

Vision

"To be a world-class electricity transmission company and the leading inter-connector in Africa"

Mission

"To build and operate a national electricity transmission network that is reliable, efficient, effective, safe and environment-friendly through innovative and best practices; and to promote regional power trade for socio-economic development"

Core Values

The guiding principles in the operations of the company are:

CUSTOMER FOCUS

The company commits itself to attaining the highest standards in service delivery to all stakeholders.

INTEGRITY, TRANSPARENCY AND ACCOUNTABILITY The company is committed to acting in an honest, transparent and responsible manner while implementing its programmes.

TEAM WORK

The company employees will work in unison at all levels and embrace a participatory approach in implementing all programmes and activities.

CREATIVITY AND INNOVATION

The company will be a learning organization that embraces and continuously introduces change in its business processes.

COMMITMENT

The company will embrace self-drive and hard work in attaining the highest standards in service delivery to all stakeholders.

EQUITY

The company will uphold the highest levels of impartiality by treating all stakeholders without any discrimination whatsoever.

PROFESSIONALISM

The company's operations will be guided by professional ethics aimed at building an appropriate corporate culture and creating the right corporate image.

Editor's Note

Dear readers,

Welcome yet again to another issue of the Grid. In the first issue we introduced you to KETRACO: what transmission is, how the company was formed, our Board of Directors and top management, and an overview of our projects. In this issue, we delve a little deeper into our projects and focus a little closer on the people behind the projects.

Through the pages you will meet Salome, Jillo and Ramat, a few of our very passionate officers. We have an interesting feature on our Mumias-Rang'ala project, KETRACO's first independent project, as well as some advice on safety and health in the work environment. We have reviewed the changes in the Energy Sector too. We also engaged in some CSR activities and played a little golf while at it.

As feedback is the breakfast of champions, we welcome your comments, criticism, compliments or any other information you may have for us to consider. Please feel free to reach us. I hope that through this newsletter, we will communicate our zeal and values that include hard work, commitment and team spirit.

Happy reading !

Raphael Mworia

Editor

Letters to the Editor

Dear Editorial Team,

Your first edition of the Grid was absolutely great. The layout was good. The content, that had a lot to do with the Who, What and How's of KETRACO, was also good for the first release. Great job guys This was good work.

Regards,

David.

Editor,

Congratulations on the first issue of Grid!! This is a profession job.

Eng. Anthony Musyoka

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Setting Track Records

FROM THE CEO

As we continue to set a track record in our operations, we remain eager to share our stories with you. In the months that have passed since the last issue, a lot has been happening. As you will read, we are now an ISO QMS 9001:2008 certified company, the Ethiopia - Kenya Interconnector project has kicked off, and we have 6 additional projects to help evacuate the 5000+ MW intended to meet the Nation's energy requirements. Our completed projects stand at 7 and we hope to finish the 328km 220kV Rabai-Malindi-Garsen-Lamu project in the coming few months.

All this has been accomplished due to the hard work evident in every department, as well as the commitment and enthusiasm KETRACO staff have. We also continue to receive tremendous support from our ministry, our sector partners and our development partners.

The challenges opposing us continue to be way leave acquisitions, vandalism and encroachment. Each day we are searching for innovative ways to combat these problems, and I am confident that in due course we shall have long lasting solutions.

We welcome you to this issue of The Grid which we hope will give you insight into what it takes to plan, build, operate and run a world class National Grid. It is my hope that you will be engaged, informed and delighted as you read through this issue.

Welcome,

Eng. Joel Kiilu

MD, KETRACO



Managing Director KETRACO

"We are now an ISO QMS 9001:2008 certified company"

KETRACO Gets Certified

Following the successful final audit conducted by Kenya Bureau of Statistics (KEBS) on 20th and 21st March 2013, KETRACO is now an ISO 9001:2008 certified company.

This particular ISO certificate specifies the Quality Management System (QMS) requirements that a company needs to operate under. In order for a company to achieve this international certification, it needs to demonstrate its ability to consistently provide products that meet customer and applicable statutory and regulatory requirements. The company should also aim to enhance customer satisfaction through the effective application of the system, including processes for continual improvement of the system and the assurance of conformity to customer and applicable statutory and regulatory requirements.

KEBS, the certifying body, found that KETRACO meets the set standards. After a series of audits conducted over several months, it was proved that the company continues to improve its operations and levels of customer satisfaction.



Well after the certification, KEBS shall continue to conduct the audits to ensure that quality standards are maintained and improved. Their auditors shall check on the company every six months for the next three years.

On its part, KETRACO's internal auditors shall continue to conduct inter audits and management reviews. Every member of the KETRACO family shall continuously monitor the set processes to ensure improvement.



Management Holds Retreat

A 3 day retreat was organized from 23rd to 25th May, 2013, to discuss manuals and policies that have been outstanding and which are necessary for a young organization like KETRACO. The manuals and policies include the Supply Chain Manual, Internal Audit Policy, Gender Policy, Security Policy, Monitoring & Evaluation

Policy, Research & Development Policy, Anti-Fraud Policy and Fraud Response Plan and Whistle Blowing Policy. Apart from reviewing the manuals and policies, the management also took time to review the organization's performance in view of the 2012/13 Performance Contract. A few more manuals including Gender Mainstreaming will be discussed at a later date.

Ministry of Energy & Petroleum Commissions Power Market Study

The Ministry of Energy & Petroleum received a preliminary report on a study commissioned on the options for development of a power market in Kenya developed by M/S CPCS of Canada who were engaged in February 2012 and led by Cezley Sampson as Project Team Leader.

The main objectives of the study include to implement the generation and transmission investment plan and provide guidelines for entry of additional generation capacity to the network; to identify and evaluate approaches for large eligible customers to gradually be allowed to choose their electricity provider while ensuring financial sustainability of the sector, including setting out the trajectory for entry of eligible customers to enter the market and to evaluate the financial impact of the trajectory on KPLC and prepare recommendations on what capacity building

activities as well as the other institutional adjustment should be taken so that KETRACO can assume the role of Independent System Operator (ISO). Other objectives were to prepare regulations for supply contracts between eligible consumers and authorized generators; to prepare regulations for use of the network by eligible customers and set out options for sustainable provision of electricity service by the counties as per the new constitution.

The need for the study was informed by the government's wish to achieve increased level of competition in the electricity market as well as clarify the definition of roles of the transmission and distribution operators. The study which is being discussed by stakeholders is part of the ongoing power sector reform programme.

5,000+ MW for Transforming Kenya

In order to provide affordable electricity to meet the rising national demand created by activities which are expected to sharply transform our economy, the Ministry of Energy and Petroleum is to implementing a roadmap to raise the electricity generation capacity by 5,000MW from the current 1664.1MW.

This ambitious programme was the topic of discussion at Kenyatta International Conference Centre (KICC) on the 9th of September during the Energy Day. The theme of the day was '5,000+ Megawatts for transforming Kenya'.

The targeted electricity capacity will mainly be developed from 1,646 MW of Geothermal, 1,050 MW of Liquified Natural Gas, 630 MW of Wind and 1,920 MW of Coal.

KETRACO's role in this plan is to develop the required evacuation transmission infrastructure for the 5,000MW generated power. During the company's presentation, it was revealed that KETRACO plans to add 6 key lines to the National Grid that will provide reliable, sufficient and competitive energy. These lines are:

-15 km 132kV Menengai-Soilo line that will evacuate 100MW of Menengai geothermal power,

-25km 400kV Menengai-Rongai line that will evacuate 400MW of Menengai geothermal power,

-150km 400kV Silali-Rongai line that will evacuate 200MW of Silali geothermal power,

-50km 400kV Dogo Kundu – Mariakani line that will evacuate 700MW of Liquefied Natural Gas power,

-500km 400kV Lamu- Kitui- Nairobi East Line that will evacuate 960MW Lamu Coal Power and 960MW Kitui Coal Power,

-57km 400kV Isinya-Nairobi East line for additional capacity.

During the event, KETRACO got the chance to engage with the Vision 2030 steering committee representative, Independent Power Producers, funding organisations, suppliers, contractors, consultants and others interested in the company's projects. this gave the company a platform to rally for the support required to make the 5000+ MW project a success.

Currently, significant steps have been made in the construction of the 6 transmission projects.

Pupil Power in Kenya

Nair Purushothaman - PB Consultants

Major transmission project brings additional benefits to the region beyond the provision of reliable grid power.

The 328 km 220kV single-circuit Rabai-Malindi-Garsen-Lamu (RMGL) transmission project to connect an extension of Rabai substation to three new substations at Malindi, Garsen and Lamu. will be the main supply source for the planned Lamu port, which will mainly serve South Sudan and Ethiopia. The new overhead line has undoubtedly changed the landscape of the Kenyan coast, with shining steel structures standing tall along the Mombasa-Lamu highway.

But while the line has passed through villages with minimal environmental impact or need for resettlement, some trees have had to be cut down to allow the line to cross forested areas. To redress the balance, our client KETRACO provided coconut seedlings and irrigation kits to the Kenya Coconut Development Authority. A colourful ceremony took place when 9,000 seedlings were delivered to local farming groups in Mida – close to the RMGL project office – helping to boost the coconut industry and increase household incomes. The irrigation scheme provided by KETRACO will replace the use of diesel generators, widely used in Kenya for farm irrigation.

Elsewhere, the Ndeu primary school in Lamu has also directly benefited from the nearby project. As it will be used as the venue for the official inauguration ceremony, the project team (KETRACO, PB, CAMCE) thanked, repainted, and donated new desks and chairs, sports equipment, books and stationery. The pupils were all outfitted in new uniforms and shoes.



Eng. Antony Wamukota hands new uniform to one of the students, cheered on by teams from CAMCE and PB (seated under the tent)

In February 2013, RMGL project representatives from KETRACO, CAMCE and Parsons Brinckerhoff visited the Lamu substation site and then travelled in convoy to the school to meet the headmaster and the District Commissioner. The guests were given a warm welcome by the teachers and pupils, who marked the occasion with a special performance of song, dance and poetry. Many of the students had never had new uniforms and were clearly excited to receive their new clothes and equipment.

Parsons Brinckerhoff's Javid Khaliq (Transmission Director) described the sponsorship as "the best thing I've ever done", and was very moved by the children's beautifully expressed thanks. The team is now looking to form a longer-term relationship with the school, so it can support the pupils in years to come.

KETRACO to add 2531 KM to the National Grid



"The Government has therefore embarked on intensive transmission infrastructure systems to expand the National Grid's capacity. The peak demand is projected to reach 1500MW by end of 2013."

