

The great GDC marathon

Steam



Issue No.8

A Publication of the Geothermal Development Company

Apr. -May 2013

When GDC led Africa to new ways

**Mine money
in training**

**CEO's dispatches
birth big book**



Play is good.

YES. WE SUPPORT.

At GDC, we're not all about rigs,
drilling and exploration work.

We believe that play is good.
We support internal and external
sporting activities.
We Power Sports.



GDC IS NOW ISO 9001: 2008 CERTIFIED

**Patron**

Dr. Silas Simiyu MD/CEO

Managing Editor

Ruth Musembi

Editor

Erick Wamanji

Members

Bruno Linyiru

Martha Mburu

Gabriel Wetangula

Jectone Tocho

Deborah Kalei

The Team

Erick Wamanji

Deborah Kalei

Godfrey Olali

Evans Mutai

Contributors

Kiprotich Bii

Evans Mutai

Godfrey Olali

Enock Ngome

John Lagat

Sylvia Malimo

Circulation

Wendy Amond

Design & Layout

Erick Wamanji

Steam is an authoritative platform that reports on geothermal development in Kenya. It gives readers an understanding of the great potential that exists in Kenya and how GDC is providing an enabling environment for investors to participate in the sector.

Steam is published quarterly by the Geothermal Development Company Limited (GDC). Views expressed in this publication do not necessarily reflect the position of GDC.

©All Rights Reserved 2013

Geothermal Development Company Limited

Taj Tower, Upper Hill 9th Floor

P.O. Box 100746-00101

Nairobi

Tel:+254 719 036 000

email: steam@gdc.co.ke

www.gdc.co.ke

Great hope

All life begins with a seed. But, all seeds are not made equal. Consider the Chinese Bamboo tree. Unlike most other plants, the Chinese bamboo is very unique. It takes four years to sprout from the day the seed is planted. Yet season after season the farmer continues to water the seed with great hope, knowing that in due course he will have a tall, beautiful bamboo tree. Then on the fifth year, after a really long wait, the Chinese Bamboo seed at last sprouts and the tree shoots up to more than 80 feet, all in just one growing season! So what happened? The tree was actually developing itself underground, expanding its root system and building up a strong and solid foundation.

Like the Chinese bamboo seed, the GDC seed sown in 2009 is about to sprout into a huge tree that will supply endless, affordable and reliable electricity to Kenyans. It has been three years and several months since GDC opened its doors with a single mandate - to accelerate the development of geothermal resources in Kenya. We have been building a solid foundation and a strong root base in order to guarantee un-ending supply of geothermal electricity.

As a special purpose vehicle, GDC is a source of hope and we are aware that many wait with great expectation for the day electricity will become affordable. With a mission to develop 5000MW in the next 20 years, GDC upon inception embarked on doing first things first. We assembled a great team, christened "The 5,000 Megawatt Team" which has been busy building the foundation. We have so far developed 404MW of steam which once converted into electricity by next year, then, like the Chinese Bamboo tree, Kenyans will attest of the great work that has happened behind the scenes.

And now with our own four deep drilling rigs, with four more expected, GDC will definitely deliver a bumper harvest of clean, reliable and affordable energy. With a solid drilling program in place and an excellent drilling crew, we have continued to open up new geothermal sites including our flagship Menengai Geothermal Project that was a case study in the Africa Rift Geothermal Conference recently held in Nairobi. In this issue we bring you a special report of the conference and how delegates agreed to fashion geothermal projects after Menengai in terms of project design, funding and implementation.

Talking of new prospects, GDC has concluded exploration work in the Suswa geothermal prospect and drilling is set to commence any time now. Find out the promise this new project holds for Kenya. We have continued to remove upfront risks that for many years deterred investors from venturing into geothermal development. With a promising investment environment more financiers and investors have expressed interest to work with us.

Now, we are looking at the carbon market as another funding avenue given that geothermal is a green source of energy. Already Kenya's environment agency has approved the registration of two of our projects under the clean development mechanism (CDM).

With these stories, together with our regular columns and profiles, you have in your hands a dynamic publication that will keep you informed about what has been happening under the surface. And once you are done reading, could you kindly drop us a line or two on your take regarding your favorite geothermal energy publication? I am sure you will.

Cheers!
Ruth





Inside • The lady, the trophy and the cheers! Moments of glory are rare to come by nowadays. Yet, Maurine Atieno, a Drilling Technician, seems to be basking in one. Everyone seems to be fired up, what we could'nt establish is whether they all wanted a piece of the trophy or they were just celebrating for the star lady.

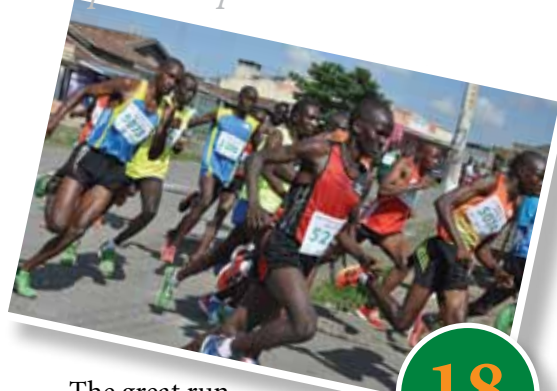
News - GDC in brief



Six feted for bravery

6

Special report - Marathon



The great run

18

Cover Story - Conference



GDC leads Africa to chart new paths

15

New

Step!

MD's dispatches birth big book

27

Plus much, much more...

Your Letters

GDC readers say:

Quality

The magazine has very good quality lay out and looks informative from the first page. It brings our fields such as Menengai, Silali, Paka to the public. It is well-written in a short and precise way.

Equity

I like how the Managing Director writes. He articulates our issues clearly and cleverly. However, the magazine need to feature all the departments or most of them if space is a constrain.

Prism

I see GDC through the colours, and stories of this magazine. It's unique and identifies GDC well right from the cover

Unveiled

In your last issue you unveiled the PIT experts. The company has a lot of bankable resource that the *Steam* has now brought to light. Let's utilise the brains.

The role model

I got a copy of *Steam* and *Geothermal Africa* during conference held in Tanzania. Thank you so much for featuring our country in your magazine. I know that with commitment Tanzania will also reach the levels of Kenya in geothermal development. Our government is very keen in seeing that this country has enough energy. I also hope that one day I will come to Kenya to see Olkaria and Menengai sites.

Ali Omari
Geologist,

University of Dar-e-Salam.

Hope for Kenya

When I read about your activities in exploration and drilling for geothermal energy, I'm so proud to be a Kenyan. We have a heritage, we have experts and determinaton. There is hope for this country to get a lot of electricity so that even our rural areas can get power. Please, GDC, keep up the good work.

Ben Oloo,
Kisumu



Not the old Menengai

I grew up near Menengai and Kilima. Then, when young, we used to fear getting to the crater because we believed demons live there. Recently I took a walk around the view point I was amazed by the steam that was coming from the crater. It is interesting that all these years, Menengai was hosting a big resource that can change our country for good. At least now I don't fear going to Menengai.

Peter Kamau,
Nairobi.

Drop us mail

The Editor welcomes letters on topical issues. Write to the Editor, **Steam**, Geothermal Development Company, P.O. Box 100746- 00100, Nairobi, Kenya. Email: steam@gdc.co.ke.

The Editor reserves the right to edit letters for space and clarity.



Cornel Ofwona (centre) explains a point to GDC's Chairman (fourth left), the MD (right) and GDC directors who had toured the Menengai Project





At GDC we embody the new order as a Special Purpose Vehicle that is designed to oil the new economic dispensation

Geothermal remains king

First things first. We at GDC wish to take this opportunity to congratulate the President H.E. Hon. Uhuru Kenyatta and Deputy President, H.E. Hon. William Ruto on their election, inauguration and formation of a new vibrant government. The new establishment is a source of hope and energy to a nation that is on the tip of an economic revolution.

At GDC we embody the new order as a Special Purpose Vehicle that is designed to oil the new economic dispensation – of epic growth – through the development of geothermal resources so abounding within our counties.

The role of energy in the Vision 2030 mix is critical for powering the desired industrialisation phase. In our country, only geothermal has proved to be the most reliable and affordable source of energy. To crown it, geothermal is green and therefore blends perfectly with the new global environmental and economic order. In the energy domain, geothermal is king.

Four years since the creation of GDC, we are happy that we have 59 wells of steam in Olkaria with a total of 354 MWe. The Olkaria steam will power the 280 MWe Olkaria I&IV power plants.

The Menengai Geothermal Project which is undergoing development is perhaps our finest in the mid-term. Going to be Africa's largest, Menengai will completely change the energy equitation in the country. The first phase targets 400 MWe by 2017. Two years since drilling began, we have harnessed 50 MWe. We have four deep drilling rigs on site where a team of passionate and dedicated engineers work day and night.

This 400 MWe is a third of what this country generates today. It means that the dollars used to import diesel to generate electricity will be saved and channeled to other deserving areas of

national development. And so, our currency will be stronger, and our people's lifestyles will tremendously improve.

Beyond Menengai, we are also keenly focusing on the Bogoria-Silali Block where financiers are ready to support our operations. We are also working on the Suswa prospect where our scientists have recently completed exploration studies.

We know too well that our *jua kali* sector will make great mileage with electricity at its disposal. We know too that with adequate electricity, we shall, as a nation, spur local production, afford our little ones the benefits of studying on well-lit desks and save our environment. No doubt the youth will find a new way of life once we achieve our goals.

Perfect recipe

Geothermal, on its own right is a major employer. Couple this with increasing interest from investors to establish power plants and the fact that others would want to take advantage of our green energy, and you have a recipe for spectacular national growth.

We are glad that the government has integrated geothermal as a core strand in economic growth. The government has continued to provide all the requisite support for GDC to deliver.

As a nation whose sovereignty is sacred, and which takes pride in self-sufficiency, geothermal energy remains key to the achievement of national dreams. While most people may not quite know how electricity from geothermal is generated, they will indeed feel its impact once the steam we have is converted into electricity.

Dr. Silas Simiyu, M.B.S
Managing Director & CEO
Geothermal Development Company

When he came to Menengai in 2011, the immediate former Minister for Energy, Hon. Kiraitu Murungi was lost for words. "This is brilliant," he exclaimed as he marveled at the well that roared with steam gushing out.

That was Thursday May 27, 2011. The Menengai Well-01 had just discharged a few days earlier, and Hon. Kiraitu was no doubt enchanted by the site.

Later, addressing the press, he affirmed thus: "As a government we're committed towards the development of geothermal resources. GDC is a flagship project in the Ministry of Energy and the government will support it fully."

And support, in deed, has been pouring in. Menengai is thriving. GDC is marching forward.

forward.

Hon. Kiraitu is a strong believer of geothermal energy. It is under his watch that the sector blossomed and boomed. He also offered immense guidance to the technocrats in the sector. It is to his credit that international financiers fell head over heels to come on board the national geothermal dream. He was indeed the geothermal man.

And it did not end in Menengai. If you go to Olkaria, in the past four years, there has been tremendous growth. Of

course, under Hon. Kiraitu, the 280 MWe Olkaria I&IV power plants were commissioned. He is also credited for massive rural electrification in the country and the incisive restructuring of the energy sector.

Then he was an MP. Now he is a Senator for Meru County. Senator Kiraitu's public life has been of distinction and accomplishments. In fact, it is a great disservice to the story of his life, to attempt it on a magazine like *Steam*; he deserves a book.

The lawyer, the human rights

The minister, the law and a jig

activist, the politician and the family man, is no doubt a man of action. Born in Kionyo, Meru at the height of the Mau Mau Struggle in 1952, he grew up with his mother in a detention camp. His father, Daniel Kiraitu, was one of the key Mau Mau leaders in Meru.

An 'A' student, he attended Kariene and Kionyo Primary Schools and later Chuka Boys

GDC is a flagship project in the Ministry of Energy and the government will support it fully.

High School and Alliance Boys High School. Kiraitu studied law at the University of Nairobi to Masters level. He would later proceed to the prestigious Harvard Law School where he studied International Law and Human Rights. He obtained another Masters Degree. Kiraitu has won many scholarships including FORD Foundation and Robert F. Kennedy Centre for Human Rights. He has also worked for American Civil Liberties Union (ACLU) in Washington D.C.

At the Kenya School of Law, Kiraitu won the best Law Student Prize in 1978. Kiraitu has taught both at the University of Nairobi and the Kenya School of Law. An academic in his own right, Kiraitu has published many articles and authored two books *In the mud of Politics*, and *The Song of My Beloved*.

As Minister for constitutional and Legal Affairs, he spearheaded the epic constitutional review process, and justice and legal sector reforms,

including "the radical surgery" of the judiciary, and the Governance, Justice, Law and Order Sector (GJLOs) program.

Hon. Kiraitu believes that provision of adequate reliable and affordable energy services is a critical catalyst of a modern industrialising economy.

