

SECOND AFRICAN RIFT GEOTHERMAL CONFERENCE (ARGeoC2)

IMPERIAL RESORT BEACH HOTEL, ENTEBBE, UGANDA

PROGRAMME

Monday 24th November 2008

8:00-8:30 Registration

Session 1: Opening

Chair: Permanent Secretary. Ministry of Energy and Mineral Development
Rapporteur: Bukenya Matovu. Senior Assistant Secretary, Ministry of Energy and Mineral Development.

8:30-8:55 **Opening remarks**
Hon. Minister of Energy and Mineral Development, Uganda.

8:55-9:45 **Key note address.**
H. E Yoweri Kaguta Museveni, President of the Republic of Uganda.

9:45-10:05 **Potential role of geothermal energy in the Comoro Islands.**
H.E Idi Nadhoim, Vice President of The Comoro Islands.

10:05-10:25 **Status, Development and Prospects of Geothermal Energy worldwide.**
Prof. Ladislaus Rybach. International Geothermal Association (IGA) President.

10:25-10:45 **Status of Geothermal Exploration and development in Uganda.**
Joshua T. Tuhumwire. Commissioner, Department of Geological Survey and Mines, Uganda.

10:45-11:00 *Poster tour, group photo and Coffee Break*

Session 2: Economics and Financing, Privatization

Chair: Martin Mwangi, GeoSteam, Kenya
Rapporteur: Vincent Kato, Department of Geological Survey and Mines, Uganda.

11:00-11:20 **Government of Uganda's Strategy for increasing power supply.**
James Baanabe. Energy Resources Department (ERD), Uganda.

11:20-11:40 **Preparations of World Geothermal Conference 2010 Bali, Indonesia**
Surya Darma, Indonesia.



- 11:40-12:00 **IAEA Technical Cooperation on Geothermal Resources Exploration in East Africa.**
Michael Kiza. Energy Resources Department (ERD), Uganda.
- 12:00-12:20 **UNU-GTP and geothermal capacity building in Africa.**
Ludvik S. Georgsson, United Nations University-Geothermal Training Programme, Iceland
- 12:20-12:40 **The BGR Geotherm Programme: Recent developments and perspectives**
Marrieta Sander, BGR, Germany
- 12:40-1:00 **Overview of the geothermal utilization and potential in East African Region.**
Meseret Teklemariam, geological Survey of Ethiopia
- 1:00-2:00 *Lunch break*

Session 3: Country Updates

- Chair:** Paul Ngugi KenGen, Kenya.
Rapporteur: Peter Mawejje, Department of Geological Survey and Mines, Uganda
- 2:00-2:20 Keynote Speaker. **Geothermal and climatic change.**
Bernard Jamet UNEP
- 2:20-2:40 **Status of Geothermal Development in Kenya and Future plans.**
Silas Simiyu, KenGen, Kenya.
- 2:40-3:00 **Geothermal resource and exploration in Ethiopia.**
Meseret Teklemariam, Geological Survey of Ethiopia
- 3:00-3:20 **Geothermal potential in Eastern D. R. Congo.**
Mambo Vikandy S., Kasereka Mahinda, Yalire Mapendano and Wafula Mifundu, Goma Volcanology Observatory, Democratic Republic Congo.
- 3:20-3:40 **Geothermal Exploration and Development in Rwanda.**
Uwera Rutagarama, Rwanda.
- 3:40-4:00 **Geothermal surface manifestation mapping in southwestern Tanzania.**
L.J., Mnzava, A. W. Mayo and H.J. Y. Katima College of engineering and technology (COET), University of Dar es Salaam.
- 4:40-4:20 **Hurdles to financing geothermal development in ARGeo Countries, with special focus on Kenya.**
Nicholas Mariita, KenGen, Kenya.
- 4:20-4:40 **Renewable energy resources policy and development.**
Godfrey Ndawula. Energy Resources Department (ERD), Uganda.



4:40-4:55 *Coffee Break*

Session 4: Environmental, Social, Legal and Institutional Aspects

Chair: Silas Simiyu, Kenya Electricity Generation Company
Rapporteur: Nyakecho Catherine, Department of Geological Survey and Mines, Uganda

- 4:00-4:20 **Licensing of energy projects.**
Declane Centenary, Electricity Regulatory Authority, Uganda.
- 4:40-5:00 **Master plan for geothermal and hydropower development in Iceland.**
Benedikt Steingrimsson, Iceland Geosurvey (ISOR).
- 4:20-4:40 **Djibouti Geothermal project. Technical and financial issue.**
Gunnar Hjartarson, Kristian B. Oiafsson, Iceland Geosurvey (ISOR).
- 5:00-5:20 **Geologic Conditions of Hydrothermal Feature Occurrence in Africa: A Review.**
Getahun Demissie, Geomet, P.L.C.
- 5:20-5:40 **Sustainable geothermal production and CO₂ emission reduction.**
Ladislaus Rybach, MD Geowatt AG Zurich, President IGA
- 5:40-6:00 **Assessment of the geothermal resource in Northern Rwanda - preliminary results of the geothermal potential assessment and capacity building (GEPACA) project.**
Jean-Claude Ngaruye, Ministry of Natural Resources, Rwanda