S. Naliaka



L-R: Dr. Phil. Nat Nobert Beltz, Business Development Manager Power Transmission & Distribution, Lahmeyer International, Mr. Joseph K. Kiiru, Council Member, Association of Engineers of Kenya, Eng. (Dr.) John Mativo, Head of Technical Services, Mr. Peter Njehia Head of Supply Chain Department, Eng. Joel Kiilu MD, Eng. Samson Akuto (Technical Department) and Mr. Duncan Macharia Head of Legal Services during the contract signing for feasibility studies on 25/07/2013 at KETRACO offices.

ETRACO has signed two (2) multi million contracts for carrying out of feasibility studies for Environmental Social Impact Analysis (ESIA) / Rapid Assessment Program (RAP) for the justification of proposed transmission lines and substations around the country. The two contracts signed are part of four assignments that KETRACO has set to commence.

The contract signing ceremony was held at KETRACO offices with two contractors present: AF-Consult Switzerland Ltd and Lahmeyer International of Germany. AF- Consult of Switzerland will be responsible for assignment II which includes carrying out feasibility studies for 72km Kisumu–Kakamega–Musaga line, 73km Webuye–Kimilili–Kitale line, 25km Kakamega–Kaimosi line and the 48km Sotik–Kilgoris line at a sum of Ksh. 44,337,805.

Lahmeyer International of Germany will be responsible for assignment III. Lahmeyer International will focus on the Menengai–Kilgoris line, a 400kV Lake Victoria Ring and possible Interconnector into Tanzania totaling to 235km, 41km Myanga–Busia line, 72km Rang'ala–Bondo–Ndigwa line, 72km Homa bay–Sindo line and 72km Ndhiwa– Karungu bay line at a sum of 762,604,445.

Present during the two ceremonies were Mr. Eduard Feser, Member of the Executive Board and Head of Transmission & Distribution for AF-Consult and Mr. Sandeep Bhowmick, the Managing Diector of Colenco Consulting Nigeria Ltd. From Lahmeyer were Dr. Nobert Beltz, the Business Development Manager, Power Transmission and Distribution and Mr. Joseph Kiiru a council member of Association of Engineers of Kenya (ACEK.)

Speaking during the ceremonies, KETRACO's Managing Director Eng. Joel Kiilu congratulated the two companies for winning the tenders through competitive bidding process. He urged them to carry out thorough research in their respective lines and submit findings within the specified time.

Mr. Sandeep Bhowmick thanked the Company for the chance and assured the team that they will do their best as that marks the beginning of a lasting relationship between KETRACO and AF- Consult Switzerland Ltd.

These feasibility studies have been neccessited by the limited access to electricity in Kenya, which is about 4% in the rural areas and 16% nationally. The Government has therefore embarked on intensive transmission infrastructure systems to expand the National Grid's capacity. The peak demand is projected to reach 1500MW by end of 2013 and thus the enhanced measures to reduce system outages are being implemented through the system improvement work under Energy Sector Recovery Project (ESRP). It is in this view of accelerating the national electrification programme and grid strengthening, that KETRACO identified the above priority transmission lines and substations to be implemented.

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What is an EIA Licence?



Richard R. Godana, Environmental Officer

According to Wikipedia, an Environmental Impact Assessment (EIA) is an assessment of the possible environmental, social and economic impacts that a proposed project may have on a community. The Grid got a chance to talk to Richard Godana, an Environmental Officer in the company about the EIA licence and the impact it has on his work.

1. Which type of projects need an EIA licence?

The projects that require EIA are clearly spelt out in EIA regulation. Examples of projects that require an EIA before construction are projects like roads, electricity, pipelines, railway lines, water dams, pans, irrigation projects, mining, buildings and even afforestation programmes. A keen look at EIA regulation shows that every Development Project requires an EIA license.

2. Do all KETRACO projects require such a licence?

An EIA License is a legal and donor requirement, and all KETRACO transmission lines and subsequent substations are licensed.

3. What are the steps necessary and that lead to successful licensing?

There is a systematic process with a defined time frame. To be precise, the EIA regulation is very clear on steps that lead to successful licensing.

The steps are as follows:

1) A proponent shall submit ten copies and an electronic copy of an Environmental Impact Assessment study report to NEMA accompanied by three submission forms and the EIA review fees.

2) NEMA shall within fourteen days of the receipt of the EIA study report, submit a copy of the report to any relevant lead agencies for their comments and publish the report in newspapers with national circulation for the public to give comments.

• Upon receiving the EIA study report, the lead agencies shall review the report to ensure that it complies with the terms of reference.

• Lead agencies shall thereafter send their comments on the study report to NEMA within thirty days, or such an extended period as the Authority may specify.

• If the lead agencies to which a copy of the EIA study report is submitted fail to submit their comments within thirty days, or such an extended period as NEMA may specify, NEMA may proceed with the determination of the application for the implementation of the project.

However, if there is opposition from members of the public, the project will go to a public hearing.

At the public hearing, the owner of the project shall be given an opportunity to make a presentation and to respond to presentations made at the public hearing. The public is also given time to explain why they oppose the project.

The minutes of the public hearing are then used by NEMA to make a decision on whether to issue the license or not.

Where NEMA approves an EIA study report, it will give conditions of approval to the owner of the project. If the proponents accept the conditions, NEMA shall issue an EIA licence.

An aggrieved party may appeal the decision by NEMA to the National Environmental Tribunal.

6. The Ethiopia-Kenya Project has recently been in the news due to opposition by sections of Project Affected Persons (PAPs). Please expound.

As we all know, Ethiopia–Kenya transmission line traverses six counties within Kenya. There is no opposition from five counties. This therefore means the transmission line has opposition from some pockets within a county (Laikipia County). I believe any person is entitled to his /her opinion and I do believe people who opposed the project are within their democratic right. To that effect, a public hearing was organised by NEMA as required by law and both parties for and against the project presented their cases and NEMA made their decision and the EIA license was issues.

KETRACO has made further consultations within Laikipia County and majority of residents of the County are in support of the project. The Project Implementation Team (PIT) has no doubt that any remaining issues will be ironed out soberly and it will be a win-win situation for everybody.

7. What role does the community, both PAPs and non PAPs, have in the process?

The project is for the community and as such KETRACO has to ensure the community members own the project. Their involvement in the project throughout the project periods of construction and operation is vital for the success of the project.

Kenya - Ethiopia Transmission line is anticipated to be a solution to power shortages in Kenya. All PAPs and other Kenyans have a civic duty to ensure the project is implemented expeditiously. Some PAPs will definitely be in the Resettlement Action Plan (RAP) Implementation Committee at the appropriate moment. In the process of undertaking EIA, thorough consultation was done in all the counties and the communities generally are very supportive.

EIA is a precautionary tool; it will identify the likely negative impacts in terms of environmental degradation, health and safety of workers among others. The mitigation measures proposed in the Environment Management Plan will help the project to avoid pitfalls that will derail the project.

It is also important to note that, all high flying financiers will not lend money to a project before it is deemed to be environmentally sound. The indicator for an environmentally sound project among other things is an approved EIA study.

Candidly speaking, failure to do EIA, for projects that require the same is an offence punishable by law in terms of a fine or imprisonment, or both.

8. Some licenses are issued with conditions? Give us examples of such conditions?

It is not some, but all the EIA licenses are given with conditions. One such condition is that the proponent shall submit an Environmental Audit report to NEMA in the first year of commissioning to confirm the efficacy and adequacy of the Environmental Management Plan.

9. What could lead to a denial of a licences and what recourse does a project proponent have beyond NEMA?

The license can be denied if the owner of the project refuses to accept the conditions of approval. It can also be denied if the project has a high magnitude of impacts that cannot be mitigated. This impact is called irreversible impact. The project can also be denied a license if the negative impacts outweigh the positive ones after an accurate cost benefit analysis is done. NEMA can also deny issuing the license if it establishes that the information or data given by the proponent in support of his application for an environmental impact assessment licence was false, incorrect or intended to mislead.

KETRACO Fights Drug Abuse

Z. Asmani

A sensitization program was held by KETRACO in conjunction with the National Authority for Campaign Against Alcohol and Drug Abuse (NACADA) from 28th to 31st of May 2013 in a bid to create awareness of drug use and its adverse effects in Bamba, Kilifi and Malindi. The exercise, which targeted persons affected by the Rabai-Malindi-Garsen-Lamu project, included visits and meetings to various schools and a village baraza.

The facilitators of the exercise were Naomi Njeri of Human Resources and Administration Department and a NACADA committee member, Muthoni Kanaiya of the Legal Services Department, also a NACADA committee member, and Zaituni Asmani of the Corporate Communications Department.

Among the schools visited were Mitsemirini Primary School, Bamba Primary school, Kakuyuni Primary School and Godoma Secondary School. The children were aware of substance abuse and the different types of drugs and its uses. Some children even informed the team that their parents used the famous "mnazi", a local drink that has caused the local administration in the area substantial concern about the welfare of the communities. The schools were left with literature for their libraries, posters for their notice boards and a training guide for the teachers on how to sensitize the students on substance abuse.

At the public baraza that was held in Bamba, the area Assistant County Commissioner, Mr. Stephen Kaloki



Naomi Njeri (Human Resources and Administration Department) addresses students of Bamba Primary School on the pressures that lead students to taking drugs.

Mwanga, requested the team to spend some time focusing on alcohol abuse and its relation to HIV/AIDS. "We have noticed a connection between the two, and it is turning out to be a vicious cycle. People drink "mnazi" a lot, and often in funerals to drown their sorrows. Sadly the heightened number of funerals we are having are due to suicide after people find out they are HIV positive. Rape cases have emerged due to the drinking which has led to more drinking and suicide cases,"he added.

The residents were taught how to correctly use condoms, how HIV/ AIDS is spread, and the connection between alcohol abuse and the

spread of the deadly disease.

Both the schools' and local Administrators thanked KETRACO for taking the time to reach out to the communities. "Often small communities like ours are overlooked when companies decide to send people to talk about such hearty matters. It is good to know that KETRACO is intent on improving even the marginalized, said Mr. William Toya, the Head Teacher of Mitsemirini Primary School.

We are currently undertaking over 35 Transmissions projects all over the country in order to evacuate generated power, strengthen the national grid, provide access to every county and regional interconnection to neighboring countries.

KETRACO Hosts Uganda's UETCL

KETRACO's vision to be a world-class electricity transmission company and the leading inter-connector in Africa is quickly becoming a self-fulfilling prophesy. In February KETRACO got the opportunity to host a team from Uganda Electricity Transmission Company Limited (UETCL) that were hoping to learn just how we conduct our business.

The visiting team had a meeting with KETRACO's technical department, where they mainly discussed the quality control measures and government guidelines and regulations KETRACO honours to ensure the success of transmission projects. They also inquired about the challenges KETRACO has faced, how they have been overcome and the Company's experience with the various contractors and consultants.

Prior to the meeting, the team from UETCL had visited sites along the 328km 220kV Rabai-Malindi-Garsen-Lamu line, and were scheduled to travel to Kisumu to visit the projects in the Western region thereafter.

