I wish to welcome you all to Kenya and to this fourth African Rift Geothermal Conference. We are pleased to host you in Kenya.

This Conference is of great importance, given the development targets that the East African countries have set in order to meet their energy requirements. In light of the current high international oil prices and adverse weather patterns that have negatively affected hydroelectricity generation, geothermal remains the best option for electricity generation.

We all know that energy is a critical factor in economic development. We must therefore take advantage of this resource to redefine our economic fortunes as a region.

Geothermal development in the region has been constrained by high upstream development risks yet electricity demand in this region is ever-rising. We therefore need innovative strategies aimed at fast tracking the exploitation of our huge untapped geothermal potential.

Kenya has put into place policies, legislation and key institutions all aimed at attracting investors and financiers into the geothermal investment arena. And we have made tremendous progress. We are ready to share our success factors with other countries in the region as we work together towards accelerated geothermal development.

I am confident that at the end of this workshop we will have concrete progressive deliberations. Once again welcome to Kenya and feel free to sample our hospitality and beautiful parks.

Geothermal is the Solution to Africa’s Energy Needs

H.E Hon. Mwai Kibaki, C.G.H., M.P., President of the Republic of Kenya

We must therefore take advantage of this resource to redefine our economic fortunes as a region.
The African Rift Geothermal Development Facility (ARGeo) was founded in 2003 with a view of supporting the accelerated development of the large untapped geothermal resource potential in the Eastern Africa region. In order to further regional cooperation, ARGeo holds biennial conferences where delegates discuss progress made in the development and utilization of geothermal resources among member countries.

The first three ARGeo Conferences (ARGeo-C1, C2 and C3) were held in Ethiopia, Uganda and Djibouti, respectively. Kenya was nominated to host the 4th African Rift geothermal conference at the 3rd Africa Rift Geothermal conference held in Djibouti in November 2010.

The East African Rift System is one of the highly endowed geothermal resource hubs on the earth. Geothermal is a reliable, affordable and green source of energy. Geothermal power is the best and least-cost source of electricity; and it is much cheaper than all other renewable sources – hydro, wind and solar. In Africa, we have a geothermal potential of over 20,000 MW, yet as a continent, we are the least connected with electricity. It is however gratifying to note that there is growing interest in the development of geothermal energy in this region.

Kenya and Ethiopia have operational geothermal plants in Africa. Kenya is leading the way and ranks among the top ten globally in the generation of electricity from geothermal sources. I am happy to note that Rwanda is ready to commence drilling in Karisimbi geothermal field. Several other countries are at various stages of geothermal assessment and development.

This conference is therefore timely and will develop modalities on how we can fully exploit the abundant geothermal resources and increase geothermal electricity in the various national grid. This way, geothermal will contribute to increased electricity connectivity in Africa.
The United Nations Environment Programme (UNEP) is pleased to welcome you to the Fourth African Rift Geothermal Conference (ARGeo-C4) focusing on “Geothermal: Solution to Africa Energy needs”.

This conference is one of the main initiatives of the UNEP-ARGeo project to convene biennial international conferences to further regional cooperation in the development and utilization of geothermal resources. The first three ARGeo conferences were held in Ethiopia, Uganda and Djibouti in 2006, 2008, and 2010, respectively.

ARGeo-C4 provides an opportunity for finding the paths to seize the inordinate opportunity for accelerating and scaling-up renewable energies including geothermal in East Africa alongside gains in energy efficiency and improved access to energy in support of the UN Sustainable Energy for ALL initiative launched in 2012.

In Africa energy use is under-developed. Although the population of Africa is 13% of the world’s total, its share in the global electricity consumption is less than 3%. This reflects the low level of energy utilization in economic production and in the maintenance of social welfare. Only 25% of Africans have access to electricity. More than 70% of the population is dependent on traditional biomass fuels. This has caused widespread deforestation, erosion and the loss of fertile agricultural lands.

However, the continent has an abundance of untapped renewable energy resources that include: hydropower, wind, geothermal, solar, bio-fuels and biomass. With a geothermal potential of over 15,000 MW of electricity, the East Africa Rift System is one of the highly endowed regions of the earth, yet, the least connected with electricity.

In the East Africa Region, Geothermal development has been constrained by the risks associated with resource exploration and development as well as financial risks that are associated with investment in power development projects.

Welcome Message from Achim Steiner
UN Under-Secretary General and UNEP Executive Director

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In the East Africa Region, Geothermal development has been constrained by the risks associated with resource exploration and development as well as financial risks that are associated with investment in power development projects.
Lack of appropriate investment and institutional settings in many countries have also contributed to the slow pace of development. The adoption of a comprehensive regional strategy to geothermal development is one way of reducing these risks and accelerating the up take of geothermal.

This is at the heart of the Global Environment Facility-funded UNEP-African Rift Geothermal Development Facility Project (ARGeo). The project was officially launched in November 2010 with the view to promote geothermal resource utilization by reducing the various risks involved, attracting investors and lowering the cost of geothermal power development projects.

The UNEP-ARGeo Project, which covers six East African Countries: Eritrea, Ethiopia, Kenya, Rwanda, Tanzania and Uganda, is of great importance to the Africa region and is associated with the “Sustainable Energy for All initiative.

UNEP-ARGeo has developed close partnership with the African Union Commission (AUC)- German development Bank (KfW) Geothermal Risk Mitigation Facility (GRMF), German Federal Institute of Geosciences and Natural resources (BGR), Icelandic International Development Agency (ICEIDA), United Nations University (UNU)-Geothermal Training Programme (GTP), and United States International Aid of Development Agency (USAID).

The ARGeo-C4 is being held against the general backdrop of the challenges of the high upfront cost of geothermal development, inadequate skilled manpower for sustainable geothermal development, and the over-dependence on imported petroleum and petroleum products by most East African countries. Furthermore, given the critical role of energy as a key input to virtually all economic activities, the often high and frequently unpredictable costs of fossil fuels significantly undermines the economic competitiveness of the East Africa region.

In contrast geothermal is ‘indigenous’, reliable and price-wise lower in cost than imported oil or coal and a key ally in realizing a transition to a low carbon, resource efficient and inclusive Green Economy - a transition that was endorsed as an important pathway to achieving sustainable development at the recent Rio+20 Summit and a pathway that many countries in the region have embarked upon.

The ARGeo-C4 is an important step towards this vision of collective regional action and risk sharing, indeed it can propel moves towards the realization of a Regional Energy Policy and the East African Sustainable Energy Roadmap and Strategy.

I would like to extend my sincere appreciation to the Government of Kenya for co-organizing this important conference with UNEP.

