECTS OF SOLID BIOMASS FUEL USE AND POTENTIAL FOR CHANGE IN SOUTHERN AFRICA

Supervisors:
Prof. Harold John Annegarn  
Department of Geography, Environmental Management and Energy Studies, University of Johannesburg, South Africa

Dr. Shonali Pachauri  
Energy Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

Dr. Zbigniew Klimont  
Mitigation of Air Pollution and greenhouse Gases Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

13:40 Mr. Takunda Mambo from Zimbabwe. PhD student at Energy Research Centre, University of Cape Town, South Africa  
Political transformation and multidimensional energy poverty in Zimbabwe

14:00 Mr. Tafadzwa Makonese from Zimbabwe. PhD student at University of Johannesburg, South Africa  
Systems analysis of residential coal combustion and ambient air quality in the South African coal-burning region
THEME 14. WORLD WATER SCENARIOS INITIATIVE: SOUTHERN AFRICA CASE STUDY

**Supervisors:**
Prof. Yali Woyessa  
Department of Engineering, Central University of Technology, Free State, South Africa

Dr. David Wiberg  
Water Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

14:20 Mr. Onalenna Gwate from Zimbabwe. PhD student at Lupane State University, Zimbabwe  
Dynamics of land cover change and its impacts on stream flow in the Modder river basin: a case study of C52A quaternary catchment

14:40 Ms. Johanna Schild from Netherlands. PhD student at VU University Amsterdam, The Netherlands  
Analyzing the impact of rainwater harvesting on water flow regulation in the Modder river catchment
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<tbody>
<tr>
<td>15:00</td>
<td>Alfred Murye</td>
<td>South Sudan. PhD student at University of the Free State, South Africa/ University of Swaziland, Swaziland</td>
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<td>15:20</td>
<td>Gerald Simeon Meke</td>
<td>Malawi. PhD student at University of Malawi, Malawi</td>
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### THEME 19. EXPLORING THE POPULATION-ENVIRONMENT-DEVELOPMENT NEXUS AND DIFFERENTIAL VULNERABILITY IN SUB-SAHARAN AFRICA

**Supervisors:**
- Prof. Andre Pelser  
  *Department of Sociology, University of the Free State, Bloemfontein, South Africa*
- Dr. Raya Muttarak  
  *Wittgenstein Centre for Demography and Global Human Capital, Vienna, Austria*
  *World Population Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria*

### CLOSING REMARKS

15:40 | Prof Martin Ntwaeaborwa |
8:45 Welcome by Dr Henriëtte van den Berg

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<tr>
<td><strong>THEME 11. STABILITY AND COMPLEXITY OF ADAPTIVE ECOLOGICAL NETWORKS</strong></td>
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<td><strong>Supervisors:</strong></td>
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<td>Dr. Cang Hui</td>
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<tr>
<td><em>Centre for Invasion Biology, Department of Botany and Zoology, Stellenbosch University</em></td>
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<td>Dr. Ulf Dieckmann</td>
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<td><em>Evolution and Ecology Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria</em></td>
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<td>9:00 Ms. Savannah Nuwagaba from Uganda. PhD student at Stellenbosch University, South Africa</td>
<td>9:00</td>
<td>Ms. Savannah Nuwagaba</td>
<td>The role of adaptive foraging behaviour in food-web emergence and biodiversity maintenance</td>
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<td>9:20 Mr. Jonas Olof Wickman from Sweden. PhD student at Umea University, Sweden</td>
<td>9:20</td>
<td>Mr. Jonas Olof Wickman</td>
<td>The impact of spatial structure on evolutionary food-web formation</td>
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<td>9:40 Ms. Yinghui Yang from China. PhD student at Lanzhou University, China</td>
<td>9:40</td>
<td>Ms. Yinghui Yang</td>
<td>Commonness and rarity in ecological communities</td>
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<tr>
<td>10:00 Mr. Liu Haoqi from China. PhD student at Xinjiang University, China</td>
<td>10:00</td>
<td>Mr. Liu Haoqi</td>
<td>Habitat loss, habitat fragmentation and biodiversity impacts</td>
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THEME 12. DYNAMICAL SYSTEMS IN ECOLOGY: MODELS, ANALYSIS AND SIMULATIONS

Supervisors:
Prof. Jacek Banasiak
School of Mathematics, Statistics and Computer Sciences, University of KwaZulu-Natal, Durban, South Africa

Prof. Alexey Davydov
Advanced Systems Analysis Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria / Steklov Institute, Russia

10:20 Ms. Milaine Tchamga from Cameroon. PhD student at University of Cape Town, South Africa

Dynamical system in ecology: models, analyses, and simulations

TEA 10:40 – 11:00
THEME 9. ASSESSING COMPETING LAND USE OPTIONS FOR FUEL, FOOD AND FIBRE IN SUBTROPICAL AND TROPICAL AFRICA