The technical team which was led by Eng. Samson Akuto also included Eng. Joash Okeyo, and Thomas Nyangau and Salim Wanyande and George Maina. The team from Uganda comprised of UETCL's Line inspector Mr. Masembe, Principal Civil Eng. Mr. Mukasa, Eng. Simon Ngobo and Planning and Investments Manager Mr. Gerald Muganga.



Seated from left - UETCL's Line inspector Mr. Masembe, Principal Civil Eng. Mr. Mukasa, Planning and Investments Manager Mr. Gerald Muganga and Civil Eng. Simon Ngobo Standing from left – KETRACO's Eng. Joash Okeyo, George Maina, Salim Wanyande and Eng. Samson Akuto.

Transmission System Gets Facelift

The country's electricity transmission system is being upgraded by Kenya Electricity Transmission Company Ltd. (KETRACO) under The Kenya Power Transmission System Improvement Project (KPSIP). This project is currently in its advanced stages of contract evaluation. While the feasibility studies were conducted by Kenya Power before KETRACO was formed, the project will be implemented by KETRACO.

This project falls under the Energy Access Scale-up Projects (EASP), formed by the Ministry of Energy and Petroleum Kenya, Kenya Power, whose aim was to improve the quality and reliability of power supply. The EASP, now known as the Power Transmission System Improvement Projects, will scale up the existing 33kV lines to 132kV. The scale up projects also include the Kenya Electricity Expansion Project (KEEP) that KETRACO is implementing.

KPTSIP consists of construction of a total of 431 km of 132 kV lines, extension of six substation bays and construction of eight new 132/33kV substations. The 132 kV transmission lines considered under the project financing are the 68 km Olkaria-Narok, 33 km Sotik-Bomet, 65 km Lessos-Kabarnet, 79 km Nanyuki -Nyahururu, 33 km Ishiara-Kieni, and 153 km Mwingi-Kitui Wote Sultan Hamud lines.

Eight new 132/33kV substations will be constructed at Narok, Bomet, Kabarnet, Nyahururu, Kieni, Kitui, Wote and Sultan Hamud. There will also be six 132 kV outgoing bays at Olkaria, Lessos, Sotik, Nanyuki, Ishiara and Mwingi.

The number of lines and their geographical diversity poses a great challenge to the project implementation team. However, one advantage that this project, along with KEEP has is that each group of projects fall under one donor, thus shortening the funding process. It is anticipated that the project will scale up the power system in the country, pushing more power to the concerned regions.

Staff Inducted on RMGL Project

Staff members from various departments were inducted on the Rabai-Malindi-Garsen-Lamu transmission project during an induction tour that took place from 22nd to 25th of March in the Coastal region.

During the tour the team visited the substations along the project line as well as part of the Mombasa-Nairobi line. They also visited the new Lamu port that is under construction, and attended a community Baraza in Malindi where way leave details were being ironed out.



Staff pay attention to Moses Kere at the Malindi s/s during the tour

Moses Kerre, the inductor, took the team through the transmission process, and outlines the various project details, challenges, and the benefits of having the line in the region.

During their spare time the team got a chance to experience the coastal culture (food, dressing, language and music) in the various towns they visited between Mombasa and Lamu.



Staff, some for the first time, on a boat ride to Lamu Island

River Floods RMGL Foundations

R. Mworia

According to Kenya Red Cross, the "Long Rain season" that started in the first week of March 2013, and usually falls during March-April-May caused severe flooding and landslides in the regions of West Kenya, Rift Valley, Central Kenya, the Coast, North Eastern, and Upper and Lower Eastern regions.

The flooding and landslides had a devastating effect on the communities in the area, causing massive displacement, loss of lives, destruction of houses, livelihoods and vital infrastructure such as water supply systems and road network. Thousands of families were displaced or evacuated, already in vulnerable positions from recurrent flooding situation. People lost their vital assets in terms of livestock and farm lands.

KETRACO's projects at the coast were not spared the wrath of the floods. The Rabai-Malindi-Garsen-Lamu project which crosses two of Kenya's largest rivers in Sabaki and Tana was first affected in the early part of April when auger pile foundations at the Sabaki river crossing were flooded out. The contractor had to suspend work on the site to await the subsiding of the water level.

Pile foundations are deep foundations used in cases of soft/silty/clayey type of soils. They are used in cases where normal foundations may not be possible either from an economical point of view or may not



Constuction works are brought to a hault following the flooding of the pylons' foundations after River Sbaki burst its banks.

be possible at all in case one may want to construct near water bodies like rivers, lakes or the seashore.

In may, the Project saw the collapse of tower C26 after the river Sabaki changed its course. With a water head of more than 4m moving at more than 2m/s. the tower legs buckled under a high impact force. A comprehensive investigation can only be carried out once the river flows back to its original course as floods subside so that the collapsed tower can be reached. The incident will heavily impact on the project's completion date which was originally supposed to be at the end of June 2013.

Kenya and Ethiopia Agree on Project



By Ministry of Energy and Petroleum

Kenya and Ethiopia reached an agreement on the importation of 400MW by Kenya from Ethiopia by 2016.

This follows the successful conclusions of negotiations for power importation by Kenya from Ethiopia which took place at a meeting held in Kenya on 12th and 13th December 2011. The negotiations were spearheaded by the then Minister for Energy, Hon. Kiraitu Murungi for the Kenyan delegation, and Ethiopian Minister for Water and Energy, Hon. Alemayehu Tegenu, for his country's delegation.

Under the agreement, Kenya will import the 400MW on a continuous (firm power) basis at a price of US\$ 7 cents per kWh by 2016. By then, Kenya's installed electricity capacity is projected to be 3,868MW including the imported power form Ethiopia, up from the current effective installed capacity of 1,394MW.

A country which already has surplus electric power, Ethiopia has a huge electric power potential of 45,000MW which is relatively cheaper to develop than the remaining big hydro power potential in Kenya. Currently, Ethiopia has a surplus hydro power capacity of about 1,000MW from the existing installed capacity of over 2,000MW. The proposed power import is based on a feasibility study jointly undertaken by Kenya and Ethiopia. Based on this study, funding for construction of a power transmission line capable of evacuating 2,000MW has been pledged by the World Bank, French Development Agency and African Development Bank. Construction of the interconnector commenced this year, and is expected to be completed by 2016 at a total cost of USD 1.2 billion.

The agreement between Kenya and Ethiopia signifies the strengthened bilateral economic relations between the two countries through interconnection of the power systems.

Kenya is also pursuing other regional interconnectors which include constructing a 220kV interconnector with Uganda and a 400kV interconnector with Tanzania. The 220kV link with Uganda is in the construction process as it is fully funded by the African Development Bank. Arrangements are being made to mobilize funds for construction.

These initiatives are expected to contribute to a substantial reduction in the cost of electricity.

Better Power Supply for Mombasa Island

Kevin Sang – Kenya Power

Kenya Power is currently implementing work to convert to underground, a 10km high voltage power line in Mombasa Island. The line that supplies large parts of the island including industries, commercial enterprises and residential areas runs from the thermal power generating stations at Kipevu to Makande substation from where it branches to Tononoka and Mbaraki substations.

Upon completion, the underground lines will increase reliability of power on the island through increased capacity to deliver more power to Mombasa Island and reduction of supply interruptions.

Funding for the project has been made available through a loan from the World Bank comprising USD 2,409,027 and Kshs. 367, 121,396.

10% of the local currency component has been contributed by Kenya Power, which will eventually repay the entire loan from internally generated funds.

The work commenced in March this year. KEC International of India is implementing the project after winning a competitive international tender bid in which 18 firms participated. The project entails design, supply and installation of 33kV underground transmission cables and fiber optic between Kipevu and Mbaraki through Makande 33/11kV substations, and a branch from Makande to Tononoka substation.

A World Bank team of Noreen Beg, a senior environmental specialist, and Mits Motohashi, an energy and finance



Kenya Power technicians lay a high voltage underground at Parklands, Nairobi.

specialist, inspected on-going work accompanied by Kenya Power's Safety Health and Environment Manager, Mr John Guda, to appraise progress. KEC General Manager for Kenya, Mr. S. A. Ramachandra conducted the tour.

The existing overhead power line has frequently been subjected to various challenges including vandalism, marine pollution which weakens the wires leading to frequent line breakage, and scavenger birds such as the Marabou stock attracted to the nearby Kibarani garbage dump flying into and short circuiting the line.

The underground cables will require minimum maintenance and will not be subject to environmental pollution that is a major cause of line breakage at the coast, hence better quality and reliable power for customers. Furthermore, the underground cables are not easily accessible, which will restrain vandals.

Operation of 36MW Geothermal Power Plant Commences

Nev Reno - Ormat Technologies

New Plant Increases Ormat's Total Capacity to over 600MW

Ormat Technologies, Inc. announced in May that it reached commercial operation of Plant 2 in the Olkaria III complex in Naivasha, Kenya, increasing the company's total generating capacity by 36 MW to 611 MW worldwide. Ormat also plans to add an additional 16 MW of generation at Olkaria III by building a third plant, which it expects to complete in 2014. Once Plant 1 is complete, total capacity at the Olkaria III complex will reach approximately 100 MW. The power generated in the Olkaria III complex is sold under a 20-year power purchase agreement (PPA) with Kenya Power and Lighting Company Limited (KPLC). Ormat financed the new 36 MW plant, as well as the first two phases of the complex completed in 2000 and 2009, with a \$265 million debt facility provided by the Overseas Private Investment Corporation (OPIC).

OPIC will also finance the construction of Plant 3 with

another \$45 million debt facility.

As a clean, base-load power source, the Olkaria III geothermal complex provides the country with a cost-effective alternative to imported oil, offsetting approximately 450,000 tons of carbon dioxide annually.

"Ormat benefited significantly from implementing a multiphased development strategy with Olkaria III and our success in Kenya exemplifies the value of this approach. Drawing knowledge from each phase of development to improve project and plant performance as we methodically expand has allowed us to maximize efficiency and reduce risk," said Dita Bronicki, Chief Executive Officer of Ormat. "Ormat is proud to be a part of Kenya's efforts to provide reliable power and reduce emissions for a cleaner future. We have achieved these great accomplishments through the hard work and dedication of many throughout our organization, including Olkaria III's operation team comprised entirely of skilled local employees." He concluded.

Blue Nile Makes Way For GERD Construction



Diversion of the Blue Nile

he diversion of the course of Abay (Blue Nile) River was successfully undertaken in May to make way for the construction of the Grand Ethiopian Renaissance Dam (GERD).

Speaking at the a ceremony held at the Guba, site of the GERD in Benishangul Gumuz State, President of the GERD Construction Public Coordination Council and Deputy Prime Minister Demeke Mekonnin said the diversion of the River has been successfully done to utilize the resource for national interest.