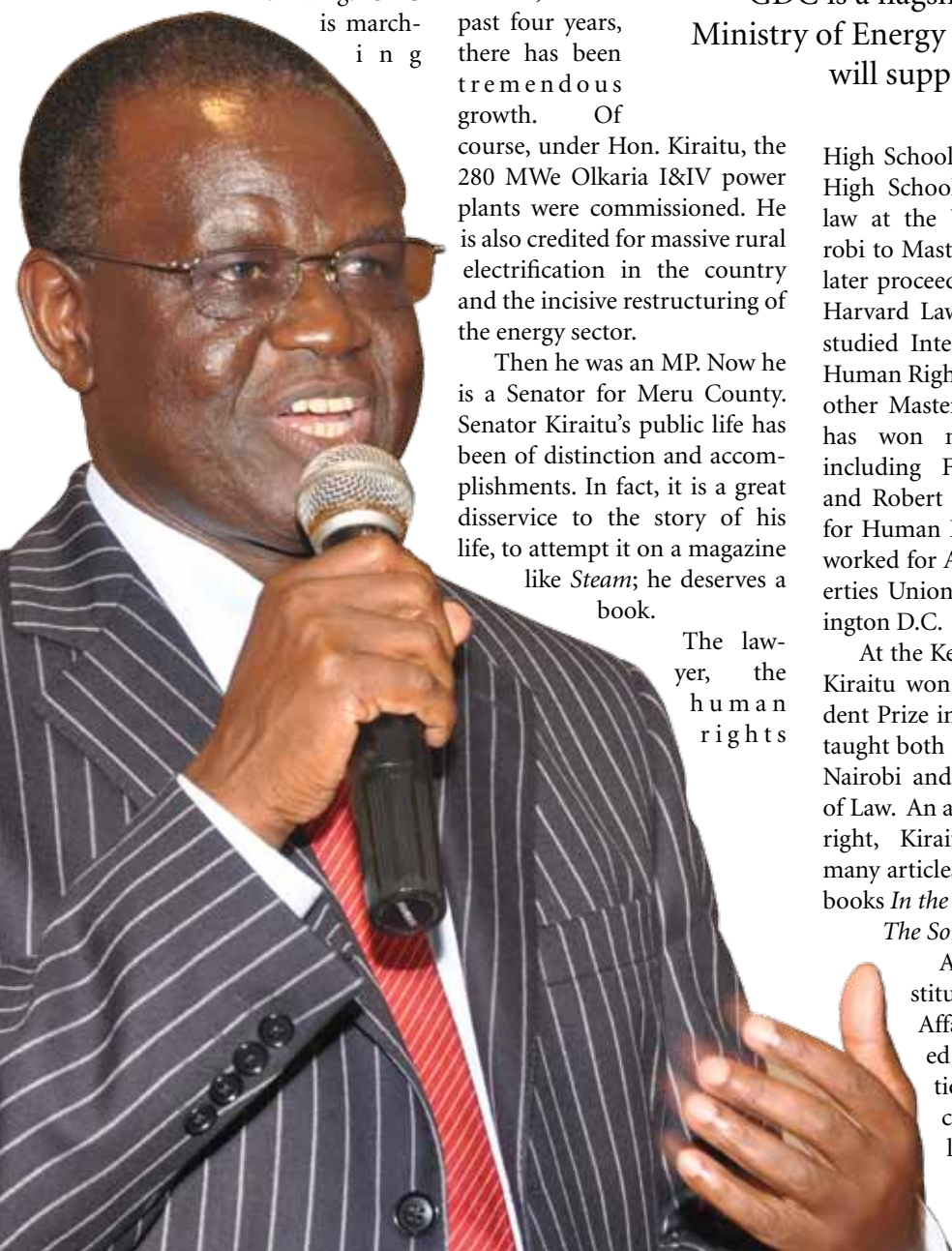
The Rural Electrification program has witnessed many schools and health facilities connected to power grid.

He has also provided leadership in the implementation of the Energy Sector Policy Framework spelt out in the Sessional Paper No.4 of 2004, which laid down a National Energy Policy Framework for provision of quality, adequate, sustainable, cost-effective and affordable energy services for socio-economic development over the period 2004 – 2023.

The dancer

The Sessional Paper, committed the Government to the enactment of an Energy Act to facilitate prudent regulation and enhance stakeholder interests, including boosting of investor confidence.

The philanthropic politician runs the 'Kiraitu Murungi Foundation' that supports bright students from Meru. It also promotes the Ameru cultural songs and dances. And talking of dances, when he came to Menengai, and after all the speeches had been made and the tour completed, Kiraitu took to the dance floor together with his wife, and impressed the audience with his twisty dance. We at GDC wish Hon. Kiraitu the very best in his endeavors.





Hey, yours looks better... After being feted with plaques of honour, these staff seem to be admiring their counterparts' trophy. Hmmm, is the tea in your cup sweeter?

Heroes of exploration

GDC fetes staff who endured odds to deliver scientific results

Six GDC staff were recently feted for enduring the most difficult circumstances in the line of duty early this year.

Five staff from Geothermal Resource Assessment Department (GRA) and an officer from Community Relations Department were recognized for withstanding a chilling one-night ordeal in the far-flung and dreaded Suguta Marmar Valley during a seismic study exercise.

Their tribulation ended more than 24-hours later, when a rescue chopper came for them after spending the chilly night amid bandit-prone and wildlife-infested ghostly valley which late last year saw the killing of over a dozen security personnel.

The six were Kenneth Lumire, Gilbert

Kiptui, Chebon Chebet, and Nicholas Muli who are all GRA Laboratory Technicians, Samson Ongwae, a GRA Electronics Technician and Paul Pakka, a Community Relations Officer.

"We made a decision that when worse comes to the worst, we die as a group. We switched off our phones and nobody talked even for a moment save for Pakka (Paul) who communicated to the Community Relations Manager. Our fear was the presence of wild animals and armed bandits," narrated Lumire, when the team were treated to a luncheon by the Executive Committee (EXCOM) members and the MD at a Nairobi hotel.

The team however, added that the ex-

perience gave them hope.

"We want to thank you for the commitment. We were so scared that night when the pilot said that he came back and never found you. We really appreciate you and that's why as Excom, we decided today to fete and celebrate you," said the MD, Dr. Silas Simiyu, who graced the occasion.

He assured the team that "you will live long and see Silali power plants develop."

"Be proud of what happened to you. The lessons learnt will truly encourage others in the department," he advised.

While addressing the Suguta heroes, Dr. Peter Omenda, the General Manager, said "by God's Grace you came back in high spirits."

John Lagat, the Manager, GRA and Godwin Mwawongo, Chief Manager, Technical Services added that the explorers were really courageous.

These are some of the challenges that GDC staff go through in an effort to get Kenya some clean, green and affordable geothermal energy



“

*You'll live long and see
Silali power plants develop.*

- Dr. Simiyu

WB to fund Menengai

Bank set to facilitate a steam gathering system for the emerging geothermal project established at a caldera in the Great Rift Valley

The World Bank Group will support the Menengai Geothermal Project to the tune of \$ 120 million. The money will go the steam gathering system.

Speaking during a tour of the project, six Bretton Woods specialists assured GDC that the bank is at hand to support geothermal development in the country.

“Count on us as your allies. We’re happy with the progress so far and the general laid down strategies you’ve put in place,” said Nathan Belete, the bank’s sector leader in sustainable development who represents Kenya, Eritrea, Rwanda and Somalia.

The officials also applauded GDC for implementing very comprehensive Health, Environmental and Safety initiatives at the



Energy... *a well discharging steam in Menengai. With a huge potential, Menengai Geothermal Project is attracting diverse financing*

Menengai Project. “I have visited several geothermal sites in Africa and I’m generally happy with the pace at which Kenya has accelerated the development of geothermal,” added Belete.

According to the WB Energy and Finance Specialist Mits Motohashi, the bank will endeavor to support GDC in developing the 5000MW targeted by 2030 in line with Kenya’s development blueprint, Vision 2030 “This is the fourth time I’ve been to Menengai; and every time I come, I find great progress which is very encouraging.

As specialists from the World Bank, we are very happy with what GDC has done in the last few years,” said Motohashi who led the delegation.

Other officials from the WB who visited include Achim Fock, who is the bank’s County Program Coordinator for Kenya, Eritrea and Rwanda, Josephine Kabura, a financial management specialist for Africa, Evans Osano who is a senior securities market specialist at the International Finance Corporation (IFC) and Lucy Kang’arua who is a programme specialist.

India, US, Germany to fund geothermal projects

Key financial institutions will avail funds for the development of Bogoria-Silali geothermal prospects.

GDC has received a total of \$400 million (about 34 billion) from the US Exim Bank and the German Development Bank (KfW) towards opening up the geothermal fields.

Part of the US funding goes to the purchase of two additional drilling rigs, assorted drilling materials and modular power plants. This will bring to eight the number of rigs that GDC will own since its inception slightly over three years ago.

The Bogoria-Silali Block is an important project that will open up an entirely new field for investment opportunities. GDC scientists have conducted surface exploration in the area whose detailed surface studies estimate its geothermal potential at least 3,000MW.

GDC’s plan is to facilitate the development of the fields in phases of 800 MW.

Elsewhere GDC has completed surface exploration for the Suswa prospect. “We

have been conducting baseline survey and collection of baseline data to know the extent of the resource and the results are great,” said GRA’s Sylvia Malimo who has been coordinating the exercise.

The estimated geothermal potential in the Suswa geothermal prospect is 1000MW

The GDC Community Relations team has held community sensitization meetings to introduce the project and obtain views from the community regarding their needs and expectations.

Already, the India Exim Bank has pledged to finance the development of the Suswa geothermal prospect.

34 billion

amount in Kenya Shillings
pledged for the Bogoria Silali
Block



Prospect... *a steam jet in Lake Bogoria. The region is a geothermal belt*

A rich profile



Engineer James Owino Okwero has a wide experience in the areas of standardization, quality management system, corporate governance, civil engineering, institutional management and project planning.

From 2003 - 2006, he served as the Chairman and Board Member of the National Standards Council, at the Kenya Bureau of Standards Board of Directors, where he oversaw the implementation of policies and critical governance issues.

A BSc graduate in Civil Engineering from the University of Nairobi, Mr. Okwero is also widely experienced in design and supervision of infrastructure, having worked before in both public and private sectors. He was instrumental in developing and supervising several standards and code of practice for the construction and manufacturing industries in Kenya.

Mr. Okwero is a former Commissioner at the Poverty Eradication Commission (PEC) in the Ministry of State for Planning, National Development and Vision 2030, and the CEO of Lake Victoria Fish Ltd in Kisumu. Previously, he served as a Director and a Board Member at the Kenya Pipeline Company (KPC) and had a brief stint at the Ministry of Public Works.



Mr. Okwero is also widely experienced in design and supervision of infrastructure.

New faces in the board

The learned friend of geothermal



Dr. Stephen Njiru is an Advocate of the High Court of Kenya with over 20 years international experience as a lawyer, and in private practice, with government (Public sector) and in academia.

He has undertaken all aspects of Legal Practice including Criminal, Civil and Commercial Litigation. His main fields have been Constitutional and Public Law, International Economic Law, Legal Systems and Services, Municipal and International Law.

Dr. Njiru who is the Chairman of the Legal and Regulatory Committee of the GDC Board of Directors, is also a member of the Finance Committee of the Board.

He has advised governments (including the Government of Kenya as a State Counsel and also as a Special Consul and Legal

Adviser to the Government), public bodies, International Corporations and other firms. He has also been a lecturer of Law, having taught at the University of Manchester. Njiru is also widely experienced in the areas of Public / Constitutional Law, Legal Systems and Methods, Law of Contract, Torts, Criminal Law, International Economic Law and Human Rights. He has Worked and conducted research on the Bretton Woods Institution including the World Bank, International Monetary Fund, World Trade Organization and World Intellectual Property Organization.

He was the Head of the Technical team on the Constitution of Kenya which oversaw the Constitution Review Process leading to the promulgation of the New Constitution in Kenya.

He was appointed to the GDC Board as an Independent Director in 2012.

Educationist with feathery hat



An alumni of the prestigious Alliance High School and the University of Nairobi, Mr. Joseph Kinyua is a career educationist with an experience spanning over three decades. His outstanding service

to the nation in public and private, saw him awarded two esteemed State Honours: Head

of State Commendation (HSC), 1994 and Moran of the Burning Spear (MBS), 2011.

Before joining GDC, he was a Director at Kenya Pipeline Company (KPC) where he served between 2007 and early 2013. Previously, he was a Commissioner at the Teachers Service Commission (TSC) and a principal at Kenya Science Teachers College. Mr. Kinyua is currently serving as the Treasurer of Athletics Kenya (AK) where he has worked since 1996. He is also the current Chairman of the Board of Management at Mount Kenya University's Nkubu Campus in Meru County.

At home in geothermal

Mr. Timothy O. Mulaha, HSC, Alternate Director to the PS, Ministry of Energy Timothy is leading Geologist whose career spans several years working in the Government circles. Currently, he is the Senior Principal Superintending Geologist in charge of the Geothermal Resources Division at the Ministry of Energy Headquarters.