I would also like to thank our sponsors: the Icelandic International development Agency (ICEIDA), German Federal Institute of Geosciences and Natural Resources (BGR), EU Energy Initiative PDF, USAID, United Nations University (UNU)-Geothermal Training Programme (GTP), as well as other partners who have made this conference possible.
Welcome to a Three-Day Bouquet of Discussions
Dr. Silas Simiyu, Chairman, Geothermal Association of Kenya and MD & CEO, Geothermal Development Company

Africa, and indeed the global community, is moving towards green, affordable and reliable energy; geothermal is the best bet. Ever since 2006 when we held the first Africa Rift Geothermal Conference in Ethiopia, attendance has continued to increase tremendously. In 2008 we were in Uganda and in 2010 we congregated in Djibouti. These biennial international conferences have continued to provide the ideal environment for furthering regional cooperation in the development and utilization of geothermal resources. They have facilitated sharing of information and experiences.

This year’s conference brings together 15 countries that fall under the East Africa Rift System, with attendance drawn from more than 35 countries from all corners of the world. The conference is organized by the Geothermal Association of Kenya (GAK) in partnership with Ministry of Energy and UNEP. GAK is a professional body which champions the development of geothermal energy in Kenya, and is an affiliate member of the renowned International Geothermal Association (IGA).

We are most grateful for the tremendous support from partners who have made it possible for us to organize this conference. In the next three days, over 120 technical papers will be presented. The organizing committee has also put together an excellent exhibition with more than 30 exhibitors from all over the world showcasing their services and products.

This conference was preceded by two-day workshops and will culminate with a two-day field trip to the Olkaria and Menengai geothermal fields for an outdoor countryside experience.

With all this range of activities, I welcome you to make the most out of this conference as we work together towards accelerating geothermal development in the eastern Africa region and beyond.
The Organizing Committee

Dr. Peter Omenda
General Manager
Geothermal Development Company (GDC)
Chairperson, ARGeo-C4 Organizing Committee

Dr. Meseret T. Zemedkun
Program Manager, ARGeo
Regional Office for Africa (ROA)
United Nations Environment Programme
Vice - Chairperson, ARGeo-C4 Organizing Committee

Ruth Musembi
Manager, Corporate Communication & Marketing, GDC
Head of Secretariat, ARGeo-C4

Bruno Linyiru
Chief Manager
Commercial Services, GDC
Treasurer, ARGeo-C4 Organizing Committee

Cornel Ofwona
Manager, Geothermal Resource Assessment/Area Manager,
North Rift, GDC
Member, ARGeo-C4 Organizing Technical Committee

Dr. Nicholas Mariita
Chief Geothermal Training Officer
KenGen
Member, ARGeo-C4 Organizing Technical Committee
The Organizing Committee

Maggie Ogutu
Public Relations Officer, KenGen
Member,
ARGeo-C4 Organizing Committee

Cyrus Karingithi
Assistant Manager of Resources
Development, KenGen
Member,
ARGeo-C4 Organizing Committee

Pauline Sheghu
Marketing and Communication Officer
GDC
Member,
ARGeo-C4 Organizing Committee

Raphael Mworia
Head of Corporate Communications,
KETRACO
Member,
ARGeo-C4 Organizing Committee

Antoinette Kamau
Snr. Manager, Communication & Public Affairs, ERC
Member,
ARGeo-C4 Organizing Committee

Debby Kalei
Communication Officer, GDC
Member,
ARGeo-C4 Organizing Committee
Language:
The meeting will be conducted in English with simultaneous interpretation in French for the plenary sessions.

Transportation to the Various Conference Activities Venues:
Participants are advised to strictly adhere to the timings provided for ground transport to the various venues.

Weather:
Nairobi usually experiences the short rains in November so the weather during ARGeo-C4 is expected to be wet and cool, with average daytime temperatures of 25 degrees Celsius. Due to unpredictable changes in weather, it is advisable to plan dressing in layers that can be removed as the weather gets warm.

Dress Code:
Formal or smart casual is recommended as the conference’s dress code. For the dinners, participants are encouraged to dress in their national costumes or in something that depicts their culture.

Electricity:
Electrical sockets (outlets) in Kenya are the “Type G “ British BS-1363 type. The voltage is 240 volts. If your appliance’s plug doesn’t match the shape of these sockets, you will need a travel plug adapter in order to plug in. Travel plug adapters simply change the shape of your appliance’s plug to match whatever type of socket you need to plug into.

Communications:
Telephone, fax and internet services are available, and there will be free wifi at the conference venue. International direct dialling to many countries is available in most urban centres. The country code for Kenya is 254.

Mobile phones are based on GSM 900 network. All urban centres and nearly all areas in the country are covered by mobile telephony network. You are however advised to check beforehand whether your GSM phone is usable in the country. You can obtain a GSM card that will allow you to make international calls to any country at affordable rates. Roaming services are also available. Currently the country is served by four network operators: Airtel Kenya (www.africa.airtel.com/ Kenya), Safaricom (www.safaricom.co.ke), Orange Mobile (www.orange.co.ke) and Yu (www.yu.co.ke).

Money:
The local currency is the Kenya Shilling (Ksh). There are no restrictions on the import and export of local or foreign currency. But for amounts exceeding US dollars 5,000 or equivalent you will need to declare the source and purpose of the funds. Major currencies such as US dollars, Euro and travellers cheques can be converted at major hotels, banks and forex bureaus in Nairobi and major towns. You will get best exchange rates for cash or travellers cheques if you are dealing in US dollars or Pound Sterling.

Credit cards including Visa and Mastercard have wide acceptance. But American Express, Diners and other cards have more limited acceptance. Your Visa card can access your bank or credit card account through various bank dispensers, 24 hours a day. There is a bank within the UN facilities. The exchange rate is approximately USD 1 to Ksh 84 as of 1 September 2012.

Shopping Malls:
Kenya has a variety of shopping malls with a wide selection of general shops, gift shops, restaurants, cafés, bars, sports bars and cinemas as well as facilities like banks, forex bureaus, ATM services and post offices in one location.

Souvenirs:
There is a wide range of local products that make ideal souvenirs and gifts. These include beautiful artefacts, jewellery, carvings, precious stones, furniture, cloths, clothing, textile, basketry, local music, traditional musical instruments and so on. There are weekly large open air markets in Nairobi for local arts and crafts with good bargains.
To reduce deforestation, visitors to Kenya should make informed decisions when purchasing wood products. Rare native woods (Ebony, Rosewood, Olive and Mahogany) should be avoided, or only purchased when used in high quality and highly priced carvings. Objects such as salad spoons and small mass produced carved animals made from these woods present the greatest environmental threat. So as to help protect the local environment and support a sustainable wood carving industry, visitors are encouraged to buy and encourage the use of products made from renewable trees such as Jacaranda, Neem, Mango, Blue Gum and Grevillea.

Night Life:
Kenya has lots to offer to those wanting to socialise in the evenings. Whether you want to party till dawn or just looking to enjoy a few drinks with friends, there are lively night clubs, bars, lounges, sports bars and pubs with local bands and other events for entertainment.