The benefit of the GERD which is the fruit of the May 28th Victory is not only for the nation but also for neigbouring countries, he said. He also called on the public to continue the support it has extended to the construction of the dam from inception to the end.

Demeke said the Government would remain focused to realize the vision of the late great leader Meles Zenawi and martyrs, thereby promoting the Ethiopian Renaissance.

Water and Energy Minister Alemayehu Tegenu for his part said the construction of the dam is being carried out in such a way that it maintains the mutual benefit of the Nile basin countries. He said it would also enhance cooperation and economic integration, and would not do any damage to the lower riparian countries.

Chief Executive Officer of the Ethiopian Electric Power Corporation, Mihret Debebe, said energy projects like the GERD are very essential in developing countries like Ethiopia to deal with the growing energy demand. He noted that the government has embarked up on generating up to 8,000 MW of energy at the end of the Growth and Transformation Plan period.

The GERD construction, for which a corner stone was laid by late Meles Zenawi two years ago, has now reached 21 % of its construction accomplishment.

The dam which will have an installed capacity of 6,000 MW at its completion has created job opportunity for over 5,000 citizens. The dam will have a storage capacity of 74 billion cubic meters of water.

Source - ertagov.com,

Government Rallies to Fight Vandalism



Z. Asmani

The month of June saw different government officials stand against vandalism of public utilities.Nairobi Governor Mr. Evens Kidero and Transport and Infrastructure Cabinet Secretary Mr. Michael Kamau both issued strong directives that are aimed at curbing this vice that has resulted in the massive destruction of electric cables, lamp posts and guard rails along the country's highways.

During the opening of a multi-stakeholders workshop on violence and urban safety organised by World Bank and the office of the Governor of Nairobi on 12th June 2013 at the Hilton Hotel Nairobi, Governor Kidero ordered the County Licensing Department to revoke the monthly trading licences issued to scrap metal dealers. He further ordered for a through audit of all firms and individuals trading in scrap metal.

On the same day, Hon. Kamau banned the export of scrap metal from Kenya. He ordered this ban while at the Mombasa port where three 40 feet containers destined for China were being held for scrutiny by Kenya Revenue Authority. Vandalism is frustrating the country's efforts to upgrade its infrastructure, thus leading to millions in losses. "We will ensure that every person in the scrap metal industry is licenced by the Scrap Metal Council, and recall those who already have licences to distinguish genuine and fake licence holders." said Mr. Kidero.

A new bill, the Scrap Metal Bill 2013, which is being lobbied for by the Industrialisation and Enterprises Secretary, proposes a Ksh. 20 million fine or a 7 year jail term for anyone found in possession of scrap metal whose origin cannot be traced.

This will complement the current law which states that a person convicted for vandalism will face a jail term of not less than 10 years and a fine of Ksh. 5 million. Furthermore, the bill proposes a 14 day delay before scrap metal is smelted so as to allow the government inspector time to verify the source of the merchandise.

However, the Kenya Iron and Scrap Metals Association is seeking to have the proposed license fees and penalties. This is because if implemented, these new directives will curb approximately Ksh. 3 billion in the scrap metal businesses.

Being a Land Economist

Salome Munubi, one of KETRACO's Land Economist, shares the intricacies of her job with the Grid.

1. When did you join KETRACO? In February 2010

2. What do you do in the Company? / What is the role of a Land Economist in KETRACO?

We compensate affected people to allow them to relocate. We prepare the entitlement matrix, that is, the determination of:

a. Structure values and disturbance costs since most people are 'victims' i.e. involuntary resettlement- not having planned to move out.

b. Crops in season will be destroyed and trees for shade, wood and other economic uses will be felled.

c. Severance of the land. This is how the power line affects each land parcel. We have to consider the total size, the percentage or degree of affection and advise on compensation costs for loss of land use to enable the land owner to have residential land. Otherwise the grant (land tenure) remains the land owners' interest.

3. What qualifications does one need to become a Land Economist?

One should have a basic Degree in Land Economics from the School of Built Environment from the University of Nairobi. Thereafter be a full member of the Institution of Surveyors of Kenya (ISK) in the Valuation and Estate Management Chapters. Professional examinations, registration and licensing by the Valuer's Registration Board and the Estate Agents' Registration Board are also legal requirement before practising the profession.

4. Why did you select this line of work?

Land issues in Kenya are intriguing. Each case is unique in challenges and approaches for solutions.

The profession is interesting, intriguing right from tenant management (lettings) identifying of the highest priced purchaser (sales), registration of interest on real property (conveyance) to people management and interpersonal skills.

5. What do you find most challenging on the job? How did you/ are you overcoming it?

Dealing with dissatisfied land owners, who despite

the optimal market value applicable to their land for compensation purposes and by extension wayleaves and Right of Way (ROW), remain disgruntle. Also, dealing with protracted legal issues relating to land values and speculative values, and the different valuation values by various Valuers.

We are engaging in broadening the perspectives between KETRACO, land owners and their legal representatives. KETRACO is not purchasing wayleaves but just acquiring an easement. Only Valuers are allowed to place values on properties for compensation practises based on similar Terms of References and true values.

The task is making the communities understand this.

6. What do you most enjoy about your job?

Achieving optimal negotiations for KETRACO on a win-win basis between the company and the land owners. That is,wayleave acquisition and ROW access solution.

There is such a big difference in environments, people and their cultures, which causes quite varying perceptions on property ownership and values.

We have to apply various valuation principles in compensation matrices as justified by the degree of severance and socio-economic factors so as to achieve a win-win agreement. No two projects end up having the exact same set of agreements. It makes the job very dynamic.

7. What has surprised you the most in your line of work? There is a lot of ignorance. Majority of Kenyans are ignorant of property/land laws. There is a lack of knowledge of

of property/land laws. There is a lack of knowledge of the power of Government to compulsorily acquire land, the processes and award systems to affected people. People also do not know of true property values (Most dwell on speculative values). Further, there is ignorance of the constitution of the National Land Commission and its mandate, and ignorance on the optimal utilization of agricultural land as a factor of production.

8. What do you do when not working? / How do you relax after a long day?

I read, watch movies and sleep.

Salome Munubi sensitising a community on KETRACO and wayleave aquisition





1. Dir. Elizabeth Maina $(2^{nd} L)$ presents the 2011/2012 Annual Report to Hon. Patrick Nyoike during the Annual General Meeting held in May . She is joined by the company Chairman Mr. Kageenu (L) and MD Eng. Joel Kiilu $(2^{nd} R)$

2. KETRACO team in Mwingi discuss the construction plans for the Mwingi substation for the Mwingi-Kindaruma-Garissa project L-R: Francis Mumo (Graduate Engineer), Johnson Munyaka (Project Engineer) Jillo Madras (Surveyor), Eng. Justin Muna (Project Engineer), Board Dir. Elizabeth Maina & MD Eng. Joel Kiilu

3. L-R Eric Audi, Head of Internal Audit, Mumbua Giati, Chief Manager ICT and Agnes Ongadi, Chief Manager Human Resources have a discussion at KICC during the Energy Conference held in September

4. L-R Dir. Esther Nkatha, Dir. Fidesius Nyaga and Company

Secretary Duncan Macharia discuss the presentations made during the Energy Day Conference

5. Eng. (Dr.) John Mativo (L) and Company Secretary Duncan Macharia (2nd R) help August born staff (L-R: Eric Audi, Moses Makhoha, Nancy Jeptoo, and Bernard Maingi) cut their birthday cake

6. Dapper duo: KETRACO's MD Eng. Joel Kiilu (R) and Head of Technical Services Eng. (Dr.) John Mativo at Draper's Hall London on June 6th during the Parsons Brinckerhoff (PB) Award dinner. KETRACO was invited by PB consultants to attend their annual award ceremony dubbed 'Celebrating Excellence'

7. Staff members discuss hearty matters during a recent HIV/AIDS sensitisation

8. Malindi substation while under construction earlier in the year



9. KETRACO's staff led by (L) Raphael Mworia - Head of Coporate Communications, present the company's sponsorship of Ksh 100,000 to St Andrew's Parish Golf Tournament organisers at Muthaiga Golf Club

10. Eng. Antony Wamukota makes a presentation during the Kajiado Investors' Forum

11. KETRACO and KFS staff cheerful on April 20th after planting 1,500 seedlings in the 1ha piece of land in Ngong Rd Forest that will be under the Company's care for the next three years. KETRACO donated and planted the indigenous seedlings in a bid to sustain the environment.

12. (L) Agnes Ongadi (Chief Manager HR & Admin) represents the company MD in Mida, Kilifi during a ceremony where seedlings and irrigation kits were donated to local farmers

13. Lamu County Commissioner Mr. Stephen Ikua (L) is received by Mr. Nair Purushothaman of PB Power as KETRACO MD and Chief Kassam watch

14. (L) MD Eng. Joel Kiilu and Luciano Gomez of Inabensa during a project contract signing in April

15. Tower foundation works along the Rabai-Malindi-Garsen-Lamu line

16. Chairman Justus Kageenu addresses community members on the Suswa-Isinya project in Kipeto Primary School, Kajiado. in August.

17. Students from Madrid's Comillas Pontifical University learn about transmission during a recent visit to KETRACO. The training was conducted by Eng. (Dr.) Mativo and Eng. Samson Akuto who engaged the budding young engineers.

From Tana River to KETRACO The Life of a Project Surveyor



A cheerful Jillo during the interview with the Grid

Z. Asmani

Hailing from Tana River County, Garsen constituency, Ndera location in Kitere village, is a jovial, light hearted KETRACO surveyor whose laughter is positively contagious. Jillo Madras who comes from humble beginnings sat with Grid and recounted his life's story.

"I grew up next to the river where clashes are a common occurrence. What many do not realise, is that Tana River has always been plagued by bandits, not just the stories we hear from news lately. When I was a child, we would hear gun shots and run for cover quite often." he begins. Jillo explains that the clashes were caused by a lack of resources. "The Pokomo and Ormo fight for the fertile land on the river bed. The rest of the region is quite dry, creating a desperate need for this strip of land. Also, we have the Somali on the east who want the same resources."

"My education began at Kitere Primary School from class one to eight." Jillo describes the school as "no different from other village schools" with brick walls, poor facilities and no electricity. "I was in the first class to do KCPE in the school. Initially I was to do KCPE in 1983, but dad felt I was too young, so I repeated and did the national exam in 1985, which was the first time KCPE was being sat for in the country."

This was for Jillo the beginning of many pioneering feats in his life. In the exam he emerged the top student in Tana River. As luck would have it, the Daily Nation was offering scholarships to the top male and female students, securing him a full scholarship to Nairobi School for his secondary education.

Reporting to secondary school marked his first visit to Nairobi, and the change from a rural life to one of international pursuits.