In 2012, he attended a geothermal energy development and utilization at the renowned National Geothermal Academy at the University of Nevada, Reno, where

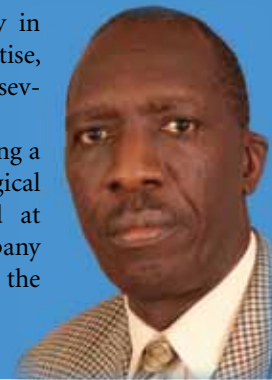
he honed his skills in global geothermal development.

Timothy holds a B.Sc (Hons), Geology from the University of Nairobi; M.Sc (magna cum laude approbatur) Geology and Mineralogy, University of Helsinki; Certificate, National Geothermal Academy, University of Nevada, Reno; Certificate, Economic and Financial Appraisal of Energy Projects, Jomo Kenyatta University of Agriculture and Technology.

Timothy has also been widely trained in the areas of remote sensing, geological data

management, geothermal energy development and utilization. He is also a respected authority in his area of expertise, having authored several publications.

He brings along a wealth of geological expertise needed at GDC as the company strives to achieve the 5,000MWe.



Tanzania fashions framework for steam

Tanzania seeks to diversify the power generation mix in the national grid system by increasing the proportion of natural renewable energy sources, says Deputy Minister for Minerals, Mr. Stephen Masele.

This effort got a boost with the workshop on Geothermal Legal and Regulatory Framework held recently in Dar es salam.

"We have noted that electricity demand in the country is increasing rapidly due to accelerated productive investments and population; with the plan in line, we will increase electrification status in the country," he said.

Mr. Masele considers geothermal resources as one of the indigenous power generation sources to be developed for expanding power supply.

The Tanzania government is putting in place the required policy, legal and regulatory frameworks for geothermal development. It is also mobilizing more funds for detailed geothermal resources assessment and mapping.

"The government through the Ministry of Energy has already formed a task force to strategize and advise the government on how geothermal resources development efforts could be effectively strengthened, coordinated and streamlined to achieve geothermal energy production in the near

future," he noted.

According to Mr. Masele, lack of existence of a renewable energy policy, legal and regulatory frameworks is among challenges behind renewable energy production including geothermal.

Other challenges include inadequate awareness to decision-makers and land planners, capacity to develop geothermal and high cost of geothermal exploration. But perhaps the biggest challenge is in capacity. Skilled human resource in the specialised area of geothermal development is hard to come by in Tanzania. Estimates put the number of trained geothermal experts at only eight.

The British High Commission and the Green Investment Fund (CIF) supported the workshop aimed at discussing the subject regarding geothermal legal and regulatory framework.

Conservative estimates indicate that Tanzania has about 650 MWe of geothermal potential. Part of the country falls under the East African Rift System.



GDC drilling technicians at work in the Menengai Geothermal Project. Unlike Kenya, Tanzania's geothermal industry is yet to kick off.

Djibouti's next big assignment

The Horn of Africa nation of Djibouti is quickly moving towards meeting its national energy needs by setting up a new geothermal facility at the touristic Lake Assal region.

Djibouti is working with the African Development Bank (AfDB) which will fund the project touted to become a key tourism attraction site alongside the Ghoubbet El Kharab bay and the Ardoukoba Volcano.

Lake Assal is located in the middle of the country, in a closed depression at the northern end of the Great Rift Valley. Situated in the Danakil Desert, it is bounded by hills on the western region.

Recently, AfDB in a statement said that it was working with the government of

Djibouti on the development of a 50 MW power plant in the region.

The geothermal resources in Lake Assal area show a high temperature variation.

"The Assal area in the Republic of Djibouti has attracted the interest of scientists as a potential area for the development of geothermal power plant for production of electricity of the energy starving nation," says a report published by Reykjavik Energy Invest regarding the exploration status in the Assal region.

The main exploration work in the region was carried out in the 1970s and 1980s in projects carried out in co-operation between the Government of Djibouti and United Nations Development Programme (UNDP).

These projects led to the drilling of six exploration wells.

According to AfDB, peak power demand in Djibouti is about 75 megawatts and this figure may increase to 138 megawatts by 2015 and 219 megawatts by 2035.

The bank in a statement, adds that electricity network covers only 50 percent of the country.

Djibouti began importing power from neighboring Ethiopia after the construction of a transmission line connecting the two countries.



The Assal area in the Republic of Djibouti has attracted the interest of scientists



Some power plants in Iceland. The country has an abundance of geothermal energy but opinion is divided whether to export or attract users to the country.

Too much energy

Iceland's excess geothermal energy sends technocrats thinking

If a country has an overabundance of a globally coveted product, should it export it or keep the product for its own use? That is the question that Icelanders are grappling with regarding the country's vast and overabundant supply of clean energy.

Iceland is grappling with what to do with all of its abundant geothermal energy.

And many Icelanders feel that export is not the answer. Instead, the country hopes to attract large energy end-users to the country so they can benefit from the cheap, 100 percent green power that Iceland provides.

"We already do export the power," said *Invest in Iceland* Director, Thordur Hilmarsson, "We export it through the products that are created by energy-dependent industries."

For now, those products include aluminum from Alcoa, Fish from Stolt Sea Farm and silicon metal from Globe Specialty Metals, but if Hilmarsson and his compatriots have their way, someday soon that will

be a lot more products.

Invest in Iceland is actively pursuing huge data centers, fish farms, industrial-scale greenhouses and other industries hoping to lure investors to set up shop in Iceland and take advantage of the country's abundant, cheap clean energy. They brought over nine journalists to the nation this March to show them what the country has to offer.

Industries that use large amounts of power are well suited for Iceland, and companies that can take more than one form of energy are the best fit. For example a greenhouse would use electricity for lighting and heat from the low-temp geothermal wells to power its operations. Data centers

would take advantage of the low cost of electricity and almost non-existent cooling costs that Iceland offers. "If the data center gets too hot, they can just open the windows," said Project Manager Kristinn "Kiddy" Haflidason. *Invest in Iceland* is also looking to attract emerging energy-intensive industries such as advanced carbon

fibers.

Iceland desperately needs someone to use its geothermal energy. Indeed some believe that in Iceland, it may be coming to a "use it or lose it" situation regarding the cheap abundant green energy it has to offer.

In May 2012, a proposal to build a huge interconnector cable between Iceland and the U.K. was put on the table through an agreement between the Icelandic and U.K. governments. If built, the interconnector would allow Iceland utilities like Reykjavik Energy to sell its green power, at premium prices, to the U.K. and in the EU where clean power is needed to fulfill mandates. Iceland's President Ólafur Ragnar Grímsson offered six reasons why the prospect of building the cable is interesting.

"This will provide clean energy to the European grid, not only Britain but through Britain to the European grid in a bigger way than any other clean energy project within Europe," he said

Iceland is grappling with what to do with all of its abundant geothermal energy.

Compiled from internet sources

@ the *info* Superhighway

10 Questions for Charles Sitonik, Manager, ICT

1 What does your department do?

The ICT department's function is cross-cutting. The department seeks to address the connectivity by harnessing emerging technologies to enhance productivity and performance. Modernizing the infrastructure and services that support operational activities of GDC is a priority of the department.

2 Why is ICT important in geothermal operations?

Besides the running of day-to-day activities, ICT is important in the field and has been applied and relied upon in exploration, drilling and reservoir simulation.

3 How unique is the geothermal sector in relation to ICT?

In the geothermal sector, most software in use are mostly products of individual efforts or those of specialized institutions. For example, GDMan software which is used in most geoscience disciplines was developed by an individual although it was later to be bought off by an established software firm. When software is not conventional in nature, issues of compatibility and interoperability with other software and operating

systems come into play. Licensing, upgrades and general support is also lacking. There are not many drilling software in the market. Some well-established drilling firms have developed their in-house systems that are very effective in drilling operations but they don't sell to the general public. Those available like RIMBase provide reporting solutions for daily drilling reports and related well information generated during the life cycle of the well.

4 What are the milestones you have covered?

We laid the ICT framework and a base infrastructure critical for any office operations. These include computer networks using cables or wireless links and installation of hardware and software. The staff computer ratio currently is 2:1 which is recommended by the government.

Our automation saw the implementation of the SAP ERP platform. This is a major score.

5 What are the challenges of the today's ICT sector?

The main challenge is getting the right skills in the market that suit a sector like geothermal. Organizations therefore have to spend time and resources preparing the

person to be productive. Most learning institutions specialize in the traditional ICT fields despite the fact that the environment has changed. The other challenge is the ever changing ICT environment. There is convergence in technology, whereby most devices are IT enabled. This complicates provision of services, for example in mobile telephones. Security also becomes another headache due to the varied accessing devices and social media explosion.

6 How are you overcoming these challenges?

In GDC, we give a lot of emphasis on building capacity through training and attaching our employees with other well-established organizations. In so doing, our staff take a shorter time to "mature" as dependable ICT experts. We have also invested a lot in technology in order to mitigate emerging issues.

7 What kind of team do you need to operate in the geothermal world?

We require people who are keen and have a lot of interest in work. It calls for extra effort to provide solutions in this field. Take an example of a place like the Silali geothermal prospect. The place is in a remote area with no fibre networks and even GSM coverage is limited. Innovative ways are required to provide ICT services in such an area.

8 What kind of team do you have?

I have a hardworking team of 24 staff that has worked tirelessly to provide this essential service for the last three years. We have presence in all the four areas of GDC (Nairobi, Naivasha, Nakuru and Menengai). For a rapidly growing company like GDC, that number is not sufficient. Teamwork has made the team be able to do a lot in such a short time.

9 What's ICT's role in achieving 5,000 MWe?

ICT is a vehicle that facilitates the smooth execution of duties using technology. That way our staff in their different capacities can deliver appropriately.

10 What would you like to see GDC achieving?

Of course the 5,000 MWe. But I also like to see GDC being a global player in geothermal energy driven by modern ICT platforms.



Lessonet's Lessons

Eric Wamanji talks to a man who dreams and speaks geothermal

The Nairobi skyline quickly feathers from a splash of ember to faint purple as dusk envelops towering steel and glass. Drivers switch on the headlights. City bulbs, including neon, flicker to life randomly. This evening the roads are in a dizzying tangle, typical of Nairobi's traffic on Fridays – yet, it's my last chance to seize an interview with a man who is leaving the city in the next few hours.

Finally at Laico Regency, I take two steps a time to the Mezzanine restaurant, amid serenading tunes and the smell of freshly-brewed coffee. Moses Lessonet, the soft-spoken MP for Eldama Ravine has arrived.

Lessonet is the first MP to become a member of the Geothermal Association of Kenya (GAK). He is a firm believer in geothermal energy as critical to economic emancipation.

In and outside parliament, he has fervently echoed the geothermal agenda. This zeal is understandable. His Baringo County hosts immense geothermal deposits. He is betting on this vast resource to transform his people's lives.

"I got hooked on geothermal in 2011," he says after a firm handshake. Of course there is no time for pleasantries. He is a man in the election mode. "Then, GDC took MPs through a workshop on geothermal and its benefits. We also toured geothermal sites across the country. I was impressed that we had such a huge potential."

Today, clad in a dark-blue blazer, and khaki trousers, Lessonet easily munch nuts and sip masala tea. Laico

is quiet with a few patrons absorbed in tittle-tattle. The chandeliers beam faint golden-yellow light that is reflected on the glistening smooth railings, the colour of gold too. By every measure, we're in a cathedral of capitalism and opulence.

"My dream is to see that my constituency is transformed from peasantry to an economic power house. Energy will be key to that transformation. And as you know, our Baringo has plenty of geothermal energy," he winks, then waves at the waiter.

More nuts; more masala tea. Masala for me too.

"I'm a fun of tea because I don't drink alcohol," he offers. He also enjoys *murski* (sour milk) with ugali and local greens. "That's a great meal. It's healthy." It explains perhaps his mid-size physique.

"We parliamentarians and people of Baringo are proud of GDC. I think you have a very visionary leader. Within three years, he changed the face of geothermal energy in this country," he says of the MD. Dr. Silas Simiyu.

It's the period just before the general election campaigns and the MP who aspires to recapture the seat is on the edge.

"My team is already on the ground. I'm also heading there after this interview. I'll be back after the election." What are your chances of a comeback? I wonder aloud. "I'm confident I'll win. There's competition yes, but I stand a high chance."

Lessonet recalls that in his estimation he has outdone himself in development. "You can do due diligence. Almost everyone is connected to electricity and water. The CDF money has also gone to schools



We parliamentarians and people of Baringo are proud of GDC. I think you have a very visionary leader.



and clinics. I've done my best. The verdict is with the people," he says.

That's fairly true. The following weekend travelled to Ravine. It's a typical village constituency. Still, here, locals are proud of their MP. "Give him credit for water and electricity," said one. "He has also used the CDF money properly," another identifying himself as Kirui tells us.

"It is not easy being a member of parliament. You go out of your way; you network and knock on doors. I thank God that all the doors opened," says the man who quotes verse and chapter at least three times.

