CONTRACTOR

This magazine is a publication of Uganda National Association of Building and Civil Engineering Contractors (UNABCEC)



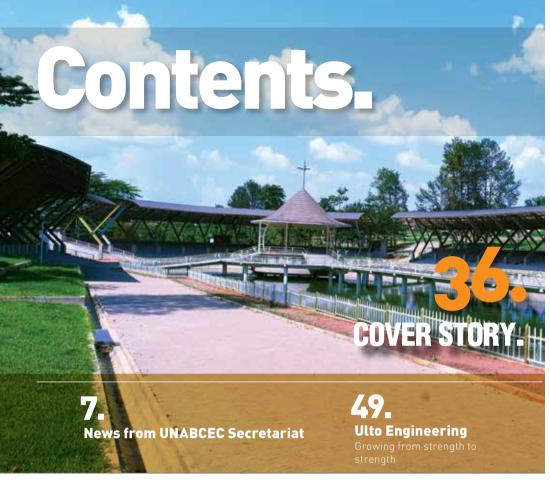


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ABC Stiles & Bathz

Breaks into the Ugandan market with world class brands



Hon. Rebecca Kadaga pledges full support to Ugandan local contractors

The speaker has pledged to support proposals brought forward by UNABCEC. She made her pledge at the recent networking event held at Hotel Africana.

Big Cement factory near Kampala starts production Kampala Cement Co Ltd is a new

Kampala Cement Co Ltd is a new Cement Manufacturer in Uganda.

Achelis (U) Ltd. in partnership with BOMAG – FAYAT Group
Introduces once again The BOMAG Construction-

Produces once again The BUMAG Construction

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25 Most impressive MEGA PROJECTS in the world







t feels like yesterday that we were putting together Issue 8 of the magazine.Time really flies when you are doing something you enjoy. I would like to apologize for some imperfections in Issue 9. We have since fixed them and you can read the digital version at www.unabcec.co.ug

Now is the time for government to empower local contractors by enacting favorable laws. We should borrow a leaf from Kenya which has enacted the local content quota into legislation. Any foreign contractor intending to bid for work in Kenya, must have a local partner with up to 30% stake in any project to be executed.

To that end, UNABCEC has continued to support members to enable them deliver quality projects, on time and on budget by partnering with reputable equipment manufacturers and vendors, both local and foreign such as Bomag, Metso from Portugal, Carmix, Massenza from Italy and Kampala Cement, to name a few.

The only way to develop the country is to keep as much project money in the economy. This can be achieved by awarding contracts to local companies. President Museveni recently tasked heads of Government departments, including UNRA, Ministry of Works and PPDA to ensure money stays in the economy. This is a step in the right direction in promoting local content.

Ever wondered how the Pope's visit contributed to the construction industry? We had a one-on-one interview with a senior quantity surveyor at Roko, the main contractor. A job that was supposed to last 18months was delivered in just 4 months. This is a mean feat, considering that the site was handed over to them in July in anticipation of the Pope's arrival in November.

National Housing and Construction Corporation recently signed a multimillion dollar deal to develop several housing units in Naalya. We have full coverage of this deal and more news highlights from the industry.

On the technology front, we examine some new innovative tools that are simplifying the job of the contractor. We also have a gallery of some of the largest and most impressive mega projects around the world. We hope you can get some inspiration from these projects.

This and many other compelling stories can be found in this issue.

Last but not least, I would like to extend our sincere gratitude to our advertisers and content partners. We would not go far without your support. Being a free publication, we depend on advertisers to meet all our costs. So thank you, mwebale nnyo, merci!

The end of year issue will be bigger and better. We are counting on all our partners to come through with content, news, announcements and advertising.

Let us make the next issue something that you will want to keep for the Christmas holidays.

Let me sign off by saying, we are growing to offer a better publication

Bye for now! See you in the 11th issue.