Security and Safety:
As in any country, there are a few safety and security issues in Kenya. Visitors are encouraged to take necessary precaution as there are cases of thieves, pick pockets and con artists, especially in cities like Nairobi. Crime is not common in rural areas. Visitors are advised to avoid resisting, fighting or chasing a thief or a mugger in the event they find themselves confronted with circumstances that may put them in such a situation. It is also important to be aware of one’s environment, take precaution and to use common sense.

As part of precaution, it is also advisable to leave your bags and valuables in the custody of the hotel you are staying in, instead of walking around with them. Avoid wearing items of value such as watches and jewellery on the streets. Also avoid walking around at night, especially alone, and instead use taxis.

Guidelines for Presentations

- The moderator of the panel is ultimately responsible for ensuring equal and fair dialogue among speakers and facilitating engagement with the audience during the Q&A session.

- All participants view-points will be treated with respect by other members of the panel. Inappropriate, threatening and offensive language is not allowed.

- The ARGeo-C4 is not a platform to promote your organization, but rather to contribute to the conference’s agenda. The moderator will acknowledge credentials and your organization at appropriate times when engaging or introducing you.

- The ARGeo-C4 theme and your session’s sub-theme provide the context for your contribution.

- The ARGeo-C4 agenda is designed to flow efficiently and expeditiously over the three conference days, therefore, it is important that all sessions stick to the time slot allocated.

- Should you have to withdraw from the ARGeo-C4 session that you have committed to due to unforeseen circumstances we would appreciate notification as soon possible.
The Geothermal Association of Kenya (GAK) - a key professional body which will champion the development of geothermal energy - is up and running.

GAK is a non-political and non-governmental association which is an affiliate member of the renowned International Geothermal Association (IGA). The association aims to inspire, facilitate and promote coordination of activities related to local and worldwide research, development and application of geothermal resources.

Other objectives of GAK will be to encourage research, development and utilization of geothermal energy in Kenya.

Policy formulation
It will also advance and promote the establishment of criteria for the exploration and development of geothermal resource. Besides, GAK will facilitate the enactment and adoption of uniform and appropriate legislation, rules and regulations for the development and utilization of geothermal energy resources.

GAK will provide a platform for information sharing on the nature of geothermal energy and its development. It is in the interest of GAK to promote geothermal education by conducting and participating in seminars, field trips and conferences.

GAK is Chaired by Dr. Silas Simiyu, GDC’s Managing Director & CEO. Godwin Mwawongo is the vice chairman. Dr. Peter Omenda and Cornel Ofwona are Treasurer and Secretary respectively, while Benjamin Kubo, James Wambugu, Martha Mburu, John Lagat, Grace Mwai and Michael Mbevi are board members.

The International Geothermal Association (IGA), founded in 1988, is a scientific, educational and cultural organization established to operate worldwide. It has more than 5,200 members in over 65 countries.

The IGA is a non-political, non-profit, non-governmental organization. The objectives of the IGA are to encourage research, the development and utilization of geothermal resources worldwide through the publication of scientific and technical information among the geothermal specialists, the business community, governmental representatives, UN organisations, civil society and the general public.

The IGA headquarters is located in Bochum, Germany at the International Geothermal Centre of the Bochum University of Applied Sciences.

IGA is a founding partner of the International Renewable Energy Alliance (REN Alliance). The REN Alliance is a close partnership of five globally operating renewable energy associations with the aim of promoting renewable energy sources worldwide. The work includes political dialogue and advisory on potentials and scenarios for renewables, sustainability assessments, carbon funds, policies and other related fields.

The other REN Alliance partners are the International Hydropower Association (IHA), the International Solar Energy Society (ISES), the World Bioenergy Association (WBA) and the World Wind Energy Association (WWEA).
The Geothermal Development Company (GDC) is a 100% state-owned company, formed by the Government of Kenya as a Special Purpose Vehicle to fast track the development of geothermal resources in the country.

Geothermal energy is an indigenous, abundant, reliable and environmentally-friendly source of electricity.

The creation of GDC was based on the government’s policy on energy - Sessional paper No. 4 of 2004, and the energy Act No.12 of 2006 - which un-bundled the key players in the electricity sector to ensure efficiency.

The search for geothermal energy is not new in Kenya. It started in 1957. But this has so far yielded 209MW only against a massive potential estimated at 7000MW to 10,000MW. Evidently, the speed of harnessing geothermal resources has been too low necessitating the creation of GDC.

Kenya’s GDP is expected to grow by at least 10% from 2012. In Vision 2030, Kenya aspires to become a mid-income economy. To attain Vision 2030, the government’s forecast is to generate 15,000 MW, 5000MW will come from geothermal. Today, the total effective installed capacity stands at 1533 MW.

The government has identified the country’s untapped geothermal potential as the most suitable indigenous source of electricity. GDC will drill 1400 steam wells to provide steam for the generation of 5,000MW of geothermal power by 2030.

Greatwall Drilling Company (GWDC), a subsidiary of China national Petroleum Corporation (CNPC) and an IADC member, is engaged in the worldwide business of petroleum engineering and technical services. Our business scope covers various processes of petroleum engineering and technical services and energy development. We provide integrated oil and gas well construction solutions solutions for our clients from well design, drilling operation and mud services to well completion in various surface and underground conditions. We offer wireline logging, mud logging and well testing operations based on the practical combination of advanced technologies. The intergrate interpretation of data acquired from those operations offers solutions to a variety of geologic situations. We expand services globally and vigorously for general contracting of oil reservoir development, well simulations, adjustment plan preparation and intergrated project management of oil, gas and geothermal field development.

The African Development Fund (ADF) is the concessional window of the African Development Bank (AfDB) Group. Established in 1972, the ADF became operational in 1974. It is administrated by the African Development Bank and comprises State Participants (donor countries) and recipient countries. Its main objective is to reduce poverty in Regional Member Countries (RMCs) by providing loans and grants.

The ADF contributes to the promotion of economic and social development in 40 least developed African countries by providing concessional funding for projects and programs, as well as technical assistance for studies and capacity-building activities.
KenGen

Energy for the nation.

Kenya Electricity Generating Company Limited, KenGen is the leading electric power generation company in Kenya, producing about 80 percent of electricity consumed in the country. The company utilises various sources to generate electricity ranging from hydro, geothermal, thermal and wind. Hydro is the leading source, with an installed capacity of 766.88MW, which is 64.9 per cent of the company’s installed capacity.

KenGen has a workforce of 1,829 staff located at different power plants in the country. With its wealth of experience, established corporate base and a clear vision, the company intends to maintain leadership in the liberalised electric energy sub-sector in Kenya and the Eastern Africa Region.

KenGen

Energy Regulatory Commission

Energy Regulatory Commission(ERC) is established under the Energy Act, 2006. Following the operationalization of the Energy Act, 2006, with effect from July 7 2007, the Electricity Regulatory Board (ERB) became Energy Regulatory Commission (ERC) with the following objectives and Functions:-

• Regulate the electrical energy, petroleum and related products, renewable energy and other forms of energy.
• Protect the interests of consumer, investor and other stakeholder interests.
• Maintain a list of accredited energy auditors as may be prescribed;
• Monitor, ensure implementation of, and the observance of the principles of fair competition in the energy sector, in coordination with other statutory authorities;
• Provide such information and statistics to the Minister as he may from time to time require; and
• Collect and maintain energy data;
• Prepare indicative national energy plan;
• Perform any other function that is incidental or consequential to its functions under the Energy Act or any other written law.