He takes a quick audit of his first five years that he explains were filled with knocking doors and pestering public offices to deliver services to his people. Audits are his mainstay. As a trained accountant

To pg. 14

The rise of Sally Towett

If you want a bit of laughter, hang around Mrs. Sally Towett, a director at the Geothermal Development Company.

Standing at 5.3" Mrs. Towett sparks to laughter on every inquiry into her journey to the top. And her laughter is infectious. Nothing in her motherly aura betrays the fact that she was a headmistress – typically associated with stern-face and ice-cold eyes.

In fact, the classroom image of “madam,” the stern administrator, is conspicuously missing. From her sheer dressing – ash-grey suit, white blouse and neatly done hair, you come closer to a corporate lady.

Mrs. Towett chairs the Board’s Human Resources Committee. She prides herself and the team in HR for having crafted an employee-friendly HR policy.

“Working as a HR advisor is not easy. You know in Kenya everyone is looking for a job and there is pressure on you from people who want jobs. Yet, this is a public institution that needs to abide by government regulations,” she explains.

But before bidding chalk and duster bye, she had her roller-coaster stint as an educationist working in different schools in the former Rift Valley and Nairobi Provinces. And she loved it.

“There is nothing like teaching. The joy of a teacher is fulfilled when students complete school and achieve good results,” she enthuses. However, teaching has its own challenges. Indiscipline cases top the list of headaches. At times the community is indifferent especially when it demands that children be admitted to a school which is provincial or national by nature in spite of performance.

Before her retirement in 2003, Madam Sally also acted in diverse capacities such as the national treasurer for the Kenya National Drama Festival and the secretary of KNUT, Kericho Branch. In 2007 she hunkered to vie as a counselor in Kericho but her friends dissuaded her.

Her last assignment as a teacher was as the principal at St. Teresa Secondary School, Eastleigh.

But just when she thought she had re-

tired from public life, she got appointed as a director at GDC.

“I received a call from the Ministry of Energy to announce my appointment,” she recalls then splits into a laughter. “I thought it was a prank! I was speechless.”

And so, she found herself in a geothermal business she had never dreamt of. “I didn’t know much about geothermal energy. But since my work is to provide guidance and leadership, I took up the challenge.”

The director cuts a true image of the modern-day corporate woman. Indeed, her talk is speckled with such terminologies as ‘strategy,’ ‘bottom-line,’ and ‘bottlenecks’ a clear reflection of a boardroom operative.

But, ideally this is not the kind of lifestyle that Sally Towett dreamt of. While growing up in Kericho, chances were very high that she would never go beyond Class Seven. Then, girls were married off barely out of their teens. Yet, she chose to go to secondary school becoming the first girl from her village to achieve such a feat. She would later admire the teaching profession so much that after O-levels she enrolled as an S1 teacher at Kenyatta University. Still this formation of teaching and humble beginnings, she reckons were not preparatory enough for the boardroom of a strategic company like GDC.

The mother of six children is of the strong conviction that this far it’s all God’s big plan.

“Most of the things I have achieved always found me off-guard. Take the example of getting to the board of directors of GDC. Who would expect a teacher to

make it? But here I am.”

She also recalls that she was promoted to head a school at a tender age.

“I did not apply for the promotion. If anything I was just a classroom teacher. I needed perhaps to rise through the ranks, become a senior teacher then a deputy before being a school head. But one morning an education officer came to my school with a letter of promotion; God works in miraculous ways,” she testifies.

By now you understand that Ms. Towett’s love of God is deep. Well, what do you expect from an assistant pastor? At her Kericho village, she assists her pastor at the African Gospel Church. She offers her expertise as an educationist in support of evangelization.

“I grew up in a strict Christian family. I went to Christian schools and my faith never changed. When I retired I got busy in church activities. I was appointed to assist our pastor.”

To pg. 14





The rise of Sally Towett

Frm pg. 12

Sally's desires for knowledge are unbeatable. Even when she had made a mark in her career and had a family, she grabbed an opportunity to advance her education in Scotland. She attained a bachelors degree specializing in educational studies. And her quest for learning did not stop there. Picture this: Kuala Lumpur. A class of about 10 is in session and part of the training includes some jumping. She joins the class into the exercise. Much as she has been a teacher, she patiently listens to the instructor, she asks and answers questions and follows the routine as like a diligent student.

Today, when she is not in Nairobi or Nakuru attending board meetings, she is

at her farm in Kericho. She is a manager at home, so she says. She makes sure that tea is picked, land is tilled and sugar cane cut for the factory. She is also in the women economic empowerment programme in her locality promoting a concept called "table banking." In this concept, women assemble together like in a merry-go-round, contribute money and get loans over the table. The money is never taken to the bank. "We hope one day, it will grow into a bank," she says.

"I like the countryside. It's peaceful," she says. And her family and her husband are the greatest pillars. "They have stood by me as I pursued studies and an illustrious career. I owe them."

Lessonet's Lessons

Frm pg. 12

complete with CPA -K, a degree and an MBA in Accounting from the University of Nairobi, Lessonet understands how to map out situations.

He pauses then declares that the twenty-first century audit is not about histories. It's not about checking vouchers and receipts; it's about looking into the future and detecting risks and mitigating them.

Small wonder he is futuristic in his talk -he dreams of an ICT village in each ward, and running water and eternal electricity for every household. He wants to see several technical training institutes, and that locals can run a fleet of cottage industries. Lessonet aspires to have a major library in the constituency "we can only achieve all this with this geothermal energy," he quips.

"We are a blessed constituency. Our soils are fertile and we have a lot of water. Mine is one of the places in Kenya crisscrossed by rivers and streams. I want to tap this water now for irrigation."

He relishes a stable family

institution and a sound work ethic for the general growth. "Family is important. Sadly today most marriages are founded on quicksand. They end up breaking. Regrettably, it's a battered institution," he reflects.

Himself a father of two teenage children, he thanks God that his has been a wonderful marriage. He has fond words for his wife whom he describes as "the love of my life... very understanding... very supportive."

"There are many other people to thank. Former colleagues at KCB who encouraged me, staff at the Rural Electrification Authority (REA), and he people at the ministry of water." His easy talk does not reflect a man who is in the intrigues that's Kenya's politics. For instance, there are no mean-looking hangers on buzzing around him and he doesn't like lavishing in luxurious restaurants.

Lessonet loves the countryside. "I only come to Nairobi because work dictates so. Otherwise, I leave Nairobi first thing on Friday and return Tuesday morning in time for

parliament."

A trek for sweet-heart

Memories of his youth in Kabi-moi where he grew up seemingly ooze to the present. He stops clasps his hands in a pensive position as if going back in time. "It was interesting," he recollects then spreads his hands, his eyes dilating and voice drops a decibel.

"Then, in the afternoons, I used to carry a piece of bar soap down to the river for a bathe. After that, I would trek for several kilometers to see my sweet-heart in Kitoin, another village. She would later be my wife," he says with an uncanny smile betraying the nostalgia he is reeling in.

The man who enjoyed herding daddy's cattle sat CPE exams in 1982; he scored 36 out of a possible 36 points. He joined the Nairobi School. It is here that his love for rugby was stimulated. He still enjoys the sport. "I love rugby; I still watch some other sports like football but not so much," he says.

After University, he worked for the National Cereals and

Produce Board, moved to Dubai for a one-year stint and then joined KCB as an internal auditor. He resigned for politics in 2007.

After the last nut has just been munched and the last sip swallowed, it's about 9:00pm. Outside, under the flutter of numerous flags, at the entrance, a butler salutes and the water fountain whispers an ode for the lawmaker. The city is bright and lively. Traffic has untangled and we wish *mheshimiwa* luck.

Editor's note:
Lessonet was
relected to
parliament





**GDC stands out as a pace setter
on how to approach geothermal
in the continent**

Africa charts new paths

The Geothermal Development Company (GDC) led the region in charting a more pragmatic and sustainable approach towards geothermal development. In the recently-concluded conference on geothermal energy, delegates developed a raft of proposals that aimed at stimulating funding, technological transfer, and investment in geothermal energy.

The three day conference saw the convergence of over 600 participants from 14 countries. Participants ranged from investors, policymakers, financiers, development experts, scholars and geothermal experts. It was perhaps the biggest congregation on geothermal matters in Africa, going by the sheer numbers and the profiles of the delegates.

The participants in one accord resolved to spearhead the growth of geothermal in the region. This comes in the wake of more international interests towards the geothermal sector in Africa. For instance, the US through USAID and Geothermal En-

ergy Association, has created the East Africa Geothermal Project (EAGP) to boost the development. Meanwhile, the Nordic Fund and the World Bank have crafted a strategy to ensure that each country in the East African Rift System successfully drills at least one exploration well.

Geothermal development is a heavy investment area especially on upfront costs. Most proposed projects have failed to take-off for lack of predictable and sustainable funding. This is sad given the region still grapples with problems of poor electricity supply.

Some of the potential sources for funding include utilizing capital markets and pension funds, carbon and green funds, risk mitigation funds. During the conference governments were urged to commit significant funds to complete resource assessment in order to attract international financing.

The Menengai Geothermal Project which GDC is operating is a classic case of government commitment. After the Kenya government committed funds, financiers like World Bank and the Agence Française de Développement (AFD) came on board and promised to fund steam gathering systems, the African Development Bank (AfDB) extended a USD. 120 million for the first 400 MWe. By this strategy, it has

***Eric Wamanji revisits the
ARGeo conference and how
the Menengai Geothermal
project enjoyed enviable
moments of fame***

To pg. 16



Keen: delegates follow presentations during the conference. Far Right, GDC's Human Resources Officer, Mariam Yunus, present

Frm pg. 15

also been easy for GDC to attract more investors who will be putting up power plants in the project area. GDC is also a beneficiary of Green Energy Fund under the Scale-up Renewable Energy (SREP) project.

Good example

"Menengai is a good example of how to fashion a successful project," Thierno Bah, a Senior Power Engineer at AfDB told Steam at the sidelines of the conference. "We are glad that other countries like Tanzania, Rwanda and Djibouti are closely following what GDC is doing. Such model will transform the Eastern Africa region."

"The African Development Bank is working to beat risks associated with geothermal development, such as exploratory drilling risk," Arfoui Youssef of AfDB explained.

Beyond funding, a key area that the conference deliberated on is the inadequate technological know-how in Africa. Speakers proposed that geothermal to be considered a specialized science and appropriate technology should be deployed.

Dr. Silas Simiyu, the GDC Managing Director, also the Chairman Geothermal Association of Kenya, chaired several panels. He announced thus:

"The region will embrace new technology. For instance, geothermal hybrid systems are now available. These include geothermal-solar hybrid systems and geothermal - gas hybrid systems, among others. Further we will implement technology that can utilize low temperature fluids."

Discussions also centered on generation technology. The early generation approach received accolades and endorsement. To afford faster streaming of power to the grid, to reduce the cost of drilling incurred from usage of diesel, and to enable the big power plant to start early revenue streams, the modular power plant which can generate up to five megawatts is a card to bet on.

Strict attention will be paid to power plant technology and evaluations should be geared toward efficiency in utilizing the steam provided.

Oil, gas & geothermal

Ideas also were afloat in creating a synergy

between geothermal energy and the oil and gas industry which is also emerging in the region. Technology used in geothermal and oil and gas is almost the same.

The ministerial roundtable discussions, an integral practice during the event, was attended by Ethiopia, Kenya, Uganda and Tanzania.

The United Nations University (UNU) also offered to continue supporting the training and technology transfer. As it were, geothermal is a highly specialized area. African countries, apart from Kenya are highly disadvantaged and would need more training and experience. UNU is a leading training centre in the world on geothermal

Mr. Paul Gondi, GDC's Chairman of the Board, joined by Director Kariuki Muchemi, follow proceedings





issues. Every year, students from different African countries take short-term courses while others pursue masters in geothermal sciences and technology.

Technology transfer will get a boon once GDC establishes the Geothermal Training Institute in Nakuru.

“With regard to capacity building to produce required human capacity the United Nations University - Geothermal Training Institute is assisting GDC to set up a geothermal centre in Nakuru Kenya near the Menengai Geothermal Field. Several financiers including AfDB, NDF, JICA and AfD have already expressed interest in supporting the establishment the geothermal Centre of excellence to serve the region. We encourage other financiers to come on board,” Dr, Simiyu

announced upon amid applause.

Local universities also got the challenge to design tailor-made programmes that are geared towards geothermal development in a concerted effort to bridge the current technological chasm.



The region
will embrace
new technology.
-Dr. Simiyu

ting her paper.

Empowering Africa

Capacity building is one of the biggest efforts that ARGeo seeks to achieve in the East African Rift region. It is why the conference organised a series of parallel workshops to build the geothermal capacity among the experts in the region.

During the conference, about 140 attendees participated in short courses sponsored by the Geothermal Association of Kenya, UNEP, USAID and facilitated by University of Auckland and Icelandic International Development Agency amongst other leading geothermal experts. The courses included Geoscience Exploration Techniques, Drilling Technology and Reservoir Engineering; Geothermal Database Management for East Africa, Planning, Managing and Financing of Geothermal Projects.