"I had to adjust to the new life and raise my standards as well. Things in the new school were very different from Kitere Primary: the streams had over 200 students each, playing rugby was compulsory for every form one student, and the facilities made those I had in my previous school pale in comparison." In 1989 he sat for his KCSE, again with the first lot to sit for the exam.

On 19th of November 1990, Jillo registered as a student of the University of Nairobi pursuing a Bachelor of Surveying and Photogrammetry. When asked what inspired him, he laughs. "In high school I had a house mate from a rich family. I admired his father and wanted to be successful just as he was. The father was a surveyor. So I thought being one would make me rich too. I don't think I am as successful yet, but I'm working towards it."

Soon after graduation Jillo got his first job at Maps Survey where he was posted to Uganda and Tanzania during his time with the company. There after he worked on and off for Otieno Odong and Partners, a company engaging in Civil Engineering works. Here he was part of the teams that constructed the Mtito Andei-Voi road, the Eldama Ravine-Chemususu dam and the Mbabane bypass in Swaziland. During a short sting with Strabag and Mugoya he was part of the team working on the Mtito Andei- Sultan Hamud road.

"In 2010 I saw the KETRACO job advert and applied. The rest, as they say, is history."

Being part of the Project Implementation Team for the Rabai-Malindi-Garsen-Lamu project, Jillo got a chance to educate his community on development. "Though the line passes mainly on dry areas and ranches, and did not directly affect my community, it was good for the surrounding communities to see their son being part of a solution to their needs." This is a factor he thinks made the community a little more receptive to the project.

In addition to KETRACO's project, the community is the recipient of other development projects, some initiated by professionals born and raised in the region. "From the 90s we have had the Kenya Police Reserve that gives guns to local to protect themselves from the bandits. We have formed social media groups to encourage each other to keep progressing and to promote peace. At home we have a season we call Sika, meaning *njaa*, hunger. It's a time when the land is completely dry and there is no food." In order to help his people, Jillo and other professionals put together help groups and programmes that take food and contributions to the less fortunate back home.

When asked about the future of Tana River region, he has this to say, "The land has potential and the students are very bright. I wish sponsors would pick beyond the first student to reward. We should look to help as many people as possible."

Health, Safety & Security Sensitization

N. Bor

A Sensitization meeting on Health, Safety and Security was held for the KETRACO staff on 5th July, 2013. The facilitators were Winstone Audi and Godfrey Imanene of Security Services.

The objective of the meeting was to sensitize KETRACO staff on their safety and responsibilities as employees.

Mr. Audi started off by going through the general duties of employees which were; to ensure their own safety and health and that of any other person, and at all required times wear protective equipment e.g. safety shoes and comply with safety and health procedures. He also reminded the attendees that it was mandatory, or rather prudent, to report to supervisors on safety incidents and health hazards.

A movie on office accidents was shown and it was noted that most of the accidents were due to either carelessness or plain ignorance. He stated that there's a penalty of Ksh. 50,000 if the above duties were not complied with. The offenders would be prosecuted by the Safety and Security officer.

Mr. Imanene also chose to quickly take the meeting



Staff members during the Integrity sensitization session

through the explosive device; the grenade. He talked about the grenade in detail and how to notice a detonated grenade; this would be a missing ring at the top of the device.

He went through how to handle communicated threats and how keeping the person communicating the threat on phone or engaged as long as one could was key, as this would help with cell phone signal tracing. He concluded the sensitization meeting by narrating about an airport threat he had experienced.

KETRACO Sponsors Lions Sightfirst Hospital

S. Naliaka

With the seeing is believing spirit, KETRACO sponsored Lions Sightfirst Eye Hospital outreach team in holding a Medical camp at Muthingiini Primary and Secondary Schools in Kibwezi at a cost of Ksh. 100,000. The camp aims at restoring sight to needy children in low income public schools.

During the camp, about 800 students from the schools and 40 community members were screened for eye ailments. Those found with minor ailments were given free medication on the spot while those requiring further examinations were referred to the hospital's clinic in Makindu and Loresho.

Speaking during the event, Mr. Charles Ayula, the outreach team leader observed that many school children are not able to express themselves when suffering from eye ailments, and their teachers may not notice the problems either, therefore there was a need to screen all the students.

Muthingiini Boys Head Teacher Mr. Jones Munguti and Area Chief, Mr. Benson Ngutu thanked KETRACO for the partnership with Lions Sightfirst Hospital, which has a track record in the eye care sector.



KETRACO MD, Eng. Joel Kiilu hands over a cheque to Lions Sightfirst Hospital team: Outreach Manager Mr. Charles Anyula (2nd L), Marketing and Publicity Manager and Mrs Ann Chumbi a Lion member representing the Chairman, Dr Benson Ndegwa at KETRACO Offices.

Earlier during a cheque presentation ceremony at KETRACO offices, the MD, Eng Joel Kiilu acknowledged the need to further the partnership with the Hospital so as to hold the medical camps along all KETRACO project areas. "We further hope that our partnership with Lions Sightfirst Hospital will be long-term and symbiotic for the benefit of our people," he concluded.

Due Diligence in Occupational Safety & Health



W. Audi

Due diligence is the level of judgement, care, prudence, determination, and activity that a person would reasonably be expected to do under particular circumstances.

Applied to Occupational Safety and Health, (COS&H) due diligence means that employers shall take all reasonable precautions, under the particular circumstances, to prevent injuries or accidents in the workplace. This duty also applies to situations that are not addressed elsewhere in the occupational health and safety legislation.

To exercise due diligence, a company must implement a plan to identify possible workplace hazards and carry out the appropriate corrective action to prevent accidents or injuries arising from these hazards.

The company should consider the following sections of the Occupational Safety and Health Act (OSHA), 2007:

Section 20. (5) states that 'A person who manufactures any substance for use at work shall carry out or arrange for the carrying out of any necessary research to discover and, so far as is reasonably practicable, to identify, eliminate or minimise any risks to safety or health to which the substance may give rise. Section 77. (7) states that where any person is to work at a place from where he is liable to fall a distance of more than three metres, then, unless the place is one which affords secure foothold and, where necessary, secure handhold, means shall be provided, so far as is reasonably practicable, by fencing or otherwise for ensuring his safety.

By including the words 'reasonably practicable', legislators make OSHA, 2007 'strict liability' legislation and introduce the possibility of a 'due diligence defense'.

Strict liability laws give you the opportunity to make rational decisions. You have the option of deciding if you do or do not proceed with a particular action depending upon the circumstances. Instead of complying with the specific rule presented in the law, you could do everything 'reasonably practicable' and demonstrate 'due diligence'.

Due diligence is demonstrated by your actions before an incident occurs, not after the act. Consider the following example.

Our Transport Officer gives specific instructions to a competent driver not to drive a particular vehicle because it has a faulty battery charging system. (According to OSHA, 2007 a competent person in relation to any duty or function, means a person who has adequate training, relevant qualifications and experience to enable him to perform that duty or function. A competent worker is not considered to require direct supervision).

The driver then instead drives off in that vehicle then causes an accident because the vehicle stalled at a round about. Even though the law was violated, the Transport Officer could still be acquitted and not be charged because he did everything 'reasonably practicable'.

'Due diligence' is therefore important as a legal defense for a person charged under the OSHA, 2007. If charged, a defendant may be found not guilty if he or she can prove that due diligence was exercised. In other words, the defendant must be able to prove that all precautions, reasonable under the circumstances, were taken to protect the safety and health of workers.

Establishing a due diligence programme

The conditions for establishing due diligence include several criteria. A company must:

• Have in place written OS&H policies, practices, and procedures. That demonstrate and document that the employer carried out workplace safety audits, identified hazardous practices and hazardous conditions and made necessary changes to correct these conditions, and provided employees with information to enable them to work safely.

• Provide the appropriate training and education to the employees so that they understand and carry out their work according to the established policies, practices, and procedures.

• Train the supervisors to ensure they are competent persons, as defined in legislation.

• Monitor the workplace and ensure that employees are following the policies, practices and procedures. Written documentation of progressive disciplining for breaches of safety rules is considered due diligence.

• Have an accident investigation and reporting system in place. Employees should be encouraged to report "near misses" and these should be investigated. Incorporating information from these investigations into revised, improved policies, practices and procedures will also establish the employer is practicing due diligence.

• Document, in writing, all of the above steps: this will give the employer a history of how the company's occupational health and safety programme has progressed over time. Second, it will provide up-to-date documentation that can be used as a defense to charges in case an accident occurs despite an employer's due diligence efforts.

There are obviously many requirements for the employer but workers also have responsibilities. They have a duty to take reasonable care to ensure their safety and that of their coworkers - this includes following safe work practices and complying with regulations.

All of the elements of a 'due diligence programme' must be in effect before any accident or injury occurs. Due diligence is demonstrated by a company's actions before an event occurs, not after.



N. Bor

he energy sector is one of the largest sectors in the country, and recently, it has undergone major changes.

Firstly, Kenya is quickly adopting the generation and use of renewable energy with many power plants set up across the country, with most of the renewable energy sources being wind, solar, geothermal, hydro and biomass energy.

Secondly, "there has been a notable change in the administration and management of top energy dealing companies and in the cabinet and ministry too". The introduction of the new constitution in Kenya came with the positions of Cabinet Secretaries and Principal Secretaries, formerly known as Ministers and Assistant Ministers.

The Ministry of Energy and Petroleum was created with the core function being to facilitate the provision of clean, secure, sustainable and affordable energy services for social-economic development while protecting the environment. President Uhuru Kenyatta nominated one Mr. Davis Chirchir as the Cabinet Secretary for Energy and Petroleum. Hon. Chirchir formerly worked as a Commissioner of the now defunct Interim Independent Electoral Commission of Kenya and as a General Manager of Kenya Posts and Telecommunication Corporation. The position of Principal Secretary went to Eng. Joseph K. Njoroge former MD and CEO of Kenya Power.

The Energy Regulation Commission got a new Director General, Eng. Kaburu Mwirichia. Eng. Mwirichia worked with the Ministry of Water Development and General Motors East Africa (GMEA).

Exiting the Managerial position in Kenya Power was Eng. Joseph Njoroge as Principal Secretary at the Energy and Petroleum Ministry as noted earlier on. Currently, the acting MD and CEO of Kenya Power, is Dr. Ben Chumo who was previously the Chief Manager, Human Resources and Administration. He was appointed by the Board of Directors as the company embarks on a process to recruit a substantive MD and CEO.

The Kenya Electricity Generating Company's (KenGen) Mr. Edward Njoroge announced he was leaving the company. He has been at the helm of KenGen for the last 10 years. "Mr. Njoroge has seen the generation capacity of KenGen increase to 1,232 MW from 780 MW in 2003, and is targeting 1,750 MW in 2015 with an emphasis on renewable power, especially geothermal. The company is in the middle of executing power projects that will see the addition of more than 1000 MW in the next five years." states the Business Daily issue of July 9th 2013.