Emerson

Emerson Network Power

Emerson Network Power is responsible for providing the power management infrastructure that makes modern IT systems work. Emerson's wide range of high quality products and solutions, from UPS systems to rack-based power supplies, is designed to deliver dependable, efficient, uninterrupted power to critical IT infrastructure components. This allows IT departments to focus on delivering services and applications, not power management. Emerson Network Power’s areas of expertise include power management solutions for data centers, utilities, healthcare, military, manufacturing, telecommunications and retail.

KETRACO

“Building a World Class National Grid”

KETRACO’s core business is to plan, design, build, operate and maintain new electricity transmission lines and associated substations that will form the backbone of the National Transmission Grid.

The new and robust power grid will:

• Improve quality and reliability of supply;
• Reduce transmission technical losses;
• Increase access to electricity service countrywide;
• Reduce the cost of electricity to the customer; and
• Provide a link with neighbouring countries.

KETRACO

Tullow Oil Plc

We are one of the largest independent oil and gas exploration and production companies in Europe. We are in our next phase of transformational growth with a major focus on Africa, where we are already a dominant player. Key to achieving our growth ambitions was delivery of first oil in Ghana in November 2010 and developing the significant resource base discovered in Uganda with our new partners CNOOC and Total.

Tullow Oil Plc
Kenya Power

Kenya Power is a limited liability company which transmits, distributes and retails electricity to customers throughout Kenya. Kenya Power is a public company and is listed at the Nairobi Stock Exchange (NSE).

Kenya Power is committed to providing high quality customer service by efficiently transmitting and distributing high quality electricity that is safe, adequate and reliable at cost effective tariffs. The Board, Management and staff of Kenya Power are committed to effective implementation and continual improvement of the Quality Management System that complies with ISO 9001:2008 in order to consistently meet its customers and other stakeholder’s requirements and expectations.

Co-operative Bank of Kenya Limited

The Co-operative Bank of Kenya Limited ('the Bank') is incorporated in Kenya under the Company’s Act and is also licensed to do the business of banking under the Banking Act. The Bank was initially registered under the Co-operative Societies Act at the point of founding in 1965. This status was retained up to and until June 27th 2008 when the Bank’s Special General Meeting resolved to incorporate under the Companies Act with a view to complying with the requirements for listing on the Nairobi Stock Exchange (NSE).

The Bank went public and was listed on December 22 2008. Shares previously held by the 3,805 co-operatives societies and unions were ring-fenced under CoopHoldings Co-operative Society Limited which became the strategic investor in the Bank with a 64.56% stake.

Global Environmental Facility (GEF)

The GEF unites 182 countries in partnership with international institutions, civil society organizations (CSOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organization, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

Since 1991, the GEF has achieved a strong track record with developing countries and countries with economies in transition, providing $10.5 billion in grants and leveraging $51 billion in co-financing for over 2,700 projects in over 165 countries. Through its Small Grants Programme (SGP), the GEF has also made more than 14,000 small grants directly to civil society and community based organizations, totaling $634 million.

Schlumberger

Schlumberger is the world’s leading oilfield services company supplying technology, information solutions and integrated project management that optimize reservoir performance for customers working in the oil and gas industry. Schlumberger also leverages its oilfield technology and expertise to deliver solutions for companies involved in supplying domestic water and gas; developing underground carbon capture and storage facilities; and geothermal energy. The company employs over 115,000 people of more than 140 nationalities working in approximately 85 countries.

Schlumberger provides the most comprehensive portfolio of products and services to the upstream oil and gas industry, ranging from exploration in frontier regions to revitalizing production from long-established oilfields. Schlumberger is committed to Africa by providing the most advanced services and complete support infrastructure available to oil and gas companies investing in Africa. For more information, visit www.slb.com.

BGR

BGR works with partners around the world and participates on behalf of the federal departments and in coordination with national and international geoscientific institutions of scientific and technological cooperation and European and international cooperation in Geosektor.
EU Energy Initiative Partnership Dialogue Facility

The Partnership Dialogue Facility (EUEI PDF) is an instrument developed and funded by a number of EU member states and the European Commission in the context of the EU Energy Initiative (EUEI). Currently the EUEI PDF is financed by Austria, the European Commission, Finland, France, Germany, the Netherlands, and Sweden.

The overall objective of the EUEI PDF is to support our partner countries and regions across Africa, Southeast Asia, Latin America and the Pacific in developing policies and strategies for the promotion of access to energy. These are based on dialogue within and between partner countries, their regional organisations, EU member states and the European Commission. Furthermore, EUEI PDF supports the strategic energy dialogue of the Africa-EU Energy Partnership (AEEP) as a secretariat.

USAID carries out U.S. foreign policy by promoting broad-scale human progress at the same time it expands stable, free societies, creates markets and trade partners for the United States, and fosters good will abroad.

USAID works in over 100 countries to:

- Promote broadly shared economic prosperity;
- Strengthen democracy and good governance;
- Protect human rights;
- Improve global health;
- Advance food security and agriculture;
- Improve environmental sustainability;
- Further education;
- Help societies prevent and recover from conflicts; and
- Provide humanitarian assistance in the wake of natural and man-made disasters.

China Petroleum Technology & Development Corporation (CPTDC), as the largest supplier of Chinese petroleum, petrochemical and geothermal materials and equipment in the world, engages in the export of the petroleum & gas and geothermal materials and equipment and technical service.

CPTDC is specialized in providing various types of equipment related to energy sector, such as drilling materials, exploration equipment, drilling equipment, production equipment, line pipe, refinery products, EOR technology and offshore platform. Drilling rigs is one of the main products of CPTDC. CPTDC can supply desert type, fast move type, trailer mounted type, truck mounted type, swamp and offshore platform, man made island type, geothermal type and tailor made type.