Diverse papers presented ranged from geo-sciences, engineering to human resources and business development. The conference attracted financiers, policy-makers, scholars, students and environmentalists. The workshops stimulated more interest in geothermal as the solution to energy needs of Africa.

The Menengai Geothermal Project largely remained a reference point as a good case-study to tweak the development of geothermal in the region.

A section of delegates got an oppor-

tunity to attend a pre-conference training. There was also post-conference field trip to Olkaria, Oserian and Menengai.

In Menengai, delegates were wowed by the sheer scenic design of the caldera and the development efforts that have gone into it.

Six countries

The UNEP-ARGeo Project covers six East African countries which include: Eritrea, Ethiopia, Kenya, Rwanda, Tanzania and Uganda. The biennial conference rotates in countries within the Eastern Africa Rift System. The conference is part of ARGeo's "Regional networking, information systems, capacity building and awareness creation" component.

"I am now calling on the Ministries

charged with the responsibility of developing energy resources in the various countries to prioritize electricity generation from geothermal resource through policy formulation, legislation and budgetary allocation. This will spur investor entry into the geothermal sector," remarked Eng. James Rege, during the official closing ceremony.

The ARGeo concept aspires to stimulate scaling-up of geothermal development in the targeted countries. It also contributes to the achievement of the "UN Sustainable Energy for 4 ALL" initiative launched in 2012.

The conference was organized by the Geothermal Association of Kenya (GAK) GDC, KenGen, United Nations Environment Programme (UNEP), Kenya Electricity Transmission Company, Energy Regulatory Commission and the Ministry of Energy.

Tanzania will host the next ARGeo conference in 2014.

Delegates tour the Menengai Geothermal Project in Nakuru





The great Run

Enock Ngome and Eric Wamanji

November 11, 2012 ushered in a new beginning in Nakuru County as more than 600 athletes, including elite runners, lined up to pick their running numbers at the Nyayo Gardens at the heart of Nakuru Town.

At mid-day, when the race had ended, and winners announced, Nakuru was on the edge, witnessing a spectacle in an otherwise what would be another slow Sunday.

The Geothermal Development Company (GDC) in its effort to power sports and health, debuted a half marathon that no doubt seeks to put Nakuru in the global map of athletics.

The event entered into the history books of athletics as the first one to be held in the town famed for its magnificent Menengai Caldera where GDC is developing geothermal energy.

In his written message, titled *Cheers to a great start*, Dr. Silas Simiyu, the GDC Managing Director, noted that through the Marathon, "GDC is affirming excellence not only in geothermal industry but also in social responsibility... today the seeds of future global talents and champions have been sowed."

For long Nakuru town has been playing second fiddle to Eldoret, referred to as the home of athletics in Kenya. Countless marathons have been held there. Paradoxically, even though Nakuru has been home to some of the world beating athletes like the late Olympic champion Samuel Wanjiru, there had never been an event in the town

to give budding athletes a chance to showcase their prowess in road running in their home turf.

Finally, the time for Nakuru came. And so they came, they ran and the town cheered.

"It was great winning the first edition now my name is written in history as the first ever champion of the Menengai Geothermal Half Marathon. I feel great and next year I will return here to defend my title God willing," said an elated Elizabeth Rumokol soon after winning the 21km (Women).

Indeed, the day must have begun well for Ramukol who is eying the stars.

As the sun rays penetrated the canopy of trees in the Nyayo Gardens, elite athletes in groups who had already pinned their running numbers on their chests started some short warm-up sessions near the start point as they awaited the big flag-off for an event that will be held every second Sunday of November in Nakuru town.

The numbers kept swelling every minute as organizers gave everyone a chance to be part of history by extending the registration to 8:00 am.

First flag

The 10km event was first to be flagged off as top athletes took the early lead to dictate the pace of the race, upcoming and fun runners followed them in pursuit with the pride of running next to the famed names that have been globe-trotting.

As the race progressed the pace gained with the prize chasers separating them-

selves from the group to extend the lead in well calculated speed intervals at every turn. Soon a long stretch was witnessed along the course as the route took the athletes through the estates of Nakuru town to give the residents who lined up along the course a chance to cheer the athletes.

Kipkim Mitei broke from the leading pack in the last 50 meters cutting the tape in 27:30:00 minutes to become the first champion of the 10km category. Training mate from METIPSO camp Peter Kipchirchir chased him home and stopped the clock at 27:34:00 while Kipkelion based Philip Langat completed the podium finish clocking 27:38:00 to claim third spot. Vincent Kibet came fourth with a time of 27:57:00 for all the top four athletes finishing in sub 28 time.

In the women category Risper Chebet from Kipkelion braced a fierce challenge before claiming the victory in 32:00:00, Purity Cherotich and Lucy Liavoga claimed the second and third places in that order in times of 32:03:00 and 32:11:00 respectively.

Most awaited

After the 10km was done it was time the 21km event arguably the most awaited event going by the caliber of athletes that had entered for the race.

The 21km category lived to its billing



as the main race of the day as athletes were flagged off by GDC General Manager Dr. Peter Omenda begun on a blistering speed with early pace-setters breaking away from the pack.

As the race headed to the 10km mark it was clear that wheat comprising elite athletes was being separated from the chaff first timers and fun runners who dared to take on the world beaters. Soon at the final bend at the Free Area junction it was evident that the leading pack comprising of Hosea Naille from West Pokot, Richard Sigei from Kipkelion, Kapsabet based Edwin Kiptanui Mwogi and Felix Kandie of Iten were sure bets for the ultimate prize as they occasionally exchanged leads.

With the temperatures beginning to rise, the leading pack grabbed their water bottles at the last watering point at the Section 58 junction and all signaled the intention of making the podium finish and the prize bracket.

With only 200m to the finishing tape Hosea Naille summoned all his reserve steam to power home in 61:02:00 to become the first champion of the Menengai Geothermal Half Marathon. He was



Winner...*Hosea Naille dashes to the finish to clinch the 21km title*

chased home by Kipkoech Langat who finished second.

In the women's category Elizabeth Rumokol outclassed pre-race favourite 2011 Boston Marathon champion Caroline Kilel to take the honors. Kilel finished second while seasoned runner Isabella Ochichi from Kisii came third.

"Today has marked a great history both for GDC and Nakuru town by organizing the game that has brought fame to this country and loved by many close to the people and near our operational area. This event will be a permanent feature in our calendar. It also

ropes in an important aspect of our lives – health," noted Dr. Peter Omenda, the GDC General Manager who represented the MD.

Nakuru residents were the biggest winners of the event as they got a chance to have free medical screening and to witness the world class event as attributed by the Athletics Kenya Secretary General David Okeyo.

Indeed the marathon was a success following diverse sponsorships. (See the list of sponsors).

"This event will be a permanent feature our calendar," the MD promised.

Reflections from the terraces

The marathon! Yes, that bright Sunday November morning I developed goose bumps. I remember the day as if it were just yesterday. Yes, they touched my heart; the multitudes of people thronging the Nyayo Gardens in Nakuru, heeding our call to run. And run, they did.

They came, young and old. There was cheer and ebullience bubbling in them. They donned our T-shirts and looked great in them, and as a photographer I could not resist the temptation to use my phone (now that my Nikon had been snatched from me by my colleague) to click on and on! The runners smiled at me. I smiled back.

From a strategic branding perspective, the marathon was a scoop. We went beyond mere awareness to win the hearts and minds of participants and Nakuru Town residents. It is not easy to have so many people believing in you and getting passionate about the things you do. When a people get connected to your brand or

rallying call, it means you are striking the right cord, therefore winning.

Yet, here, we were. Hundreds seeking to be part of GDC. By 5:00 am, I was at Nyayo Gardens; the runners were streaming in as well. I was humbled.

It was a cheery aura as they warmed up raring to hit the track. Nakuru town was at a standstill as our green logo and that of the marathon cartoon stole the show.

Then there were the stars of the race: Elizabeth Rumokol and Hosea Naille. I stood there at the finishing line watching the sweaty chaps, feeling their indomitable spirit, full of energy, dashing to complete the epic race. In a hypnotic elegance, they had won it! Then, the crowd went carnivore into fits of cheers!

But I also had other heroes and "she-heroes": the GDC staff who came on board. So supportive and dedicated they were that the event was a showstopper. Someone was registering participants here, another was giving water there, still someone was explaining to guests what GDC is all about. It was an interesting mosaic of

team spirit toward one course.

GDC staff also took to the track. Ask Paul Ngugi, the Chief Manager Business Development, he loved the game. Then there was Michael Mbevi, Rosemary Olonde and George Kinyanjui who too took to the track as were directors Sally Towett and her counterpart, Eng Stanley Kamau who did the 5 KM and 21KM races respectively. There were many other GDC staff who participated in the race. It was the marathon spirit indeed.

When mid-day came, and all had run, Athletics Kenya officials were simply astounded. The secretary General, David Okeyo, could only equate the meticulous planning and organization to what he sees in Europe: "This is wonderful. I've never seen such a well-organized event in Kenya; never..." he exclaimed. I winked where I was standing. We had made it big!

-Eric Wamanji

Reproduced from *Geonews*, a GDC in-house bulletin



To our esteemed sponsors,
Thank you for making the inaugural
Menengai Geothermal Half Marathon a
success.



You too can partner with us for the 2013 Menengai Geothermal Half- Marathon to be held on 13th October, 2013. For more details, contact Pauline Sheghu at psheghu@gdc.co.ke or 0715 199 281 or Caroline Achieng' at cachieng@gdc.co.ke or 0726 354 997

The new trove

The promising Caldera:
Here's part of the Suswa Caldera where GDC's scientists foraged for three months in search of steam. Notice the the outer and the inner calderas with an Island block (moat)



*Suswa is the new frontier. It has big promises write **John Lagat** and **Sylvia Malimo***

Suswa, may sound like 'sissy.' But, this enchanting product of volcanic eruption at the base of the Great Rift Valley has all the hallmarks of a mega geothermal project with conservative estimate of 1,000 MWe. This is no ordinary prospect. If fully developed, Suswa can meet all the electricity needs that Kenya has today!

This explains the excitement of the GDC team of scientists when discovery after discovery unfolded before their very eyes with scientific instruments – all showing great promises.

Suswa prospect is the southernmost of the Quaternary volcanoes in the axis of the Kenyan rift. In fact, the Suswa volcano is unique. It has two calderas: the outer and the inner calderas with an Island block (moat) at the center surrounded by an annular trench. The two calderas indicate two earth collapses- a truly promising phenomena for geothermal development. If for anything, apart from the promise of abundant electricity, the very structural design of Suswa is breathtaking.

Collapses show that there was an eruption which created an empty magma chamber. Now this shows that there is a heat source. For us in geothermal, a heat source in a prospect is the mother of everything. Because it is this heat that creates the steam after interaction with water. And for sure, our investigations indicate that Suswa recorded up to 300°C

GDC, as part of its mandate to develop at least 5,000 MWe from geothermal sources by 2030, carried out a feasibility study in the prospect from November 2012 to February 2013.

The prospect, which is located two hours drive from Nairobi, is manifested by geothermal indications namely; fumaroles, altered grounds and young eruptions dated about 200-400 years Before Present.

The methods conducted during the study include: geological mapping to understand the features essential for development of geothermal system(s). Gas and steam condensate samples were obtained from fumaroles to determine the nature of the geothermal reservoir while ground radon and CO₂ surveys were undertaken to indicate the presence of a geothermal reservoir and areas of high permeability.

TEM and MT resistivity were undertaken to assist image the subsurface for the existence of electrically conductive zones .. Such zones could be geothermal reservoirs and the occurrence of dense bodies that

could be the heat sources. Heat source is crucial for geothermal systems for it converts the water to steam. Ground temperature surveys were also carried out over the area to determine areas of high heat loss.

Results from the study indicate that a geothermal system exists in Suswa geothermal prospect. The presence of caldera(s) at Suswa depicts a partially emptied magma chamber beneath the volcano, which would provide for the heat source for the geothermal system.

Soil gas survey gave high radon radiation counts coinciding with high CO₂ values inferring good permeability in the prospect area.

The potential area determined using resistivity anomaly is about 70 km² which can yield over 1,000 MWe based on Kenya's average of 15 MW per km². Four exploratory wells have been proposed in the Suswa caldera. An Environmental and Social Impact Assessment (ESIA) survey indicates that minimal impacts that can be successfully mitigated are expected from the development of the geothermal resource in the prospect area.

The completion of the exploration in Suswa and the promising potential puts GDC safely on the path towards 5,000 MW by 2030. Indeed, at press time, GDC is engaged in talks with the Indian Exim Bank and KfW seeking financial support to develop Suswa.



The completion of the exploration in Suswa and the promising potential puts GDC safely on the path towards 5000 MW by 2030.