While there haven't been many changes on management in the rest of the energy dealing companies, the companies themselves have brought about a huge change to the energy sector in general. KETRACO for instance is building high voltage transmission lines nationwide that will form the backbone of the National Grid. The voltage ratings of the transmission lines are 132kV, 220kV, 400kV, 500kV. The company is constructing 4,000km of high voltage transmission infrastructure comprising of lines, switch gears and substations across the country in the next 3-4 years.

Kenya Pipeline Company placed a tender for the replacement of the Mombasa Nairobi line. The winning bidder will construct a 450km pipeline along the existing one. While the National Oil Corporation of Kenya have "proposed that within the next two years, the oil firm plans to double its market share in petroleum sales. It also wants to start drilling exploratory wells in a block in Magadi where it has an oil block and set up strategic petroleum reserves. This is expected to cushion the country from sudden and frequent swings in prices of petrol." This is according to The Standard news paper issue of July 9th 2013. The energy sector in the country is going through a revolution and growing by the day.

Enterprise Resource Planning





A n ERP system is a real-time business support system that caters to the information needs of an entire enterprise using a single repository of data (a database) and a very sophisticated set of highlycustomizable software modules which, together, facilitate decision-making and the actions based on these decisions. This invariably results in highly efficient operations and a resultant competitive advantage.

ERP is the broad set of activities supported by multiple module application software that helps an organization to manage its important functions. Its applications are a collection of ready made software modules for different business processes which are then customized according to the organizations requirements.

It is often referred to as the backbone for the entire business. These solutions are more than just a bony skeleton. It has the brains (Main Logic), muscle (Business Transactions), and heart (Business Policy) and it communicates across all the business functions.

Why do we need ERP?

An ERP permits the control of business processes that have cross functional boundaries. It also provides a topdown view of the enterprise (no "islands of information"). Real time information is available to management anywhere, anytime to make proper decisions. Further, it reduces the risk of loss of sensitive data by consolidating multiple permissions and security models into a single structure.

An ERP facilitates business learning, empowering, and building common visions as well as eliminates the problem of synchronizing changes between multiple systems, i.e. the consolidation of finance, project management, quality management, human resource, and plant maintenance applications.

An efficient ERP allows for:

• Better cooperation across Executive Management, Finance, Procurement, ICT, Planning and Operational Divisions / Departments.

• Increased transparency and better decision making; information is unified, enabling stakeholders to identify underperforming or overlapping projects, risks, and resource bottlenecks sooner and make adjustments.

• Tighter alignment with organizational objectives; initiatives are scored on their support for strategic objectives in order to demonstrate their value to the business.

• Maximized portfolio value with optimal balance, enabling the business to maintain a balanced portfolio based on acceptable risk, changing business objectives and varied investment types.

• The use of best practices eases standards compliance with requirements such as IFRS, Sarbanes-Oxley, or Basel II, EFTs etc.

• Better resource utilization; demand for resources is captured, prioritized, and matched to the available supply

• Improved portfolio governance; an automated, role based workflow streamlines and enforces approval for funding, resource assignments, gate decisions, and on-going evaluations.

• Delivery of real-time data for effective decision making and performance transparency.

• Creation of a single database that shows the immediate impact of changes to the numbers in real time.

• Unified application for all planning, resource management, forecasting, and reporting, which provides a single, accurate version of the facts.

"Enterprise Resource Planning (ERP) is a software solution that addresses the enterprise needs taking the process view of an organization to meet the organization goals and seamlessly integrating all the functional areas of the Organization."

Mumias-Rang'ala Project: The Ups & Downs



Maintainace works on the transformer at Rang'ala substation

Z. Asmani

"Maendeleo lazima ifanyike!" states a determined Mrs. Agunda as she stands head held high, arms akimbo, proud of the progress she sees on her farm. When the Grid visited the Agunda farm along the 34km Mumias-Rang'ala electricity transmission project, we found Mrs. Agunda eagerly waiting for the KETRACO team that was conducting post construction evaluation of the line. The determined farmer is planning to further expand her home by building new living guarters for her daughters, and she was eager to find out if her plans would interfere with the Right of Way demarcated across her farm.

"This is among the more cooperative families we have worked with in this project," stated Eng. Joash Okeyo. "They put up no opposition right form the project's onset, even before we talked of compensation figures." Despite having to fell many trees in the compound to accommodate the wayleave, the family had a 'lose some to win some' attitude that kept them supporting the project.

Having initially been a Kenya Power project that was later domiciled under KETRACO when the company was formed, the Mumias-Rang'ala project was aimed at addressing the problem of low voltages to Siaya and its surrounding regions of Bondo and Busia. The project commenced on 5th of September 2010 when the tender for construction was awarded to National Construction Company (NCC). "The main objective of the project was to mitigate the high technical losses the line from Musaga to Kisumu was experiencing," explained Project Engineer Antony Musyoka. These losses were caused by the line being too long.

Other objectives of this project were to improve the quality of supply in the region by having less power interruptions and improving the voltages, especially during peak hours. The project also serves the Government's social responsibility of ensuring that the population has reliable access to electricity.

The Troubles

The project, KETRACO's first independent one, has been a success, meeting its objectives since being energised in 2012.

But this success has not come easy. The Project Implementation Team (PIT), though competent, had to face a myriad of challenges: "We had no consultant for this line. All the design reviews had to be done by KETRACO," said Eng. Musyoka, the project manager. Engineer Musyoka was posted from Kenya Power to oversee this project. This is a situation that lent itself to some challenges. "I have two bosses, Kenya Power and KETRACO. So I had to balance my time and projects to ensure that neither of the companies is neglected."

In addition to this, the PIT was a new team. "The team was made up of new staff members. All of them, the surveyors, land economists, social economist, engineers, had never done a transmission project." he added.

This was also NCC's first job in Kenya. Its staff members had to learn how to cope in a new country while handling such a big project.

The Environment Impact Assessment carried out and the Environment and Social Management Plan implemented thereafter were also the first ones the company had ever carried out. "This was an eye opener for us. We were actually testing and perfecting at the same time," said Thomas Thinguri the Environmental Expert for the project.

"Being Project Manager was no easy feat either. To lead professionals is guite a task. The PIT was made up of people who are experts in their fields of operation. Leading experts has its own set of challenges. But this ended up being the best team I have ever handled. I was very impressed, they were all so cohesive. Many issues were tackled without me needing to get involved." said Eng. Musyoka.

Joining an existing team was among the challenges that Njeri Nthiga and her fellow project engineers faced. "When I joined the PIT civil works had already began. The initial PIT already had a system going and a flow of how to get things done. We had to quickly adapt and learn how to deal with the various team members who, despite being held up in other projects, did an impressive job. It wasn't easy though. This was my first project." "We also had to



Gulleys built to protect towers on downward slopes from effects of flooding



Mrs. Agunda's home before receiving compensation for the wayleave trace on her land



Mrs. Agunda's new home built with the compensation money she received

quickly catch up on the project.

Coming in when substantial amounts of work had been done meant we were lagging behind from the minute we stepped in." In the midst of all this, there was no shortage of work. Being their first project, the entire team was eager to set the tone and meet the high expectations the rest of the Company had for the project. To ensure that things ran smoothly work boundaries had to be set.

"Even with the defined boundaries, everyone had to go above and beyond their tasks. It's the only way we could move things forward," added Njeri.

Land is a sensitive issue in Africa! So sensitive, that the PIT faced some oppositions which escalated to uproars during the compensation exercise. When the project commenced, little, if anything, was known about KETRACO, and the community had misgivings when it came to trusting the company. They approached the PIT with mind-sets that the exercise would be just as bad as previous dealings with other government owned institutions. Despite explanations made at the beginning of the process, community members expected crops to be compensated for as highly as the buildings and other structures. Furthermore, being a polygamous society, it was not always clear who some parcels of land belonged to. Co-wives fought over the right to receive the compensation, with the losing party often accusing the company of being biased in its operations. These wrangles called for the intervention of the Local Administration, sometimes calling for authority as high as the District Commissioner to settle matters.

Vandalism of the transmission infrastructure also plagued the project. 6 towers within the Mumias Sugar plantation were vandalised during the first 2 weeks of December last year. This led to the collapse of 3 Kenya Power transmission towers, setting the project back.

The Triumphs

Though difficult, there were many highlights during the construction process. "My best moment in this project 15 when we energised the line," stated a smiling Njeri. "When the switch is flicked and you are apprehensive whether things will work, then it actually works! All the hard work put in, the many hours, it all leads to that one moment when the line is activated. That is when you know you have done a good job," she explained.

The rituals conducted by NCC at the beginning of the project were an interesting component. The NCC team held a colourful cleansing ceremony where they prayed for the smooth running of the construction process.

"I had a very good team," says Eng. Musyoka. The PIT was very cooperative and mature. "Like I earlier mentioned, everyone was an expert in their own field of practice," he adds. This lead to very few follow ups and quick operations in every aspect of the processes involved.

Despite the problems experienced at the onset of the wayleave acquisition process, the compensation was so well handled that it set a good reputation for the company among the community members. As the project progressed, the wrangles reduced.

This was a learning experience for the PIT. "I learned so many aspects of engineering and the associated equipment. You don't get to do some things until you are working on a project of this magnitude," stated Njeri Nthiga. "We also learned that the NEMA licence conditions placed on the project were doable," added Thomas Thinguri. This gave the team the assurance that the conditions on other projects were attainable as well.

"We were able to implement the Environmental and Social Management Plan." he stated. "These conditions are actually quite realistic in ensuring that the environment is protected from project activities."

In addition to this, the project did not traverse through forested areas, ensuring that there was very little destruction of the environment.

The project had no casualties, no health and safety issues, and best of all no fatalities.

Furthermore, the project received good will form all the departments in the company. Every department pulled together to facilitate the PIT with what they required to make the project a success.

When asked what they would want to be known about the Mumias-Rang'ala project, members of the PIT state that the project is not just a KETRACO project, rather one for the benefit of the entire nation. They further call for the community to help protect the transmission infrastructure so that the three years of hard work and commitment benefit the community for many years to come.

| Ine | leam |
|---------------------|---------------------------------------|
| Eng. Antony Musyoka | Project Manager |
| Eng. Joash Okeyo | Civil Engineer |
| Njeri Nthiga | Graduate Engineer |
| Hosea Mwihaki | Graduate Engineer |
| Frederik Oduor | – Surveyor |
| Mildred Ogendo | Social Economist |
| Matilda Mwaburi | Land Economist |
| Thomas Thinguri | – Environmental Officer |

My First Time on a Golf Course

Golf is a game played on a large open-air course involving striking a small hard ball with a club into a series of small holes in the ground. The fewer the number of times you hit the ball before it enters the designated hole, the higher your score. The winner is the one with the lowest score.