Tuesday 25th November 2008

Session 5: Exploration: Geology, Geophysics, Geochemistry, and Hydrology

Room one: Geology and Geophysics

Chair: Mariita Nicholas, Electricity Generation Company (KenGen)

Rapporteur: Natukunda James Francis, Department of Geological Survey and Mines, Uganda

- 8:30-8:50 **Heat flow in Western Rift, Uganda constrained by the depth extent of seismicity.**
Fred A. Tugume, Department of Geological Survey and Mines, Uganda
- 8:50-9:05 **Tectonic control on geothermal sites with specific reference to the Albertine Graben.**
Dozith Abeinomugisha, Petroleum Exploration and Production Department, Uganda
- 9:05-9:20 **Geology of Katwe, Kibiro and Buranga geothermal fields in Uganda.**
Peter Maweje, Vincent kato and James Francis Natukunda, Department of Geological Survey and Mines, Uganda



- 9:20–9:35 **Borehole geology and alteration mineralogy of well Asal 5, Republic of Djibouti.**
Moustapha Ahmed and Daher Elmi, Republic of Djibouti.
- 9:35–9:50 **Geophysical surveys in Kibiro and Katwe geothermal prospects in Uganda Supported by ICEIDA.**
Knútur Árnason, Hjálmar Eysteinnsson, Ingvar þór Magnússon., Iceland Geosurvey (ÍSOR).
- 9:50–10:15 *Coffee Break*

Room Two: Geochemistry and Hydrogeological Aspects

- Chair:** Arni Ragnarson, International Geothermal Association (IGA), Secretariat.
- Rapporteur:** Alex Nyombi, Petroleum Exploration and Production Department, Uganda.

- 8:50–9:05 **The Geochemistry of Rwenzori hot springs.**
Vincent Kato, Department of Geological Survey and Mines, Uganda.
- ~~9:05–9:20 **Geochemical and isotopic study of north Lake Abaya Geothermal prospects.**
Asfaw Teclu, Geological Survey of Ethiopia~~
- 9:20–9:35 **Isotope hydrology in investigation of the geothermal areas of Uganda.**
Godfrey Bahati Department of Geological Survey and Mines, Uganda.
- 9:35–9:50 **Analysis of geothermal well test data from the Asal rift area, Republic of Djibouti.**
Daher Elmi, Republic of Djibouti.
- 9:50–10:15 **Geochemical interpretation of thermal water and gas samples from Arid, Eritrea.**
Ermias Yohannes Berhane. Geological Survey, Ministry of Energy and Mines, Eritrea.

10:15 – 10:30 *Coffee Break*

Session 6: Exploration continued

Room one: Geology and Geophysics

Chair: Meseret Teklemariam

Rapporteur: John K. Lagat, Kengen, Kenya.

- 10:30–10:45 **Active tectonics and geothermal anomalies of the Upemba graben in Katanga province DRC: Site of the first African geothermal power plant.**
L. Kapita, D. Delvaux and S. Sebagenzi, D.R.C.
- ~~10:45–11:00 **Geophysical exploration of geothermal energy in Mbeya, Tanzania.**
Sudian Ahmad Chiragwire.~~

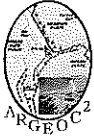


- 11:00-11:15 **Resistivity survey at Alid, Eritrea.**
Knutur Arnason, Iceland Geosurvey (ÍSOR).
- 11:15-11:30 **Geological survey with emphasis on geothermal prospects Kibiro and Katwe-Kikorongo.**
Gestur Gislason, Reykjavik Geothermal
- 11:30-11:45 **Tectonic control of the Ngozi-Songwe hydrothermal system in Rungwe volcanic province.** *Tanzania*
D. Delvaux, K. Fontijn, E.B. Temu, C. Makene and M. Kraml. D.R.C.
- 11:45-12:00 **Magnetotelluric measurements to explore deeper structures of the Tendaho geothermal prospect (Afar, NE Ethiopia)**
Yohannes Lemma, ~~Akiliu Hailu~~, Mohammednur Desisa - Geological Survey of Ethiopia, (Ulrich Kalberkamp - BGR.)
- 12:00-12:15 **Aeromagnetic study of Rungwe volcanic province and its implications to geothermal springs.**
Isaac Marobhe, University of Dar es Salaam, Tanzania
- 12:15-12.30 **High-enthalpy reservoir indications in Mbeya area (SW Tanzania) revealed by magnetotelluric measurements.**
Ndonde P.B. Geological Survey of Tanzania
- Room Two: Geochemistry and Hydrogeological Aspects**
Chair: Ermias Yohannes Berhane, Geological Survey, Ministry of Energy and Mines, Eritrea.
Rapporteur: Frank Mugisha, Petroleum Exploration and Production Department, Uganda.
- 10:30-10:45 **Mixing trends and solute geothermometry of borehole waters from the Paka geothermal prospect, Kenya.**
Opondo Kizito Maloba, KenGen, Kenya.
- 10:45-11:00 **Hydrogeological Aspects of Geothermal Resources.**
Noori Gamal Dawood, Ministry of water and Environment, Yemen.
- 11:00-11:15 **Preliminary Geochemical Investigation of the Geothermal Areas of Uganda other than Katwe, Burunga and Kibiro.**
Godfrey Bahati, Department of Geological Survey and Mines, Uganda.
- 11:15-11:30 **Geochemistry in geothermal Exploration.**
James Macharia Wambugu, KenGen, Kenya.
- 12:30-2:30 *Lunch/IGA Annual General Meeting.*

Session 7: Reservoir Engineering and Drilling.