GDC begins journey to sell carbon

*The international carbon market is becoming vibrant by the day. Those in the green energy are set to reap from this global trend. And as GDC provides an opportunity for a greener energy, **Tecla Mutia** and **Godffrey Olali** reports that the company too in a journey of making money from carbon sales*

GDC has set the ball rolling towards attracting carbon money, under the Clean Development Mechanism (CDM) initiative, from the geothermal projects proposed and ongoing.

Two projects are spruced up for registration: the Menengai Geothermal Project and the Bogoria Silali Geothermal Project.

Already a consultant is on the ground to facilitate the registration. GDC also held two critical stakeholders' consultative forums recently in Nakuru and Baringo to seek the opinion of stakeholders. Aware of the benefits that the registration will bring to them, stakeholders happily endorsed the CDM project.

For starters, the CDM arrangement is a product of the Kyoto Protocol of the 1997. In this protocol, heavy-polluting developed countries will buy carbon credits from green projects mainly in developing countries. This encourages countries to keep up with the green agenda. Green agenda includes generating clean energy from say geothermal, or conserving major forests like the Mau, Congo or Amazon. It could also entail planting more forests as carbon sinks.

Key stakeholders in North Rift and Central Rift recently gave GDC the green light to register the expansive Bogoria-Silali geothermal Block, and the Menengai Geothermal Project under CDM programme.

The meetings brought representatives from Regional Development, Forest Action Network, National Environmental Management Authority (NEMA), Kenya Forestry Service (KFS) and the Kenya

electricity Generating Company Company (KenGen) among others.

"Finance ministry has given CDM priority; the government will channel CDM funds to GDC which will assist local communities and boost other projects," said a representative from Finance Mr. Erastus Wahome during one of the deliberations in Baringo recently.

He added that the government has emphasized the development of geothermal resources and other forms of clean energy.

Members of the public and interested groups listen to a presentation on CDM in Baringo.



Green energy. A discharging well in Menengai. GDC is set to sell carbon credits

In Bogoria-Silali, GDC has received a total of \$400 million (about 34 billion) from the US Exim Bank and the German Development Bank (KfW), which will assist in opening up the Bogoria-Silali fields.

Under CDM, investors in projects with high carbon emissions commit to

offer monetary compensation to investors in low carbon emission projects.

The development of the geothermal power projects will reduce reliance on imported fossil fuel (mainly diesel) thereby reducing the carbon footprint.

CDM will inject a few more coins to the economy. It will also act as an endorsement on Kenya's development pathways.

At the forecasted sale of a CER at USD 10 (Kshs. 860) per ton of displaced CO₂ in 2013, the projects upon implementation and one year of monitoring and verification each could earn Kenya a lot of money.

"Even if you will not be employed at the power plants, you will have an opportunity to work in other industries such as agricultural sector; more benefits and opportunities will come to the people through CDM," said Patrick Karani, a consultant from Sinclair Knight Merz (SKM) while addressing stakeholders at a Baringo hotel.

According to Karani, CDM will accelerate funding of investments in clean energy technologies and sustainable development.

Socially, the project will create local employment opportunities for both construction and operation offering Ke-

nyan people new experience and skill in a sector that is growing internationally. In addition to this, through the project and its indirect activities including the CDM process, capacity building and the transfer of expertise and knowledge to the local population remains a distinct feature of the project.

"With additional funding generated from CDM, GDC will fully meet its project financial costs and this will imply more labour requirements hence creation of local employment opportunities," says Gabriel Wetangula, the Deputy Manager in charge of Environment.

The registration which is still under proposal stage, has already been received and approved by the national environmental watchdog - National Environment Management Authority (NEMA).

"Implementation of the project will create employment opportunities around Menengai. Skilled, semi-skilled and non-skilled youth, will be engaged in ventures such as tree planting through Community Based Organisations. They will also be required to manage and maintain," he adds.

Realizing that climate change is already a tangible and costly reality globally, the desire to pursue green energies like geothermal have been accelerated globally.



*Under
CDM, investors in projects with high carbon emission commit to offer monetary compensation to investors in low carbon emission projects.*

About the Kyoto Protocol

The Kyoto Protocol is an international pact linked to the United Nations Framework Convention on Climate Change which commits its parties to emission reduction targets. The protocol was adopted in Kyoto, Japan on 11th December 1997 and came into force on 16th February 2007. The implementation rules and guidelines were adopted in Marrakesh, Morocco in 2001 and are referred to as the "Marrakesh Accords". The first commitment period started in 2008 and ended in 2012.

The Protocol recognizes that developed countries are majorly responsible for the current high levels of greenhouse gas (GHG) emission to the atmosphere owing to their industrial activities and therefore places a heavier burden of responsibility under the principle of "common but differentiated responsibilities".

Under the Protocol, countries not only take their own initiatives to reduce emissions but are also offered three market-based mechanisms: International Emissions Trading, Clean Development Mechanism (CDM) and Joint Implementation (JI) that help stimulate green investments while at the same time reducing emission in a cost-effective way.

The Protocol instructs that countries' emissions are monitored and records kept. The Protocol also established an Adaptation Fund for developing countries which are Parties to the Protocol so that they can cope with adverse effects of climate change.

In Kenya, the Olkaria II Geothermal Power Project operated by KenGen and Olkaria OrPower 4 are registered as CDM projects.



Mine money in training

When Dedan Kimathi University of Science and Technology announced plans to start studies in Geothermal Science, it was easier to see the strategic vision of the varsity. The campus was quickly respecting nature by filling a void.

Skills in geothermal technology are scarce and sparse, not only in Kenya but in Africa. Yet, the country is going full steam in its quest to provide reliable, affordable and clean energy from geothermal sources. The aspirations to develop at least 5,000 MW by 2030 definitely demands massive expertise in this sector. Interestingly, in Kenya, there is no university that is offering this specialized training.

But it is not just Kenya that is in need of more and more experts. The Eastern Africa Region is going geothermal after Kenya registered some tremendous successes in its model. Now, Rwanda is just about to start drilling. Tanzania, on other hand is on the verge of a geothermal takeoff. In fact, the African Development Bank (AfDB) is very keen in financing geothermal development in Tanzania. The bank is already angling in Djibouti while Zambia has developed a master plan to develop the resource. Ethiopia is picking up from where it left, and with some investment money pouring in, its going geothermal full steam.

There is more interest in

Africa's geothermal sector. The December issue of Geothermal Africa reported that the World Bank and the Nordic Fund are planning to inject up to US\$ 500 million in Africa. The US is also interested in the region. It set up the East Africa Geothermal Partnership (EAGP). This is a clear indicator that in the coming years, we are going to experience a flurry of activities in the region.

The sector's technology is unique, specialized and even costly to acquire. For a complete geothermal system to be operational, diverse skills are required including geothermal drilling technology, geothermal reservoir modeling and management, cementing technology, earth science, environmental science among tens of others.

But who is investing in geothermal training?

Africa doesn't have a geothermal school. Those interested in the discipline have been forced to travel abroad to Iceland, New Zealand, USA or Italy. The United Nations University's Geothermal Training Programme based in Iceland, together with Kenya's geothermal leading lights, crafted a three-week annual workshop that takes place in Kenya every November. The UNU-GTP-GDC-KenGen Programme attract about 60 fellows from Africa.

But this three-week theoretical and practicum effort



At work...GDC drillers during a daily operation. The industry needs more experts calling for investment in training

is not sufficient to develop a workforce desired by the sector. It explains why there is a big gap and why investors may want to up their game.

Well, GDC is also planning to invest in a geothermal training centre in Nakuru to take care of the region's training needs. This will ease the pressure on the workforce that the industry is facing today.

Honestly, investment in training is not for the light weight. It needs massive capital inlay especially in laboratory equipment and drilling simulations. Field work too costs a fortune. The good news is that Kenya has already established a geothermal tradition complete with a thriving industry that institutions can capitalize on. And for those who do not want to set up permanent shop, collaboration with industry and offering off-campus training

can also be an option.

For practicum, it calls for concrete collaboration with the industry actors so that students can gain experience from the experts. In Kenya GDC, KenGen and OrPower-4 are the entities engaged in actual geothermal operations.

And since the technology in oil, gas and geothermal are cousins, and the region is also witnessing fossil fuel discoveries, there is more reason to invest in training in the region. Technical universities have an advantage when it comes to engineering. But, science is also a core component of geothermal technology. Colleges with a history of earth sciences can stretch it a bit to incorporate geothermal energy.

For sure the region needs experts, and this is an area to bet your money. It's the future.

- Eric Wamanji

Step!

The modern-day office life

Culture | Workplace | People |

How 'bout chopping the finger?

Every day, in my working career, I want to confess, I dive into the exciting but also messy world of social media mainly Facebook and Tweeter. But wait a minute, I'm here not for the *psych-massage*, so sought by most users. Nay. I'm paid to detect what is trending in the cyberspace that is likely to dent my employer's brand and reputation. My work is to detect and correct all the possible misinformation and wrong impressions.

Yet, for society, as late as a decade ago, such virtual vigilance was inconceivable. Outlets of mass information were limited, moderated and even regulated. Societal transmission of information to the public was fairly cautious and capsuled in etiquette and restraint. Not so any more after Sir. Tim-Berners Lee invented the World Wide Web.

It appears that the dawn of the Information Age unveiled the savage in us. It's commonplace to encounter ethnic bigotry, cultural imperialism, raw hatred, bare-knuckled fist-cuffs and crude incitement spewing and flowing in the social media like putrid puss. Users have ignorantly and arrogantly let down their guard to engage in primitive cyber fights that are as destructive as they are immoral and criminal.

Social media usage has become, if you like, like a baboon with a loaded gun, or better still, a monkey driving a truck down a busy street!

Yet, these actions executed at the safety of your desk or bed, are likely to land you in hot soup.

Are you aware that 13 Virgin Atlantic crew members who once branded passengers as 'chavs' and mocked the airline's safety on their Facebook pages, were heavily punished? The

airline took action on the premise that their behaviour was totally inappropriate and that it brought the company to disrepute.

And I bet you didn't know this either: that a 33-year old science teacher, in the UK, who posted semi-naked pictures of herself on Facebook, was suspended.

Still here at home, in March, the NCIC revealed that four individuals were being sought for prosecution for fanning hate speech in the social media.

"We hope that the prosecution of those individuals will send a strong message against hate-mongers on social media. Since there are millions of users, dealing with a few criminals will go a long way in bringing down the hate and criminal behaviour online," NCIC Chairman, Mzalendo Kibunjia explained.

This just shows that your secret and irresponsible actions online have ramifications that may leave you regretting the rest of your life.

With massive usage, Facebook and Twitter being the leading, it means that with a click of a button, you can create or break your fortunes. A statement, whether false or true, spirals like a virus gone untamed.

The cyberspace opened a new world of free transmission of content. The problem with the cyber, as opposed to the traditional mass media, is that it lacks moderation. There are no clear penalties for abuse either. The freedom and near-free platform that the cyberspace offers, is now posing a big headache to society it seems.

Common dirty tricks include simple and seemingly inno-

cent 'likes' of comments that are derogative to the next party, to a whole passage of how you hate certain people. Some of us even foolishly describe how we hate our bosses, jobs, our lecturers or our spouses, friends or parents. I've never known any kind of irrationality that beats this.

But as an employee, a potential job seeker or a consultant, or even business person, your statements can easily be tracked down. For instance, increasingly HR practitioners, are undertaking a quick Google search about current and potential employees and woe unto you if what pops up contravenes social conventions. Often focused employers will never touch someone whose fingers have caused embarrassment or pain online.

I always argue, if you have a bone to pick with someone, whom you cannot confront, for you to relieve your rage and frustration, write a long letter, calling that chap all sorts of names, then tear it. Better still, if you feel energetic enough, go confront a tree in your compound and punch it till you have no more energy. If you pour your frustration on the cyber world thinking you will go scot-free, you are wrong. Someone will catch up with you, and you will end up gnashing your teeth. However, if your finger is causing you to sin online, how about chopping it off?

The writer is the Deputy Manager, Corporate Communication & Marketing at GDC.



Some of us even foolishly describe how we hate our bosses our lecturers or our husbands, friends and parents. I have never known any kind of irrationality that beats this.



Ignite that creativity spark!



By Kiprotich Bii

It is widely documented how Steve Job's sojourn across India in search of enlightenment as a college drop-out teen was the turning point in his career. He braved lice, diarrhea, scabies, mendicants, a close shave with death in a flash flood and rough living to return to the US not only a Buddhist but also a founder of the most storied tech-firm in history: Apple. Unknown to many outside literati, Salman Rushdie got the inspiration for his 1981 Booker Prize winning novel *Midnight's Children* after a jaunt through India too.

Sometimes you may feel you have reached the limits of your abilities. Any attempt to improve your performance is like running in a nightmare, you just can't lift your legs. Yet naturally we want to achieve more, fulfill our dreams and keep up with the Joneses. The truth is, you are bogged down by tedium not inability. You need a creativity spark to innovate and unleash

your blunted potentials.

We cannot all go to India or afford the time and money to travel to any of the Shangri-las scattered all over the world. So how do we in our everyday office life find our eureka moments?