One may be mistaken to think that if you know how to slash grass you can as well play golf, but I realized this is not the case. Golf requires special skills. Aiming.Striking. One needs to know stance and when to use which club for specific angles and ball projection.

Golf is famously known as the gentlemen's game. Someone once said, "Football is played by hooligans and watched by gentlemen. Rugby is watched by hooligans and played by gentlemen.

But golf, golf is played and watched by gentlemen."The game is referred to as such because everyone behaves accordingly. There is no pushing, shoving, punching, kicking or even locker room slur. It is all very congenial, civil. Nothing at all like the contact sports I favour.

Even the dressing adheres to a strict code. Shirts have to have collars. No jeans, t-shirts or sneakers are allowed here. My arrival at Muthaiga Golf Club on June 28th remains significant as it gave me a new experience. Golf Tournament it was! St. Andrew's PCEA Church had organised a charity golf tournament to support the Hawa Children's Home in Kitengela at the Muthaiga Golf Club greens. As luck would have it, KETRACO was supporting the initiative and this gave me a free pass to attend the event.

All you could see from the main entrance was people carrying and pulling huge bags full of golf clubs. My curiosity level rose when every comment made was peppered with words like bogey, address, approach, fringe, par and many other terminologies I had never used in my conversations. I quickly learned that bogey is a term used to refer to a score of 1 over par on a hole (i.e, a score of 5 on a par 4 hole). Approach is a term used to refer to a short or medium iron which is played into the green. I am bragging, I know. But how can I resist?

Having spent some time trying to decipher the guide book I was given by one of my colleagues, and itching to have an honest go at it, I got a chance to test my skills at the driving range. I must say, I did not do too badly for a beginner. Though they may never find some of the ball I stuck (they went flying in all sorts of unintended directions). Maybe I will take up golf. Just maybe.

KETRACO Participates in Half-Marathon

6am Sunday October 13th. KETRACO staff were up and ready, gearing to go, at the Nakuru Rift Valley Sport Club, the venue of the 2nd Geothermal Development Company's (GDC) Menegai Half Marathon.

KETRACO was represented by 7 runners for the 5km race. The runners used this event as an endurance test for the Standard Charted Marathon that was schedule to take place two weeks later.

First to finish among those representing the company was Shadrack Mutunga (Finance) who was closely followed by

Davis Nato (Technical), then Lamech Fuchingo (Finance). Next was Njeri Njoroge (Administration), followed by Marion Kimani (Human Recourses), then Victor Mwarabu (Administration) and Nancy Jeptoo (Administration).

The event had the Half-Marathon 21km race, 10km race, 10km Schools race with one team per school and the Fun / Family 5km race. The runners said they felt comfortable that they would do well in the Standard Chartered



The team: (L-R) Marion Kimani, Victor Mwarabu, Njeri Njoroge, Davis Nato, Lamech Fuchingo (Team leader), Shadrack Mutunga and Nancy Jeptoo

Marathon, after having a good practice run and using each other as competition.

The inaugural Menengai Geothermal Half-Marathon was held on Sunday, November 11th 2012 with over 5,000 local and international participants.

Strong Athletes Represent Us

On Sunday October 27th Nicholas Amutavi and Marion Kimani ran 42km and 21km respectively during the annual Standard Chartered 'Seeing is Believing' marathon that was flagged off at Nyayo Stadium. The races which began at 6am took them a combined total of 7 hours to complete, Nicholas running for 4hrs 27min, while Marion ran for 2hrs 32min.

KETRACO was represented by a total of 21 runners and 2 staff members informing the general public about the Company at the exhibition stand held at the event.

Participants of the 10km race were Eng. Joel Kiilu (M.D), Fernandes Barasa (Finance), Tom Imbo (Finance), Josephine Olang'o (Finance), Naomi Njoroge (Administration), Victor Mwarabu (Administration), Violet Imboywa (Administration), Kelson Amunya (Administration), Bernard Maingi (Administration), Emily Ratemo (Administration), Timothy Mureithi (Technical), Thomas Thinguri (Technical), Geoffrey Otieno (Technical), Davis Nato (Technical), Dolly Cheroitich (Technical), Nancy Kemunto (ICT), Nabosu Simon (Audit), and Sulea Murambi (Corporate Communications).

Due to a mix up in the marking of the routes some participants ended up in the 21km route, running distances far longer that the intended 10km. "After that mix up I am confident that next year I can finish the 21km," stated Fernandes Barasa after the race.

The 5km race was run by Prisca Kubasu (Supply Chain), Elizabeth Oriago (Corporate Communications), Wachuka Njaaga (Corporate Services), Mercy Onyari (ICT), Racheal Nungari (Technical), Ruth Mburu (Technical), Nancy Mumo (Administration) and Lilian Simwa (Support Staff) who had intended to run the 10km race but missed the flagging off at the start line.

After the race the team shared a filling breakfast at a restaurant not far from the stadium and proceeded to their homes to rest.

Ladies beware! High heels could damage your feet w. Audi

High-heeled shoes are one of the most popular types of shoes worn all over the world. They have the ability of making one look taller, which can be advantageous for those of short stature. They boost the ladies' confidence and probably also make some look more stylish.



However, there are several problems

associated with high heels. High heels alter posture and increase pressure on the ball of the foot. Repeated wear will strain the hips, knees and thighs, as well as increasing the risk of conditions such as osteoarthritis, hammertoe,

back problems, bunions, corns and flat feet.

At the workplace, high heels expose one to an increased risk of tripping and falling.

High heels make you raise your heel and as soon as you do that your centre of gravity is pushed forward. What happens then is you bend your lower back to compensate for this and that changes the position of your spine, putting pressure on nerves in the back. This can cause sciatica, a painful condition where nerves become trapped, triggering pain and numbness as far down as the feet.

Another common problem is that the Achilles tendon which runs up the back of the leg from the heel - becomes permanently damaged. This tendon is designed to be flexible, so the foot can lie flat or point. But many women who wear high heels too often suffer of a shortening of the tendon because once the heel is pointed upwards, it tightens up. Stretching it again can be very painful.

A bunion is an abnormal, bony bump that forms on the joint at the base of your big toe. Bunions form when your

big toe pushes up against your other toes, forcing your big toe joint in the opposite direction, away from normal profile of your foot.

Over time, the abnormal position enlarges your big toe joint, further crowding your other toes and causing pain. They are caused by tight, ill-fitting shoes.

Many women also develop hammertoes, where tight-fitting shoes force them to crumple up their toes, shortening the muscles inside and leaving them permanently bent.

Flat feet is a condition that leaves the inside of the foot flattened, allowing the entire foot to touch the floor when standing up. This condition comes about when tendons in the feet are weakened by proteins that occur naturally in the body, causing the arch of the foot to fall, and in turn, leading to excruciating pain and difficulties in walking. High heels do not properly support the feet, which caused the tendons to weaken.

Women who wear high heels are particularly at risk if they spent large chunks of the day standing up. Flat feet can be treated by wearing insoles or supportive devices inside the shoe. In some cases, patients have surgery to reshape their feet.

To minimize the risks of high heels, choose a slightly thicker heel as this will spread the load more evenly; wear shoes with heels no higher than 1.5in; wear soft insoles to reduce the impact on your knees - and make sure your shoes are a snug fit so the foot doesn't slide forward, putting even more pressure on the toes.

Management Lesson: Powerful Presentations

Z. Asmani

lt is that dreaded moment when the room starts to fill and you fumble through your notes barely seeing the details. You hope that you remember every you important point wanted to put across, more importantly, you hope that the message will be conveyed as you intended. Then



everyone sits down, pleasantries are exchanged, introductions made, and there you are, dead centre of the spot light. Everyone is looking to you for inspiration, wisdom or plain old direction. The last thing you want is to appear nervous or ill prepared. But alas, the projector refuses to cooperate, the person at the back of the room seems more engaged with his mobile phone than what you have to say, you realise that people are not very adept at discretely stifling their yawns, and it dawns on you that you are hardly communicating to anyone.

This is definitely not an experience you would like to repeat. But in this corporate world of proposals, lobbying for support and funding, and constant boardroom meetings, you find yourself under the lime light over and over again. Having presentations that leave the audience informed and downright impressed is a skill set everyone longs to have. The good news is, it is a skill set everyone can have.

A great presentation is dependent on 3 key factors: The material, the presenter and the ambiance.

Material Preparation

When people sit to listen to you, they expect to learn something, or atleast be exposed to a new way of approaching a known concept. You can ensure that you accomplish this by making the material you present arresting. Therefore, as a presenter, you need to know your material, and know it well.

When you prepare your presentation, make the data brief and to the point. This saves time and ensures your audience remains alert so as not to miss any key points. But be sure not to be too brief that the message is completely lost.

Review your material before presenting. Double check to ensure that key points are neither repeated, nor is anything left out. This is also when to confirm that your presentation has a good flow.

Reiterate your key facts.

What are the things you want the audience to take home? Mention these key points in your opening, and closing remarks.

Lay emphasis, so that the audience knows that these

are important components of the presentation. You may also consider adding visual and audio This aids. will make your presentation arresting. However, be careful not to the aids have 'loud' too that they completely

take away from the presentation, distracting instead of engaging the audience. Also keep the aids in line with the topic so as to not send confusing messages.

A Great Presenter

The presenter is just as important as the presentation. Otherwise, you would simply connect the computer to the projector, let your presentation run and resume for the question and answer session. Therefore, you ought to match your presentation. Groom yourself. Be neat. Project the image of a professional who has a handle on things. This helps build trust from your audience before you even speak.

Keep time. Punctuality is key! Nobody wants to wait around for things to start. Regardless of how good your presentation may be, being late will have you trying to win back the audience, instead of impressing them right of the bat.

It is said that laughter is the best medicine. This old adage hold true even in the board room. No matter how serious the material, a little humour helps in relaxing your audience and making you and your presentation that much more memorable.

In addition to this, a great speaker knows how to use body language. Your non-verbal cues should support your words and what is projected for the audience to see. You should also exude confidence and professionalism. Without this, how do you expect the audience to buy into the ideas you are proposing?

Ambience

This, simply put, is the room where you do your presentation. What many people assume is that this is the sole responsibility of the person tasked with logistics. After preparing so much, it is folly to leave this last aspect unattended. Think of it as the bow on a wrapped gift.

If possible, visit the venue prior to your presentation. Check that the projector is working properly, that the lighting is ample for the room, that there is good ventilation, enough sitting and any other details that may aid in keeping your audience attentive.

Remember, the devil is in the details, so have all key aspects covered for a successful presentation.

LEISURE

Learning to live without recognition is a skill

D. Kariuki

There was a farmer who had a horse and a goat. One day, the horse became ill. So he called the veterinarian, who said, "Well, your horse has a virus. He must take this medicine for three days. I'll come back on the 3rd day and if he's not better, we're going to have to put him down."