Chair: Ludvik S. Georgsson, UNU-GTP, Iceland
Rapporteurs: Michael Kizza, Energy Resources Department (ERD), Uganda.

2:30-2:45 **High temperature geothermal logging for temperature and pressure.**
Peter Eric Danielson.



- 2:45-3:00 **Temperature gradient drilling and measurements at Kibiro and Katwe geothermal fields.**
James Francis Natukunda - Department of Geological Survey and Mines, Uganda, Gestur Gislason and Knutur Arnason - Iceland Geosurvey (ÍSOR).
- 3:00-3:15 **Production Log Interpretation through a slotted liner during cold Water Injection: Integration with Electrical Borehole Images in a High Temperature Geothermal Development Well, South Sumatra, Indonesia.**
Richard E. Netherwood, Indonesia.
- 3:15-3:30 **Update on well testing and reservoir engineering studies at Tendaho geothermal field, Ethiopia.**
Yiheyis Amdebrhan, Geological Survey of Ethiopia.

3:30-3:45 *Coffee Break*

Session 8: Geothermal Utilization

Chair: Horst Kreuter, International Geothermal Association (IGA).
Rapporteur: Muhwezi Deus, Department of Geological Survey and Mines, Uganda

- 4:20-4:35 **Geothermal Resource Assessment and Utilization Options in the Arus-Lake Bogoria Kenya Rift.**
John Lagat and Raymond Korio, KenGen, Kenya
- 4:35-4:50 **Olkaria I reservoir performance during 27 years of production**
Ofwona Conel, KenGen, Kenya.
- 4:50-5:05 **Environmental impact Assessment for the development of Tendaho geothermal field, Ethiopia.**
Kebede Solomon .
- 5:05-5:20 **A New View of the Distribution of High Enthalpy Geothermal Areas in Ethiopia.**
Getahun Demissie, GeoMET Plc, Ethiopia
- 5:20-5:35 **Operational experience gained on rehabilitation of the Aluto Langano geothermal power plant, Ethiopia.**
Merga Tassew, Ethiopia Electric Power Corporation, Ethiopia.
- 5.35-5.50 **Future of Geothermal Development in the East African Countries.**
Martin N. Mwangi, GeoSteam, Kenya.
- 5:50-6:30 *Closing ceremony*
- 6:30-8.30 **Farewell Dinner, Imperial Resort Beach Hotel, Entebbe, Uganda.**



List of Posters

1. **Geothermal activity in Kenya's Menengai crater and its potential environmental impact on ground water system. Kenya**
Anna Wairimu Mwangi.
2. **Hydrothermal patterns in closed basins of continental rifts: application to Lake Bogoria basin, central Kenya.**
Eric Rannou.
3. **Some Considerations on the Repartition of Hot Springs around Virunga Volcanoes Area.**
Mathieu Yalire Mapendano, D.R.C.
4. **Preliminary Results of the Gepaca Project. Rwanda**
Jean Claude Ngaruye, Ministry of Natural Resources, Rwanda.
5. **Application of magnetotelluric method in geothermal exploration and monitoring.**
6. **Geothermal energy potential of Uganda.**
Agnes Alaba and Godfrey Bahati, Department of Geological Survey and Mines, Uganda.
7. **Current uses of geothermal energy in Uganda.**
Godfrey Bahati and Grace Nassuna. Department of Geological Survey and Mines, Uganda.
8. **Aeromagnetic survey of Uganda**
Andrew Katumwehe. Department of Geological Survey and Mines, Uganda.
9. **Results of Geologic and Geochemical Investigations of Geothermal Resources in Yemen.**
Noori Gamal Dawood, Ministry of water and Environment, Yemen.
10. **Multi-fold GPR characteristics of reservoir analogues for geothermal applications.**
Michele Pipan, ICS-UNIDO, Italy.
11. **Geothermal direct application in Reconnaissance survey of Dubbi-Nabro Area** Michael Abraha Ghebreselassie, Geological Survey of Ethiopia.
12. **Opportunities for Direct Heat Utilization of Geothermal Resources in Ethiopia to Optimize Horticulture Production in Greenhouses.** Solomon Kebede. Geological Survey of Ethiopia.
13. **Nickel potential in Uganda.**
Isaiah Tumwikirize, Department of Geological Survey and Mines, Uganda
14. **Seismic and volcanic risk in Uganda.**
Isaiah Tumwikirize and Joseph Nyago, Department of Geological Survey and Mines, Uganda.