Google has the '20-percent program'. Its engineers do whatever they want with 20% of their time in the office: sleep, play games, experiment on a new program et ce tera as long as it is legal and ethical. Google products such as AdSense and Google Suggest are offspring of this program. But again we don't work for Google. I have scoured various management write-ups and self-help blogs in search of proven methods in which we can get inspiration to innovate in the workplace:

1 Experiment. Don't be a slave of routine. Changing the way you approach tasks leads to new discoveries. Doing the same things the same way every day is the surest

route to mental stagnation. You won't be any different from a tree or a mountain, little else happens to them than what the weather and human activities choose to hand them. Be alive and intrepid. Experiment and discover.

Don't just wait for your boss to give you an assignment, then you do it and hand it back. Take some time to think ahead, pre-empt the next task and do it, only then will you have the freedom to do it your way because it is your assignment anyway. Even changing the way you do simple things like dressing up in the morning or making a cup of coffee has been known to impact positively on the brain's ability to innovate for that day.



2 Have a relaxed mind. A stressed-up mind cannot be expected to do much; it is already battling stress so it does not have room for much else. Find activities to unwind after work like taking a walk, sports, Sudoku and even talking with friends. It will free the mind to wander and you never know, it may pass through a gold seam.

3 Play along with the team. When you sit down to find a solution as a team, you attack a problem from different perspectives. Another person's idea unlocks your own ideas. You will be surprised at how better and fresh your contributions are when you are working as a team. So team work is not another cliché, it works.

4 Passion. Love what you do and believe in your organization's goals and you will be surprised at how better you handle your assignments. If you are excited with a particular task, so is your brain.

5 Utilize your leave days. Taking time off is important as your brain will get ample time to re-charge. It is the only organ we use to think so before you burn out or suffer a nervous breakdown, take that break.

You may never know what your brain is capable of by doing the same things the same way. Jump off the humdrum train and get lost in the wilderness of your brain. You will be shocked by the treasure trove therein. Dee Hock, founder and former CEO of Visa, once said, "The problem is never how to get new, innovative thoughts into your mind, but how to get old ones out." Enough said!

The writer is a Communications & Marketing Officer at GDC

MD's dispatches birth big book

By Kiprotich Bii and
Godfrey Olali

In 2009 when GDC was in its formative stages, the need to inform employees on the goings-on in the organization gave birth to *Geonews* - an in-house bulletin. Little could anybody imagine then that it will be a popular in-house publication, leave alone give birth to a book.

'State of the Company', a column authored by the CEO that communicates policy decisions, imparts knowledge, inspires, advises and motivates employees went on to be so popular that the editorial committee decided to immortalize the wisdom in form of a book. That is how *'Reflections: a CEOs Treatise'* came into being.

The place of a CEO in any organization cannot be gainsaid. He is charged with creating, communicating, and implementing the organization's vision, mission and overall direction. He is also tasked with leading the execution of the organization's strategy. In GDC, the CEO, Dr Silas Simiyu, saw in-house publications as a tool for effective communication and engagement between Management and the Staff. By so doing, he has not only managed to pull the entire company in the 5 000 MWe direction but also fulfilled more than the traditional roles of his office.

Through the fortnightly produced 'State of the Company' column, he spells out his guiding principles and the philosophies that inform his personal life and management style. He talks policy, yes, but he does not stop there. He preaches integrity, advices on work-life balance, investments, work ethic, hard-work, innovation, career and many more.

He draws his teachings from everyday working life, as a man who rose through the ranks himself, he offers practicable advice that employees can easily identify with irrespective of their cadre. With time, they have come to internalise his teachings. In a way, his thinking on issues has come to be reflected on how employees approach issues themselves. His influence is palpable in the thinking and culture of the organization.

Without setting out to motivate, he has

achieved more than motivation. By repeatedly talking about the boundless possibilities of success and opportunities for growth in the company, the column has inspired the employees to dream along with him.

Renowned communication scholar Professor Levi Obonyo in his foreword to the book, wrote, "The author, Dr. Silas Simiyu, clearly demonstrates that leaders can employ communication to great effect as a tool for rallying staff towards a cause thus acting as a tool for corporate success." This, he added, is a critical departure from the Kenyan organisational culture.

"In Dr. Simiyu's treatises, employees are the brand, identity and ambassadors of the organization. They are the key premise upon which a GDC brand is anchored and form the core of the character and personality of the organization." Professor Obonyo further opined.

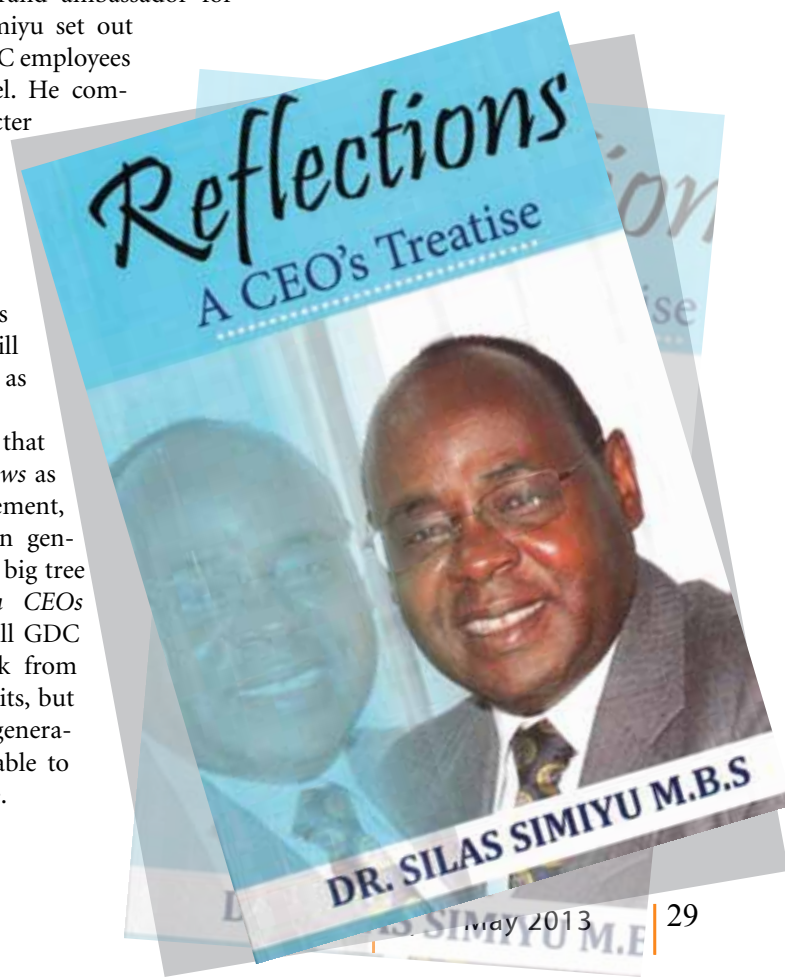
As the leading brand ambassador for the company, Dr Simiyu set out first to convert all GDC employees into his brand gospel. He communicated the character and image the organization should project within and without the organization. All these he achieved through his column which now will be available in one go as a book.

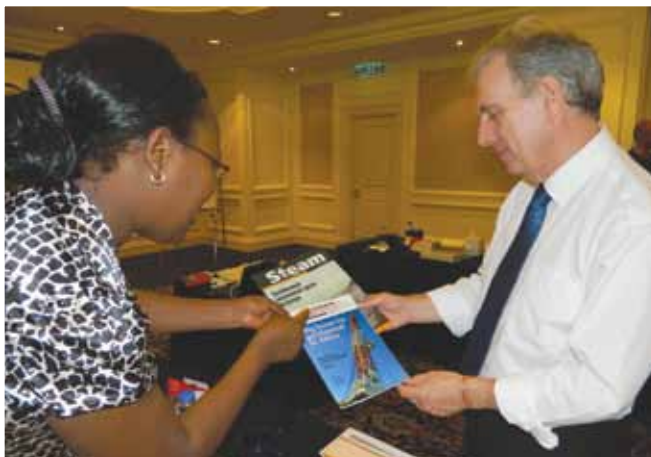
And so, the seed that was planted in *Geonews* as musings on management, leadership and life in general has grown into a big tree called *'Reflections: a CEOs Treatise'*. Not only will GDC staff ceaselessly drink from the wisdom of its fruits, but across nations and generations, many will be able to benefit from the same.



In Dr. Simiyu's treatises, employees are the brand, identity and ambassadors of the organization. They are the key premise upon which a GDC brand is anchored and form the core of the character and personality of the organization.

-Professor Levi Obonyo.





Stories of our people and activities... HR staff, Rebecca Talam did not miss an opportunity to market our publications in Kuala Lumpur.



Wow! I like... our photographer caught these young chaps in Nakuru admiring the Marathon write-up just before the big run



We've arrived... when GDC called people to run, they came, including this two men who seem to say "we've arrived."



Hmmm lovely... Felister Ngina, a GDC Stastician, must have discovered a gem in the last issue of **Steam**.



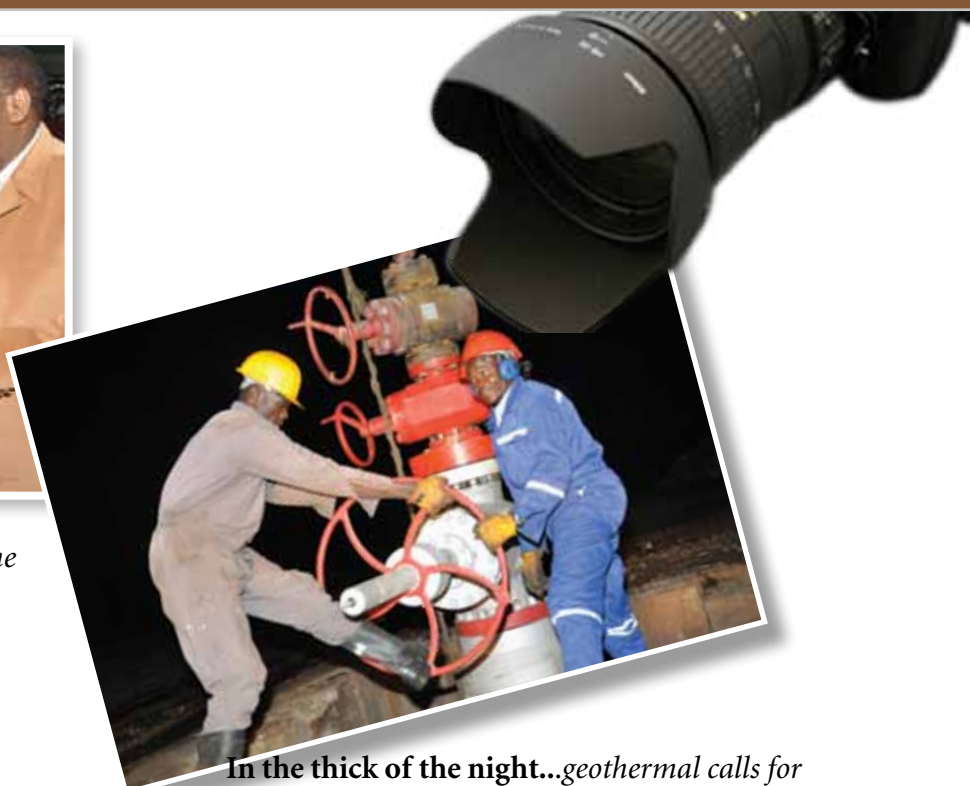
Run, baby run... this lady seem to be encouraging the young one to keep running to the finish during the GDC Half Marathon held in Nakuru.



Hahahah. you got it... Mr. Michael Mbevi, the Manager, Drilling Operations congratulates Ernest Malel, during a function



Gota... Dr. Silas Simiyu, the MD, just knows the language of the street too well. Here, characteristically he greets a staff in one of the corporate events.



In the thick of the night...geothermal calls for a 24-hour operation. And here, in the thick of the night, these Reservoir Management technicians are at it as usual.



My appreciation...*When GDC's Rosemary Olonde (left) completed her term as the Lady Captain of the Vet Golf Club, as is the tradion, members came out to shower her with gifts.*



Yeeeeeey....*well, they say all work no play makes Jane a dull girl, and the Drilling Operations Team knows this too well. The crew took time off for a little play which definitley produced the radiant faces.*

Send us your pcitures and we will always publish the best.

Send to The Editor, Steam. Email: steam@gdc.co.ke

Remember to write a brief caption. Describe the picture, who took it, where it was taken, when it was taken... and give names of people in th picture.



This is how to deal with the sugar... Dorcas Mwangi (centre) of Norvonodisk explaining to the community about diabetes and how to prevent it.

GDC's support to community health

T rue to the philosophy of powering the vision, GDC ran a free medical camp for community in Nakuru. There was an assortment of medical screening and education, ranging from diabetes, HIV/AIDS and an eye clinic too.

While others hit the track, some sought the free medical attention offered by seven medical providers.

Diverse medical cases were investigated and advice offered accordingly. The medical camp was an instant hit especially for those who did not want to run.