The Icelandic International Development Agency (ICEIDA) is an autonomous agency under the Ministry of Foreign Affairs and was founded by law in 1981. According to law the Agency shall promote co-operation between Iceland and developing countries. The goal of such co-operation shall be to support governments of the developing countries in improving their economy and thus participate in strengthening social progress and political independence within the framework of United Nations. Furthermore the aim shall be to promote mutual understanding between Iceland and the developing countries by increasing cultural relations.
Mannvit is an international consulting firm offering comprehensive engineering, consulting, management, operational and EPCM services. With over five decades of experience, Mannvit has participated in development and construction of projects generating over 1300 MW in geothermal power and heating capacity. Mannvit offers geothermal exploration, plant engineering and commissioning to projects worldwide, including Kenya and Eastern Africa. 
www.mannvit.com

Iceland GeoSurvey, ÍSOR, is a leading provider of scientific and technical expertise to the geothermal industry in Iceland and abroad. With more than six decades of experience, ÍSOR is able to offer consulting services worldwide on most aspects of geothermal exploration, development, and utilization, and provides training and education on related issues. 
www.geothermal.is

Vatnaskil, founded in 1982 in Iceland, is a leading consulting firm in the areas of geothermal reservoir engineering, groundwater hydrology, river hydraulics, surface runoff, air pollution and environmental modeling. Geothermal reservoir engineering projects undertaken include Kenya, Iceland, the Middle East, Far East, Europe and the United States. 
www.vatnaskil.is

Verkís is the oldest engineering consulting firm in Iceland with around 300 employees and offers expert services in the field of renewable energy. Verkís is at the forefront of geothermal energy utilisation and has for decades been involved in all stages of geothermal energy projects. Our experts provide high quality technical services, original concepts adapted to individual projects and are up to date with the latest technological advances. 
www.verkis.com

Kuster Company, a Probe Company, is a worldwide leader of Geophysical instrumentation for the Geothermal and Oil/Gas Industries. The Kuster product line includes: K10 Geothermal PT, PTS, PTS/CCL and PTS/Gamma/CCL tools that are available in memory and (SRO) Surface Readout. Also available are HPHT (200C) memory gauges, Mechanical gauges, Permanent monitoring systems and complete Calibration Equipment.

Green Energy Group AS (GEG) provides turn-key modular geothermal plants, which reduces capital expenses and project risk and allows for quicker payback on investment. The system is prefabricated in ready modules and commissioned on site in a matter of weeks. GEG currently delivers geothermal wellhead power plants sizing from 3.2 MWe to 6.4 MWe per well.

The company has offices in the UK, Iceland and Kenya.

Phoenix Geophysics Limited is a geophysical manufacturing and contracting company founded in 1975. Phoenix Geophysics provides instrumentation and services, which are used for cost-effective exploration of diamonds, minerals, metals, hydrocarbons and geothermal resources and earthquake studies. Phoenix is the world’s leader and largest manufacturer of magnetotelluric (MT). Our clients are Mining and Oil companies, geophysical contractors, universities and government earth science agencies in more than 80 countries.
Our name says it all. We offer a wide range of services to our customers interested in the development of their geothermal resources. We provide front-end feasibility studies, economic analyses, mechanical and electrical engineering, geothermal power plant equipment, and a full range of resource-related technical support.

Elmar was formed in 1981 and made its name manufacturing wireline pressure control equipment, TCP perforating equipment, screens and slotted casing of the highest standard. Since 2001 Elmar have been part of Varco, then NOV. ASEP are the market leader in wireline and slickline winch manufacture, and merged with Elmar in 2009. With the addition of the Wireline Tool product line, ASEP Elmar can provide the full range of equipment for a wireline logging or intervention job. All of our current products can be viewed on our website www.nov.com/ASEPElmar. This site also contains our contact details and links to our datasheet download service.

Cluff Geothermal Ltd. is a London based exploration, production and consultancy company focussed on the production of electricity and direct heat from geothermal sources in the UK and East Africa.

Cluff Geothermal are able to draw on the UK’s leading research expertise in geothermal energy and decades of commercial experience at the cutting-edge of geo-exploration worldwide. Our aim is to develop sustainable geothermal projects that deliver the best possible results to our shareholders. We are unique in benefiting from a close working relationship with Newcastle University, whose geologists began the current renaissance of the UK geothermal energy sector with their project at Eastgate in County Durham, and who have recently led the exciting and successful project to drill a 1,800 metre deep geothermal borehole in the centre of Newcastle.

Oserian Flowers is the largest and most technically advanced production facility of flowers in Kenya that has maintained a strong track record in environmental conservation, sustainability and fair-trade farming. Having been the first to introduce rose farming in East Africa in the late 1980’s, Oserian has grown to be recognised as the leading force in flower production, certified in maintaining a range of social and ethical standards.

In a continuing effort to minimise any effect on the environment together with enhancing the development of the local business community, Oserian now has two geothermal power plants which provide all the electricity and heat for the entire farm, as well as both Chui Lodge and Kiangazi House. This forward thinking and care for the sustainability of the area has given Oserian an impressive track record, and put it at the fore-front of environmental management.
The Geological Society of Kenya (GSK) is a non profit making, non-political organization that was established in 1974 to cater for the needs of geologists in Kenya and encourage geoscientific education, collaboration and cooperation in Kenya and across the continent.

Its mission is “To be a leader in advancing and promoting the geosciences and enhancing the professional growth of its members in the service of the Kenyan people.”

PASS AFRICA LTD.

PASS AFRICA LTD was founded and registered in Kenya in 2001 by Mr. Ajay Shah to help communities in eastern Africa access clean water and adequate sanitation and also launched school hygiene training and sanitation projects.

We are a water well drilling company & water well drilling contractors involved in humanitarian and development projects.

We are a commercial entity providing services to charitable institutions donors and corporate groups to implement humanitarian and community development project, solely committed to the development of safe water related projects in Eastern Africa. Since our inception, we have conducted several projects that has seen us transform our mode of operation to meet new emerging challenges in the water sector and fulfill our mission.

We aim at providing permanent solution to meet water demands through appropriate technologies and innovations and use of state-of-the art equipment among the rural population. We are leading Drilling contractors in Kenya, water well drilling contractors and water well drilling service provider in Kenya.
CONFERENCE PROGRAMME

Monday 19th – Tuesday, 20th November 2012

MEETINGS:

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Dates</th>
<th>Venue</th>
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</thead>
<tbody>
<tr>
<td>55th IGA Board of Directors meeting</td>
<td>19th-20th November 2012: 9am – 4:30pm</td>
<td>United Nations office, Nairobi Conference Room 1</td>
</tr>
<tr>
<td>ARGeo Steering committee meeting</td>
<td>20th November 2012; 9am – 4:30pm</td>
<td>United Nations office, Nairobi, Conference Room 13</td>
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SHORT COURSES

<table>
<thead>
<tr>
<th>No.</th>
<th>Expected Participants</th>
<th>Short Course Title</th>
<th>Convener</th>
<th>Facilitator</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
<td>Geoscience Exploration Techniques, Drilling Technology and Reservoir Engineering</td>
<td>Dr. John O’Sullivan</td>
<td>Geothermal Institute/IESE, Univ. of Auckland, New Zealand</td>
<td>United Nations Office, Nairobi</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>Planning, Managing and Financing of Geothermal Projects</td>
<td>Dr. Gordon Bloomquist</td>
<td>USAID, USA</td>
<td>United Nations Office, Nairobi</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>Geothermal Database Management for East Africa</td>
<td>Dr. Arni Ragnarsson</td>
<td>ICEIDA, Iceland</td>
<td>United Nations Office, Nairobi</td>
</tr>
</tbody>
</table>