Nearby, the goat listened closely to their conversation. The next day, they gave the horse the medicine and left. The goat approached the horse and said, "Be strong, my friend. Get up or else they're going to put you to sleep!"

On the second day, they again gave the horse the medicine and left. The goat came back and said, "Come on buddy, get up or else you're going to die! Come on, I'll help you get up. Let's go! One, two, three…"

On the third day, they came to give the horse the medicine and the vet said, "Unfortunately, we're going to have to put him down tomorrow. Otherwise, the virus might spread and infect the other horses."

After they left, the goat approached the horse and said, "Listen pal, it's now or never! Get up, come on! Have courage! Come on! Get up! Get up! That's it, slowly! Great! Come on, one, two, three... Good, good. Now faster, come on...... Fantastic! Run, run more! Yes! Yay! Yes! You did it, you're a champion!!!"

All of a sudden, the owner came back, saw the horse running in the field and began shouting, "It's a miracle! My horse is cured. We must have a grand party. Let's kill the goat!"

The Lesson:

Nobody truly knows which employee actually deserves the merit of success, or who's actually contributing the necessary support to make things happen. Remember:

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If anyone ever tells you that your work is unprofessional, remember: AMATEURS BUILT THE ARK [which saved all the species] and PROFESSIONALS BUILT THE TITANIC [all died tragically].

WHERE TO GO... Z. Asmani

Unknown to many is the serene eco-lodge found lying peacefully on the shores of Lake Victoria: the Kisumu Wildlife Park and Eco-Lodge.

The park boasts of hosting a myriad of wildlife, including four of the big five, along with a butterfly pavilion and state of the art, tastefully decorated lodges for those willing to spend more than just as afternoon's visit in this quietly tucked away corner of the growing city.

Located about 10km from the CBD, the park is run by Kenya wildlife Services officials who at a low fee take patrons through a detailed tour of the park enlightening and thrilling them with little known facts about the animals that call the park home.

And if your timing is right, you can watch the 4 lions at the park feed, each consuming about 6kg of freshly slaughtered meat per sitting. Definitely a must visit the next time you are in Kisumu city!



Feeding time at the park



Uncaged wildlife freely graze in the park

LEISURE

FOOD

Dawa recipe

A few sips of Dawa will cure whatever ails you. The recipe is based on a famous Brazilian drink that was introduced to Kenya. It is now one of the most widely consumed cocktails in Kenya and has spread throughout North and South Africa.

Ingredients:

1 tbsp sugar 2 tots vodka crushed ice cubes 1 whole lime quarter with skin on 2 tea spoons honey Wooden stirring stick

Instructions:

Put lime and sugar into a whisky tumbler. Crush limes



slightly, add ice and pour in the vodka.

At this point you twist the stirring stick into some honey and add the stick to the drink.

A wooden honey stick or other type of stick twisted in honey will work. Muddle limes with dawa or honey stick.

The more you crush the limes into the mixture and stir the sweeter the taste.

Now take a seat and cure your soul!

Source: http://www.drinksmixer.com

QUOTABLE QUOTE

'He who knows others is wise. He who knows himself is enlightened' Tao te Ching

Riddles

1. What is greater than God, more evil than the devil, the rich need it, the poor have it, and if you eat it you'll die?

2. The man who invented it doesn't want it, the man who buys it doesn't need it, and the man who needs it doesn't know it. What is it?

3. Eric's father has 3 kids. Ones name is penny, ones name is dime, whats the third kid's name?

4. One day a plane crashed. Every single person died, who survived?

5. What gets bigger the more you take out of it?

Answers 1. Nothing 2. A Coffin 3. Eric 4. The married people 5. A hole

Riddle source:http://mindblowingriddles.blogspot.com/

BOOK CLVB

Apparently, at least one-third of the people we know are introverts. They are the ones who prefer listening to speaking, reading to partying; who favor working on their own over brainstorming in teams.

Passionately argued, impressively researched, and filled with indelible stories of real people,



Quiet shows how dramatically we undervalue introverts, and how much we lose in doing so.

If you know one, or are one, definitely a must read.

LEISURE

Fortune



WORD SEARCH PVZZLE

History of Solar Energy Word Search Puzzle

| Н | S | Α | Т | Е | L | L | I | Т | Ε | S | Υ | S | Т | Ε | Μ | S | Ε | Т | Е |
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| F | Α | Α | L | В | Ε | R | Т | Ε | Ι | Ν | S | Т | Ε | I | Ν | I | Т | R | Е |
| I | Ρ | Α | S | 0 | Ρ | Y | G | D | Н | G | В | I | U | Ε | С | 0 | Υ | Ζ | D |
| U | U | L | I | S | 0 | Т | G | Ε | Х | Ι | Х | В | Н | I | W | Ν | Ι | 0 | М |
| Ρ | F | Т | Q | Ε | T | Q | J | Y | 0 | F | D | I | S | В | Н | R | G | W | 0 |
| Y | D | Ε | В | Н | L | V | Κ | U | Ρ | Т | Т | Y | Т | 0 | Ρ | Ρ | Н | Ρ | Ν |
| С | T | R | Т | С | Ε | L | Ε | 0 | Т | 0 | Н | Ρ | Н | L | Μ | Ε | Ρ | Υ | D |
| Ν | Т | Ν | V | S | М | Q | Α | S | Α | Ρ | В | Ε | Ε | 0 | I | Ρ | Y | W | В |
| Ε | R | Α | Κ | 0 | В | Χ | D | F | 0 | Y | Ρ | В | R | Ρ | Μ | W | 0 | Ρ | Ε |
| Ι | Ν | Т | U | В | Α | D | Ε | F | Κ | L | 0 | J | М | М | Κ | Х | F | Η | С |
| С | В | Т | Ρ | Ε | R | Χ | G | L | S | Ν | Α | 0 | Α | Κ | Α | В | Α | W | Q |
| Ι | D | V | Ι | М | G | Q | U | Ρ | Υ | S | Α | R | L | Κ | Μ | L | Q | S | U |
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| F | В | Y | G | М | Н | Т | С | J | U | Ι | Ρ | Н | Ν | Ν | W | V | Ζ | Q | R |
| Ε | W | Y | G | R | Ε | Ν | Е | Ε | L | В | Α | W | Ε | Ν | Ε | R | Α | 0 | Е |
| G | Ν | F | W | Ζ | V | S | В | D | F | Ι | U | Ε | R | D | Н | R | Ζ | S | L |
| С | L | Ν | 0 | Ν | Ρ | 0 | L | L | U | Т | T | Ν | G | J | K | L | G | Ζ | Е |
| R | Ε | М | С | Е | Ρ | I | В | С | R | U | Ε | Ρ | Y | Н | G | С | Т | Y | Q |
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Albert Einstein Edmond Becquerel Photoelectric Satellite Systems Oil Embargo Physicist Nonpolluting Passive Solar Energy Thermal Energy Nobel Prize Renewable Energy Alternative Efficiency Geothermal

KETRACO'S PROJECTS

PROPOSED TRANSMISSION LINES FOR 5000 + MW

| NO | Project Name & Scope | Completion Date |
|----|--|------------------------|
| 1. | 15km 132kV Menengai – Soilo Line | Dec 2014 |
| 2. | 25km 400kV Managai - Rongai Line | June 2016 |
| 3. | 150km 400kV Silali – Rongai Line | June 2016 |
| 4. | 50km 400kV Dogo Kundu - Mariakani Line | June 2015 |
| 5. | 500km 400kV Lamu - Kitui - Nairobi East Line | Dec 2016 |
| 6. | 75km 400kV Isinya - Nairbi East Line | Dec 2016 |

COMPLETED PROJECTS

| NO | Project Name & Scope | Completion Date |
|----|---|------------------------|
| 1. | 48km, 132kV Rabai - Galu Line | March 2010 |
| 2. | 62km, 132kV Chemosit - Kisii Line | Feb 2010 |
| 3. | 122km, 132kV Kamburu - Meru Line | Sept 2010 |
| 4. | 5km, 132kV Sangoro - Sondu Line | June 2012 |
| 5. | 34km 132kV Mumias–Rang'ala Line | March 2013 |
| 6. | 132kV Kilimambogo - Thika - Githambo Line | Nov 2013 |
| 7. | 20km 132kV Thika - Nyaga Line | March 2013 |

PROJECTS UNDER IMPLEMENTATION

| NO | Project Name & Scope | Completion Date |
|-----|--|------------------------|
| 1. | 482km 220/400kV Mombasa – Nairobi Line | June 2014 |
| 2. | 100km 400kV Nairobi Ring and Substations | Nov 2014 |
| 3. | 328km 220kV Rabai – Malindi – Garsen – Lamu Line | Jan 2014 (Lamu) |
| 4. | 300km 400/220kV DC Olkaria- Lessos- Kisumu Line | Sept 2016 |
| 5. | 127km 400kV Lessos – Tororo Line | June 2015 |
| 6. | 612km, 500kV HVDC bipolar Eastern Electricity Highway | March 2017 |
| | (Ethiopia –Kenya) | |
| 7. | 430km, 400kV Loiyangalani – Suswa Line | Dec 2015 |
| 8. | 220kV Olkaria Suswa Line and Substation | April 2014 |
| 9. | 250km 132kV Kindaruma – Mwingi - Garissa Line | June 2014 |
| 10. | 60km 132kV Eldoret – Kitale Line | June 2014 |
| 11. | 44km 132kV Kisii – Awendo Line | June 2014 |
| 12. | 79km 132kV Nanyuki–Nyahururu (Rumuruti) Line | Sept 2015 |
| 13. | 65km 132kV Lessos – Kabarnet Line | Sept 2015 |
| 14. | 68km 132kv Olkaria – Narok Line | Sept 2015 |
| 15. | 33km, 132kv Bomet – Sotik Line | Sept 2015 |
| 16. | 33km 132kV Ishiara – Kieni Line | Sept 2015 |
| 17. | 153km 132kV Mwingi – Kitui – Wote - Sultan Hamud Line | Sept 2015 |
| 18. | 96km 132kV Nanyuki – Isiolo– Meru Line | Dec 2014 |
| 19. | 153km 132kV Machakos – Konza – Kajiado- Namanga Line | Oct 2015 |
| 20. | 90km 220kV Turkwel – Ortum – Kitale Line | Oct 2015 |
| 21. | 100km, 132kV Sondu – Homa Bay – Awendo Line | May 2016 |
| 22. | 400/200kV Mariakani Substation | June 2015 |
| 23. | 400/220kV Ethiopia- Kenya Reinforcement (EEP Component A4) | Sept 2015 |

Building Africa's largest interconnector: 612km of 500kV High Voltage Direct Current bipolar transmission infrastructure from Sodo to Suswa The Ethiopia-Kenya Interconnector