"I'm happy they have checked my blood pressure. I was worried that my heart was beating very fast at times and thought I was sick. The doctors have told me that all is well," Grace Waithera, a villager from Wanyororo enthused.

There was also general public education on communicable diseases. Some of the medical providers offered HIV/AIDS counseling and testing.

Some opticians provided a variety of sun glasses that proved to be popular with ladies. Still, Opticians screened and advised residents accordingly.

"To us at GDC, the marathon is a way of promoting healthy lifestyles," the MD, Dr. Silas Simiyu said in his statement.

Organizations that came out to support the medical camp include: Egerton University, Avenue Health Care, Meridian, Norvonodisk, Hi-Tech Optical, Evans Sunrise Hospital and Baus Optical.

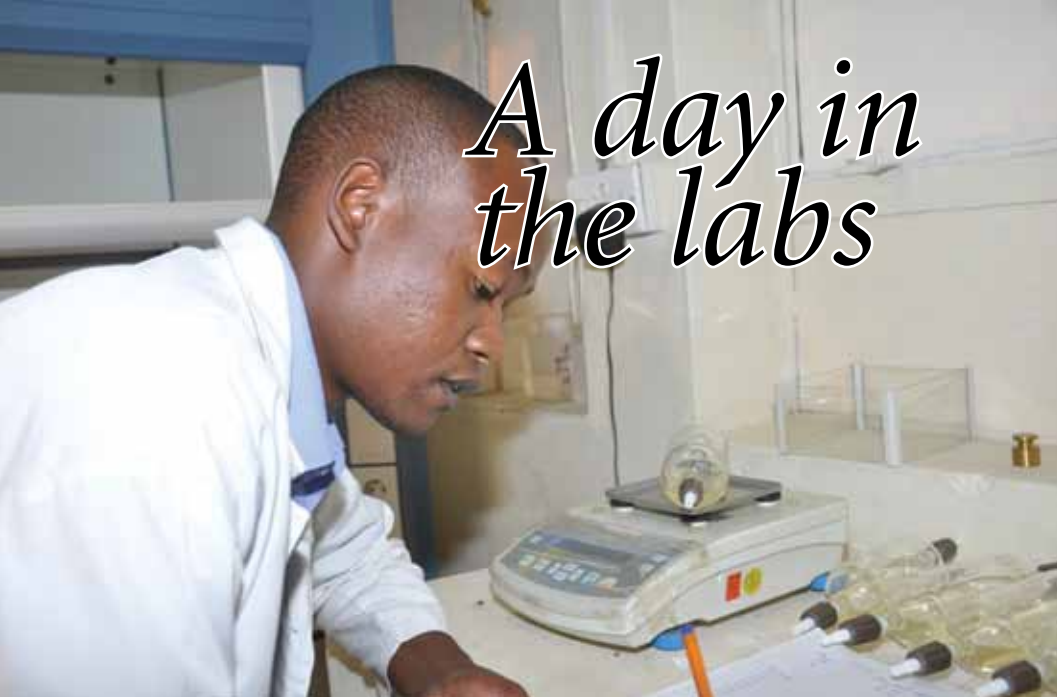
The medical camp will now be a permanent feature of the marathon.



Just the right height...
Purity Gituma has her weight and height checked during the medical camp. **Below:** medics help to check blood pressure



A day in the labs



Dispatch from the labs
Deborah Kalei and Evans Mutai
spent time with GDC's geochemists

Our arrival at the GDC-owned science laboratories was a cool relief from the sun that scorched unapologetically. In the lab, white coats, lab equipment and the periodic table thrust us back to high school days.

It's abuzz here. Technicians are mixing chemicals, others are carrying out titration, still others are heading to Menengai to collect samples.

Chemical analysis is critical to geothermal development. By understanding the chemical design of wells and a geothermal prospect, management can make informed investment decisions.

Here, the team also conducts geo-hazard monitoring of boreholes for water, and fumaroles from prospects. The team also monitors reservoir concentration.

Today, some technicians are evacuating gas sampling flasks for sample collection. The flask is a glass container that leads to two openings each with a brown cork. It is made of hard glass designed to withstand the geothermal well conditions of high temperatures and pressures. Some are washing flasks with de-ionized water which removes all anions and cations to avoid contaminating samples.

Still, other technicians are evacuating gas sampling flasks charged with sodium hydroxide using a rotary vacuum pump to guarantee the purity of the sample. Before the team leaves for the field, the weight of the evacuated flask plus sodium hydroxide is measured using an analytical balance to determine the gas concentrations.

The Menengai team leaves. Others re-

main to analyse data collected earlier. After an hour or so, Anastasia Onduru, the Office Assistant, announces that mid-morning tea is ready. The scientists take a break. There is chit-chat here and laughter there.

Teatime is over. The team goes to the balance room to measure the weight of the samples. This is done by deducting the weight of the evacuated flask from its weight when it contains the sample. This process has to take place in a closed room to prevent exterior vibrations from tampering with the scale readings.

The balance room has two parts: for storage of chemicals and a smaller part for measuring the samples. It also hosts the fume hood chamber that expels obnoxious gas. It is in here that the compounds are mixed and weighed amid small talk and tinkling of gas sampling flasks.

The next stage is at the instrument room where sample analysis is done. This is the furthest end of the left side of the laboratories, next to the gas cylinder room. It has an extraction system which is a grey vent that runs on one side of the room and rests atop an atomic absorption spectrophotometer, AAS, that is used for analysis of metals. The extraction system acts as an air conditioner to prevent overheating the machine.

We are fortunate to be at the lab as the technicians test-drive a newly commissioned gas chromatograph or G.C as is popularly called. It is used for the analysis of gases that are not trapped in the sodium hydroxide solution. The G.C is connected to a computer that acts as the instrument's read-out. The G.C is like a printer with a

keypad to key in information and screens to show the progress of the data analysis. It has television aerial-like knobs with one used to input the gas for analysis using a syringe, while the other knob lets out the excess sample through a small pipe into a beaker containing de-ionized water since the G.C only requires one millimetre of the sample for analysis.

Each sample's analysis takes roughly 17-20 minutes. And for the first time, the technicians can sit. Other operations demand standing. It's why ladies are on flat shoes.

General talk on previous assignments takes centre-stage as they wait for this results. The G.C adds its take to the conversation: it hums through the process. The data comes in form of a chromatogram that is a plot of voltage against the relative retention times as the various components go through through the packed column.

"Hydrogen elutes first and methane last because of their molecular sizes and not weight," explains Jared Nyamongo, the senior technician in charge of the lab.

Back in the main lab, data analysis continues with the lab surfaces decorated with numerous gas flasks containing various samples ready to undergo the analysis process.

"We are in business!" enthuses Nyamongo, when he sees the samples on the surfaces. The air this time is filled with numbers "No. 90, No. 53, No. 62" as the technicians sort out the gas flasks for analysis.

The Menengai crew is back. It gets to work sorting out the samples for analysis. The flasks are wrapped with soft paper to prevent breakage. The samples are precious to lose. Work on the new samples starts immediately with 'I'll do this' and 'I'll do that' shuttling their way around the lab.

Then, the lab empties. It's time for sun-downer tea. Afterwards, the process of analysis begins kick-starting the cycle all over.



By
 understanding the
 chemical design of the
 wells and prospect, it
 affords management to
 make investment decisions.

The Jack's way

He was born with a stutter in his speech to a train conductor father and a homemaker mother. By his own admission, he was not too brilliant in school; but that did not stop him from becoming CEO and Chairman of General Electric for 20 years. Does it sound like Cinderella? Well, this is corporate America Cinderella story of Jack Welch as told in his autobiography: "Jack: Straight from the Gut;" co-authored with John A. Byrne and published by Headline Book Publishing in 2001.

Jack is an extra-ordinary tale of a man who learned to be competitive at a young age playing games with his mother and golf in the neighborhood. Not gifted with genius, he applied himself hard to his studies and got a PhD in his 20s. He tells of his frustrations with the bureaucracy at GE when he joined as a junior chemical engineer.

Told in the first person, it gives a blow by blow account of the ups and downs, the mistakes, the intrigues and the gritty determination that earned him the youngest Chairman and CEO of General Electric in 1981 aged 46 years.

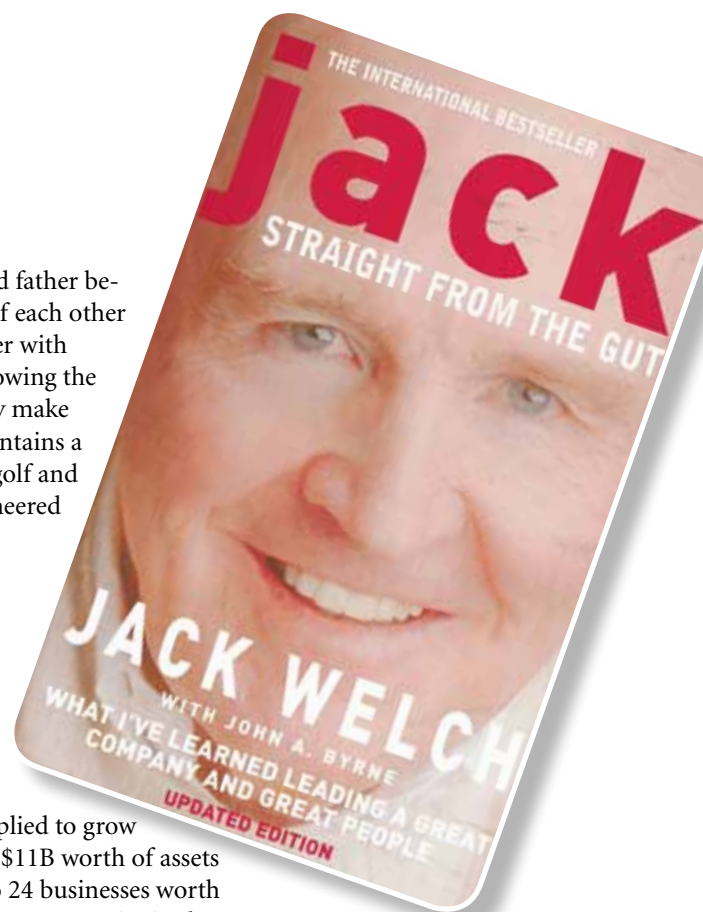
This book, however, should not be mistaken for a PR gambit to atone for the mistakes Jack Welch made in his tenure at the top of GE. No. He is candid where candor is required and hard on himself where blunt self-appraisal is most suitable.

He mixes the personal with the professional. His life with his first wife Carolyn, subsequent divorce, his marriage to his second wife Jane and the fun she brought to his life. He also relates the

death of his dear mother and father between one and a half years of each other and his near-death encounter with stroke at night. Perhaps following the mantra 'all work and no play make Jack a dull read' the book contains a healthy dose of his love for golf and a tippie with friends as he cheered the Red Sox team.

Jack tells of Jack Welch's 'boundaryless' philosophy that saw him dismantle bureaucracy at GE, his love for informality in the workplace, the Six Sigma quality, differentiation, 'deep dives' and many other personal philosophies he applied to grow GE from 10 businesses with \$11B worth of assets in North America in 1980 to 24 businesses worth \$370B in assets spread across 48 countries in the year 2000. The boardroom wars, deal-makings, and fighting anti-trust litigations told in quintessential Jack Welch vivid description complete with charts, sketches and handwritten notes make for an engrossing read.

If you are starting out in a career or business or in top management of an organization, this is a book that will not only tell you how one of 20th Century corporate America titan made it himself to the top and stayed at the top for 20 years but also give you practical insights on management and leadership. Jack is a great read.



Title: Jack- Straight from the Gut

Author: Jack Welch

Reviewer: Kiprotich Samoei
Available at leading bookstores and supermarkets

Did you know that?

The oldest known spa fed by a hot spring is believed to be a stone pool found in Lisan Mountain in China built in 3rd Century BC?

In some parts of Iceland, hot water runs from geothermal plants under pavements and roads to help melt ice during winter?

Geothermal energy has been in use for thousands of years in form of hot water from hot springs and geysers?

Geothermal power plants in Philip-

pinas and Iceland contribute around 30% of their electricity production while in the USA it is less than 1%?

Drilled in Southern California's Salton Sea Geothermal field, well "Vondrahe" is one of the largest and hottest geothermal wells in the world. It can produce nearly 2.2 million pounds of hot water in an hour, enough to power a 30-megawatt power plant.

Geothermal drinking water is bottled and sold by a company in Calistoga, Cali-



The PROMISE of GEOTHERMAL ENERGY

- *Affordable*
- *Reliable*
- *Clean & Safe*



Geothermal energy being developed by GDC will supply millions of Kenyans with safe, clean, affordable and reliable water. A product of heated subterranean water, geothermal is by far one of the safest energy sources on the planet. Kenya is lucky to have over 10,000MWe of geothermal resources.





Looking to a brighter future

With icons like these dotting our Menengai, the dream of a brighter, energetic future is unfolding in our very own eyes, during our lifetime.

*GDC
we make it happen.*

GDC IS NOW ISO 9001: 2008 CERTIFIED