DAY 1: Wednesday, 21st November 2012

08:30 – 09:00 REGISTRATION & ENTERTAINMENT

Conference Room 2

09:00 - 09:10 Welcome remarks by Chairman, Organizing Committee – Dr. Peter Omenda

Global Geothermal Picture: Chair: Meseret Teklemariam Zemedkun-UNEP  Rapporteur: Cornel Ofwona

09:10 - 09:25 World Outlook for Geothermal Electricity 2012 - Prof. Roland Horne – IGa and Stanford University

09:25 - 09:40 Role played by DFI’s in financing geothermal projects in Africa - AfDB- Ms Kandiero Tonia, Resident Country Representative, Tanzania

09:40-09:55 The place of geothermal energy in Kenya’s energy mix - Mr. Patrick Nyoike, PS, Min of Energy

09:55 - 11:30 PLENARY SESSION 1: Ministerial Roundtable: Discussion on what the governments in EA countries are doing to spur geothermal development and opportunities for investors: Conference Room 2

Chair - Hon. Kiraitu Murungi, Minister for Energy, Kenya;
Co-chair: Mounkaila Goundmandakoye, Director, Regional Office for Africa-UNEP

Ministers of Energy/Mines the following countries: Burundi, Comoros, Democratic Republic of Congo, Djibouti, Eritrea, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda, Zambia

11:30-12:00 - TEA BREAK
12:00 - 13:30  OPENING CEREMONY – Conference Room 2:
Chair - PS, Ministry of Energy, Mr. Patrick Nyoike

Entertainment
Remarks by Chair, Geothermal Association of Kenya - Dr. Silas Simiyu
Remarks by IGA President- Prof. Roland Horne
Remarks by UN Undersecretary General and UNEP Executive Director, Dr. Achim Steiner
Remarks by AUC-IED Commissioner, Dr. Elham Ibrahim
Remarks by Minister for Energy, Hon. Kiraitu Murungi

Official Opening by Chief Guest

13:30 – 14:00 - LUNCH

CR-1: International Experience-1: Chair, James Wambugu, Kenya; Rapporteur, Isaac Kanda, GDC
CR-2: Case studies 1: Chair: Godwin Mwawongo, GDC; Rapporteur: Ms. Risper Kandie, KenGen
CR-14: Reservoir Engineering: Chair, Ms. Uwera Rutagarama, EWSA; Rapporteur – Stephen Odhiambo, GDC
CR-10: Exploration 1: Chair - Dr. Nicholas Marita, KenGen; Rapporteur- Joseph Gichira, GDC

14:00-14:40

14:00-14:20 Indonesia status, experience and plans for future - Surya Dharma. National Research Council of Indonesia (DRN)


14:40-15:00 The US Geothermal Industry – Status, Drivers and Technology. James W. Lovekin, and Ann Robertson-Tait, GeothermEx

CR-15: Reservoir Engineering: Chair, Ms. Uwera Rutagarama, EWSA; Rapporteur – Stephen Odhiambo, GDC

15:00 – 16:30 PLENARY SESSION 1:
Conference Room 2

Geothermal Picture: Chair: Cyrus Karingithi, KenGen. Rapporteur: John Lagat

03:15 - 03:35 Scenario for geothermal investment and development in the East Africa Region- MeseretTeklemariamZemedkun-UNEP

03:35-03:55 Geothermal training for Africa- the operations of the future UNU-GTP in Iceland and Africa and possible future development - Lúdvik S. Georgsson, Deputy Director, UNU-GTP

03:55 – 04:20 Plenary Discussion

16:30-16:45 Coffee Break and Exhibition

16:45 – 17:30 EXHIBITION AND POSTER SESSION

19:00 – 22:00 OFFICIAL CONFERENCE OPENING DINNER at National Museums of Kenya
# DAY 2: Thursday, 22nd November 2012

## Plenary Session 1: Financing Geothermal Projects in the East Africa Region
**Chair:** Dr. Silas Simiyu, CEO, GDC; **Rapporteur:** Jackton Tocho, GDC

<table>
<thead>
<tr>
<th>Time</th>
<th>Morning Session; 08:30-10:30 Conference Room 2</th>
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<tbody>
<tr>
<td>08:30-08:50</td>
<td>GEF-Financing Renewable Energy (Geothermal) Projects, Geordie Colville, UNEP</td>
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<tr>
<td>08:50-09:05</td>
<td>The Geothermal Exploration Project: Support to Geothermal Development in the East African Rift Valley Countries - Engilbert Guðmundsson, ICEIDA</td>
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<tr>
<td>09:25-09:45</td>
<td>Supporting Kenya’s Transition Towards Clean Energy Through Geothermal Development - Thierno Bah and Youssef Arfaoui (AfDB, Tunis)</td>
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<tr>
<td>09:45-10:00</td>
<td>Database of African Geothermal Development. Árni Ragnarsson, ISOR - Iceland GeoSurvey</td>
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**10:00:** 10:15 **Policy, Legal and Institutional Frameworks for Geothermal Development: a donor perspective.**  
*AFD - Maitane Concellon, Programme Officer - Energy & Climate Change*

<table>
<thead>
<tr>
<th>Time</th>
<th>10:15-10:30</th>
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<tbody>
<tr>
<td>10:15-10:30</td>
<td>The world bank handbook on planning and financing geothermal power generation and an overview on World Bank geothermal activities in East-Africa, Magnus Gehringer, ESMAP, World Bank</td>
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</table>

**10:30-11:00 TEA BREAK**

### BREAK OUT SESSIONS: 11:00-13:00

<table>
<thead>
<tr>
<th>CR-1</th>
<th>PARALLEL 1: Exploration 2: Chair, Geoffrey Muchemi, KenGen; Rapporteur, Marietta Mutonga, GDC</th>
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</thead>
<tbody>
<tr>
<td>11:20-11:40</td>
<td>The Obock and Rouéli Geothermal Sites, Djibouti Republic. Abdourahman Omar Haga, Hamoud Souleiman Cheik, Jacques Varet</td>
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</tbody>
</table>