Supervisors:
Prof. Barend Erasmus
School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa

Ms. Aline Mosnier
Ecosystem Services and Management Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

11:00 Mr. Simon Nampindo from Uganda. PhD student at University of Massachusetts, USA
Competing land use options and securing ecosystem services: implications for sustainable management of Greater Virunga Landscape

11:20 Mr. Mulubrhan Gebremikael from Ethiopia. PhD student at the Norwegian University of Life Sciences, Norway
Impacts of resettlement on rangeland woody vegetation and ecosystem services
THEME 16. INTEGRATING INDIGENOUS KNOWLEDGE INTO MATERNAL AND CHILD HEALTH PROGRAMS IN SOUTHERN AFRICA

Supervisors:
Prof. Cheryl Nikodem
School of Health Sciences, University of Fort Hare, East London, South Africa

Prof. Andrew Noymer
World Pollution Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria and Public Health, University of California, Irvine, USA

11:40 Mr. Abraham Alemayehu Gatta from Ethiopia. PhD student at University of South Africa, South Africa
Integration of gender and indigenous decision making power in reproductive health policies: a systematic review of evidence

12:00 Mr. Blessing Silaigwana from Zimbabwe. PhD student at University of KwaZulu-Natal, South Africa
Efficacy of medicinal plants for treatment of soil-transmitted helminthic parasites: a systematic review
THEME 17. NEW APPROACHES TO MEASURING AGEING IN SOUTH AFRICA

**Supervisors:**

Prof. Warren Sanderson  
*World Population Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria*

Dr. Serguei Scherbov  
*World Population Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria*

Prof. Nancy Phaswana-Mafuya  
*Human Sciences Research Council (HSRC), Pretoria*

12:20 **Mr. Witness Chirinda** from Zimbabwe. PhD student at University of the Western Cape, South Africa  
*Estimation of healthy life expectancy in South Africa*

12:40 **Ms. Mercy Shoko** from South Africa. PhD student at University of the Witwatersrand, South Africa  
*Universality of Ageing in Southern Africa: a case of South Africa's population groups*

**LUNCH 13:00 – 13:40**
**THEME 1. EXTRACT OF AFRICA: TOWARDS THE EQUITABLE AND ECOLOGICALLY-SOUND GOVERNANCE OF MINING AND DRILLING**

**Supervisors:**
Dr. Ikechukwu Umejesi  
Department of Sociology, University of South Africa, Pretoria, South Africa

Dr. Michael Thompson  
Risk, Policy and Vulnerability Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

13:40 **Mr. Kgothatso Shai** from South Africa. PhD student at University of Limpopo, South Africa

Oil for Africa’s development and US energy security: shared or competing interests?
**THEME 18. EDUCATIONAL REFORM AND SOCIAL JUSTICE**

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<tr>
<td>14:00</td>
<td>Ms. Lanoi Maloiy</td>
<td>Kenya, PhD student at University of South Australia, Australia</td>
<td>Women political leaders in East Africa: enabling and inhibiting factors</td>
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<td>Management Sciences, Central University of Technology, Free State, Bloemfontein, South Africa</td>
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<tr>
<td>14:20</td>
<td>Mr. Emnet Tadesse Woldegiorgis</td>
<td>Ethiopia, PhD student at University of Beyreuth, Germany</td>
<td>Regional Higher Education reform initiatives in Africa: a comparative analysis with Bologna process</td>
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<td>World Pollution Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria</td>
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THEME 10. RESILIENCE MEASURES IN ECOSYSTEMS AND NETWORKS

Supervisors
Dr. Ursula Scharler  
School of Life Sciences, University of KwaZulu-Natal, Durban, South Africa

Prof. Brian Fath  
Advanced Systems Analysis Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria  
Department of Biological Sciences, Towson University, Maryland, USA

14:40  Ms. Delin Fang from China. PhD student at School of Environment, Beijing Normal University, China  
Network environ analysis for a socio-economic water system: case study of Ganzhou district in Northwest China
### THEME 5. ENERGY EFFICIENCY IN A SUSTAINABLE MINING INDUSTRY

**Supervisors:**

Dr. Bessie Monchusi  
Centre for Mining Innovation, CSIR, Pretoria, South Africa

Dr. Marek Makowski  
Advanced Systems Analysis Program, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria

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<tr>
<td>15:00</td>
<td><strong>Ms. Thakane Ntholi</strong> from South Africa. PhD student at Nelson Mandela Metropolitan University, South Africa</td>
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<td>Geothermal power potential of deep gold mines</td>
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**Closing Remarks**

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<tr>
<td>15:20</td>
<td>Prof David Katerere</td>
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