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<thead>
<tr>
<th>CR-2</th>
<th>PARALLEL 2: Drilling 1. Chair- Michael Mbevi, GDC; Rapporteur, Roy Bwoma, KenGen</th>
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</thead>
<tbody>
<tr>
<td>11:00-11:20</td>
<td>Drilling into magma - how hot can we handle? Lessons learned from well IDDP-1 and other wells that have encountered magma in Northeast Iceland. Bjarni Palsson</td>
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<thead>
<tr>
<th>CR-3</th>
<th>PARALLEL 3: Research and New Technologies. Chair - Dr. Antony Wamalwa, GDC; Maureen Ambunya, KenGen</th>
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</thead>
<tbody>
<tr>
<td>11:00-11:20</td>
<td>Using First Gumbel’s Model of Extreme Value to Predict Earthquake Return Period in East Africa. Isaiah Tumwikirize and Ray Durrheim</td>
</tr>
<tr>
<td>11:20-11:40</td>
<td>Thermo-hydro-mechanical coupling in a 3D stochastic fracture network at the site of Rosemanowes: Relationship between induced seismicity and thermal stress: Kayad Moussa and Dominique Bruel</td>
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<tr>
<th>CR-4</th>
<th>PARALLEL 4: Environmental and Social Issues. Chair - Benjamin Kubo-GDC, Rapporteur – Cornelius Ndetei, KenGen</th>
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<tbody>
<tr>
<td>11:20-11:40</td>
<td>Analysis of Land Use/Cover changes in the Menengai Landscape,Geothermal Prospect using Landsat TM- Lucy Chepkochei and Frashia Njoroge</td>
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<tr>
<th>CR-5</th>
<th>PARALLEL 3: Research and New Technologies. Chair - Dr. Antony Wamalwa, GDC; Maureen Ambunya, KenGen</th>
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<tbody>
<tr>
<td>11:00-11:20</td>
<td>Petrogenesis of the Suswa Volcano, Kenya- John Charles White, Vanessa V. Espejel-Garcia, Elizabeth Y. Anthony and Peter A. Omenda</td>
</tr>
</tbody>
</table>

**11:40-12:00 ENVIRONMENTAL IMPACT MITIGATION CONSIDERATIONS IN GEO THERMAL DRILLING: A CASE STUDY OF MENENGAI GEO THERMAL DRILLING PROJECT- HENRY WALMALWA AND GABRIEL WETANG’ULA**
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Organizer</th>
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</table>
| 12:00-12:20  | CR-1: PARALLEL 1: Geochemical 
Geothermal 
Prospect Area, Djibouti Republic. 
Abrourahman Omar Haga, Said Kaireh Youssouf, Jacques Varet | Geoffrey Muchemi, KenGen; Rapporteur, Marieta Mutonga, GDC |
|              | Success of multiple-leg well completions at the San Jacinto-Tizate Geothermal field, Nicaragua. 
|              | Computations in real rock – heat transport in 1/K-noise fractures. 
P.C Leary, P.E. Malin & JA Pogacnik. 
Presented by Pat Browne | Maureen Ambunya, KenGen |
|              | Preliminary environmental and social impact assessment of Karisimbi geothermal prospect, Rwanda. 
Jean N. Namugize and Stephen A. Onacha | Cornelius Ndetei, KenGen |
| 12:20-12:40  | Evaluation of past hypothesis on Recharge of the Tendaho geothermal field, Ethiopia. 
Salahadin Ali Abdurahman | Michael Mbevi, GDC; Rapporteur, Roy Bwoma, KenGen |
|              | Drifting Cement Plugs for Geothermal Wells. William M. Rickard, Jonathan Hernández and Alan Bailey, 
Geothermal Resource Group, Inc. | Roy Bwoma, KenGen |
|              | Potential for EGS in Africa -Peter Omenda and D. Chandrasekharam | Maureen Ambunya, KenGen |
|              | Environmental and Social Impacts Assessment of geothermal exploration drilling project, Paka-Silali prospect area, Kenya. 
Gelas M. Simiyu, Benjamin N. Mwasi, Thomas M. Munyado and Vincent Sudo. Moi University | Benjamin Kubo-GDC |
| 12:40-13:00  | A Revised Approach to the Hanlé – Gaggadé (Djibouti Republic): the Garabbayis Geothermal Site -Abdou Mohamed Houned, Abrourahman Omar Haga, Jacques Varet | Solomon Kebede, Ethiopia; Rapporteur: Ruth Wamalwa, KenGen |
|              | The Rate of Success of Drilling Geothermal Wells. Lisa Shevenell, ATLAS Geosciences Inc. | Clety Kwambai, KenGen; Rapporteur: Njeri Kamatu, KenGen |
Hugo Fernando Navas, EEMS International, Inc., GUATEMALA | Njeri Kamatu, KenGen |
|              | Geology of Kibiro, Katwe and Buranga Geothermal Prospects of Uganda- James Natukunda | Thomas M. Munyado, Vincent Sudo, Moi University |
| 13:00 - 14:00| LUNCH                                                                                             |                                               |
| 14:00-14:20  | CR-1: PARALLEL 1: GIS in Geothermal Development and Volcano Hazard Monitoring: 
Chair - Mr. Cyrus Karingithi, KenGen; Rapporteur, Joseph Mutua, GDC |
|              | Study of Geothermal Sources and Potential Using  
GIS in Adrar Site, Algeria -A. Benatiallah and B. Nasri, | EUEI-PDF Presentation, 
Steffen Behrle Project Manager, EU Energy Initiative 
Partnership Dialogue Facility (EUEI PDF) |
|              | KenGen’s Wellhead Technology Experience & Business Insight. 
Rohon Kibet, Roy Bwoma | Ruth Wamalwa, KenGen; Rapporteur: Njeri Kamatu, KenGen |
|              | Geophysical Investigation of Panyimir Geothermal Prospect in Uganda- Isaiah Tumwikirize | Dr. Stephen Onacha, EWSA; Rapporteur – Ms. Anastasia Wanjohi, KenGen |
|              | A Geological Map of Longonot Volcano, Kenya, Using Satellite Optical Imagery - Elspeth Robertson, 
Juliet Biggs and Charlotte Vye | Electricity Sector Reform in Sub-Saharan African Countries and the Required Measures for PPP in Geothermal Power Generation-Rashid Ali Abdalla |
Wamalwa, Antony; Mickus, Kevin; L. Serpa, Laura and Diane Doser |
| 14:40-15:00  | CR-10: Parallel 4: Exploration Geophysics: Chair - Dr. Stephen Onacha, EWSA; 
|              | “The Building Blocks of an Effective Culture – Case Study of GDC” Dansette Kenani | Electricity Sector Reform in Sub-Saharan African Countries and the Required Measures for PPP in Geothermal Power Generation-Rashid Ali Abdalla |
|              | Utilization of Seisimcs for Geothermal Prospecting: Case Studies From The Carpathian Mountaunts: Central Europe -Juraj Janocko and Stanislav Jacko | Dansette Kenani |
|              | “The Building Blocks of an Effective Culture – Case Study of GDC” Dansette Kenani | Dansette Kenani |
|              | The Analysis Gravity And Magnetotelluric Data Of The Coso Geothermal Field, Southeast-Central California. 
Wamalwa, Antony; Mickus, Kevin; L. Serpa, Laura and Diane Doser | Dansette Kenani |
<p>|              | Geophysical Investigation of Panyimir Geothermal Prospect in Uganda- Isaiah Tumwikirize | Dansette Kenani |
|              | “The Building Blocks of an Effective Culture – Case Study of GDC” Dansette Kenani | Dansette Kenani |
|              | Utilization of Seisimcs for Geothermal Prospecting: Case Studies From The Carpathian Mountaunts: Central Europe -Juraj Janocko and Stanislav Jacko | Dansette Kenani |</p>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speakers and Details</th>
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<tr>
<td></td>
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<td>Capacity Building for Fast Tracking Geothermal Development in Uganda (2012-2050) - Tsehaie Woldai, Isaiah Tumwirizie, Freek van der Meer, and Guus Willemsen</td>
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<td>Results of MT survey of Silali geothermal prospect, Kenya. Antony Wamalwa, GDC</td>
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<td>Gender Mainstreaming in Kenya’s Energy Sector: A Case Study of Geothermal Development Company Ltd. Mariam Yunus, GDC</td>
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<td>Magnetotelluric Studies of the Aluto-Langano Geothermal Field, Ethiopia - Friedemann Samrock; Jenneke Bakker; Shimeles Fisseha, Andrew Jackson; Michael Kendall; Alexey Kuvshinov</td>
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<td>Bridging the Skills Gap: Addressing the Lack of Technological and Professional Expertise in the Geothermal Sector - Kenya’s Experience. N. Mariita, KenGen</td>
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<td>Review and Reinterpretation of Geophysical Data of Tendaho Geothermal Field. Bekele. B</td>
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<tr>
<td>16:00-16:20</td>
<td>Geochemical Monitoring in the Menengai Geothermal Area - Sylvia Malimo, GDC.</td>
<td>Current Status of Geothermal Exploration in Burundi: Contribution to Regional Energy Needs in Central Africa - Oswald Ndagiye</td>
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<td>Extracting Energy From Separated Brine at Elevated Locations Before Reinjection - George Maingi, KenGen</td>
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16:20 – 17:30: TEA BREAK AT EXHIBITION STANDS
### DAY 3: Friday, 23rd November 2012

**Time:** 08:30-10:30

**Conference Room 2- Plenary Session 2: Strategy for Geothermal Development:**

- **Chair:** Phillipe Niyongabo, AUC; Dr. Nicholas Maritza

1. **08:30-08:50** GDC strategies for fast tracking development in Kenya – Dr. S. Simiyu, Managing Director, GDC
2. **08:50-09:10** Financing of geothermal projects using capital markets - E. Njoroge, Managing Director, KenGen
3. **09:10-09:30** Regulatory issues that support development of geothermal power: Kenya’s experience - Eng. Kaburu Mwirichia, Director General, ERC
4. **09:30-09:50** Strategies for evacuation of power from geothermal plants in Kenya rift – Eng. Kilu, Managing Director, KETRACO
6. **10:10-10:30** “Green fund” Opportunities for financing geothermal projects in East Africa- Prof. Hino, Economic Advisor to the Prime Minister of Kenya

#### 10:30-11:00 TEA BREAK

### BREAK OUT SESSIONS

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<tbody>
<tr>
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<td>Small-Scale Rural Electrification and Direct Use of Low-Temperature Geothermal Resources at Mbaka Fault in SW Tanzania - Michael Kraml, Horst Kreuter, Graeme Robertson and Mbaka exploration team members</td>
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<td>Opportunities for Direct Use of Medium Enthalpy Geothermal Resources in Mwananyamala Geothermal Prospect, Kenya- Isaac Kanda, Lucy Njue and Janet Suwai</td>
</tr>
<tr>
<td>11:40-12:00</td>
<td>Exploring for geothermal sites in Northern and Central Afar - Jacques Varet 1, Tadiwos Chernet, Girma WoldeTinsae and Knutur Arnorsson</td>
<td>Geothermal development in Djibouti Republic: Country Report. Aboulkader Khaireh and Fouad Aye, Djibouti</td>
<td>Success factors in financing geothermal projects: Kenyan experience – Paul Ngugi, GDC</td>
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<td>Combining Renewable Energy Technologies - With a Geothermal Focus- Marietta Sander</td>
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<td>The Geothermal Energy; Possible Source To Light Majimoto Community – Serengeti District In Tanzania-Ngereja Mgejwa</td>
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<td>Direct use of geothermal energy for low cost and no pollution manufacturing in Kenya. Andrew Amadi and Edna Ouko</td>
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<tr>
<td>12:40-13:00</td>
<td>Heat flow measurement in Dhamar prospective geothermal field, Yemen. Al-Kubati M., Mattash and Saharee</td>
<td>Nord-Ghoubbet geothermal site, Djibouti Republic- Abdou Mohamed Houmed, Abourahman Omar Haga, Jacques Varet</td>
<td>Challenges and opportunities of geothermal exploration and development in the Western Branch of the East Africa Rift Valley - Stephen A. Onacha, EWSA, Rwanda</td>
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<td>Results of well production test for Olkaria Domes field, Olkaria, Kenya. Eric Rop, KenGen</td>
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<tr>
<td>13:00</td>
<td>14:00 LUNCH</td>
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<tr>
<td>14:00-14:20</td>
<td>Resource Management Techniques to Optimize the Performance of Geothermal Power Projects Minh Pham and Subir Sanyal, GeothermEx, Inc.</td>
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<tr>
<td>14:20-14:40</td>
<td>Geothermal Exploration in Northeast Iceland, Bjarni Palsson</td>
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<td>14:40-15:00</td>
<td>Geothermal Energy Use in Russia- Valentina B. Svalova</td>
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<td>15:00</td>
<td>PLENARY SESSION 3: Discussion on the Way Forward</td>
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<td>15:00-15:30</td>
<td>Discussion on Resolutions and Way Forward</td>
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<td>15:30-15:45</td>
<td>Entertainment (Cultural)</td>
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<td>15:45-17:00</td>
<td>CLOSING CEREMONY Conference Room 2:</td>
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<tr>
<td>16:00-17:00</td>
<td>Summary of Resolutions- Cornel Ofwona, Chief Rapporteur</td>
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<tr>
<td>17:00-18:00</td>
<td>Remarks by Dr. Peter Omenda, Chair, Conference Organizing Committee</td>
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<td>18:00-19:00</td>
<td>Remarks by Mr. Mounkaila Goumandakoye- Director, Regional Office for Africa, UNEP</td>
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<td>19:00-20:00</td>
<td>Remarks by Dr. Silas Simiyu, MD, GDC and Chair GAK</td>
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<td>20:00-21:00</td>
<td>Remarks – Patrick Nyoike, PS, Energy</td>
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<td>21:00-22:00</td>
<td>Remarks – Hon, Kiraitu Murungi, Minister for Energy, Kenya</td>
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<td>22:00-23:00</td>
<td>Official closing by Chief Guest – TBC</td>
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POST CONFERENCE GEOTHERMAL FIELD VISIT: 24th-25th November 2012

24th November 2012  
Field visit to Olkaria geothermal field. Depart Nairobi at 7:00am. Tour of Lake Nakuru National park at 4-6pm.

25th November 2012  
Field visit to Menengai geothermal field 9am – 12:30pm. Lunch in Menengai Geothermal field and depart for Nairobi at 2.00pm. Arrive in Nairobi at 5.00pm.