Francis Agaba - Editor nail: agabaf@gmail.con Tel: +256 772 690111 CONTRACTO

This magazine is a publication of Uganda National Association of Building and Civil Engineering Contractors (UNABCEC)

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Weak Construction Industry in Uganda

The Time to Act is Now!

Francis Karuhanga - Civil Engineer (Chairman UNABCEC)

The budget speech financial year 2016/17 with a theme 'enhanced productivity for job creation', delivered at the meeting of the 3rd session of the 10th Parliament of Uganda on Wednesday, 8th June, 2016 by Hon. Matia Kasaija, Minister of Finance, Planning and Economic Development.

"Madam Speaker, the construction industry in Uganda is largely dominated by foreign owned companies, mainly on account of a weak domestic construction industry. This is because of capacity constraints, limited access to adequate financing and weak coordination among the local contractors. Government will work closely with the private sector to support the development of local contractors through capacity building and facilitate increased local content in the road construction industry".

In the State of the Nation Address by **His Excellency Yoweri Kaguta Museveni,** PRESIDENT OF THE REPUBLIC OF UGANDA, at the Uganda International Conference Centre, Serena, Kampala on 31st May, 2016, **He announced that Government will present the long awaited Uganda Construction Industry Commission (UCICO) Bill to this session of Parliament.** The President saluted Ethiopia for effectively using their market of 90 million people to attract investments by **giving local investors protection.**

e at UNABCEC appreciate that there will be ${\bf no}$ other conducive environment than now when the sector is on the high priority of Government with these latest pronouncements. Our industry continues to be heavily polarized with all development projects gravitating to multinational contractors and consultants and in the process leaving inconsequential assignments and jobs to the local firms. This has significant and far reaching implications such as giving the country a very low retention capacity. It is known that for all funds local and foreign that the country invests only 7% is retained.

On 29th July, we were privileged to be given an opportunity by Uganda National Roads Authority to present our ideas in line with UNRA road development and maintenance aspirations. Our idea is to develop contracting capacity for genuine local member firms through increased participation by:

- i. Adapting of an enterprise development program where you incubate and promote small and medium local contractors from grade 1 to 7 based upon performance
- ii. Introducing the national reservations with a threshold up to 15 Billion Uganda Shillings for exclusive preference given to domestic/citizen owned contractors

- iii. Ensuring mandatory subcontracting of up to 30% of actual works on all development projects to transfer skills to domestic companies/providers
- iv. Ensuring the mandatory placement of graduate interns by companies under this scheme

Our proposals were well received by UNRA's Executive Director, Mrs. Allen Kagina and we hope our further discussions will lead into a partnership with UNRA to undertake deliberate efforts to build capacity of genuine domestic contractors to safeguard them from extinction in this unbalanced competition dominated by the foreign companies some of which are state owned and hence cost of capital is subsidized. Failure of this, we risk to lose all upcoming domestic contractors and repatriation of all profits accruing from road construction projects that would rather complement the development endeavors of our country.

EARLIER THIS MONTH I had an opportunity to represent UNABCEC at the 12th joint transport sector review workshop at Hotel Africana, Kampala. The workshop which was hosted by Ministry of Works and Transport is an annual review to assess the implementation progress of the agreed actions in the previous year action plan, discuss the annual sector performance and identify constraints, challenges and solutions to the sector performance. It was clear that all roads development projects i.e. 93% of the budget was being implemented by foreign firms with local content limited to provision of unskilled or semi-skilled labor, which inputs are insufficient to make meaningful impact at project implementation stage and certainly such back stage responsibility has contributed to the slow growth of capacity in the local construction industry.

In the short term, the country continues to lose the benefit of employment which the Ugandans anticipate at the inception of such projects while we

are also forfeiting future impacts of growth of the skilled workforce and requisite investment in the construction industry. Both are essential ingredients for transformation to a modern and prosperous country. It was shocking to see no effort being discussed at this forum and no monitoring to change this trend. The ministry continues to oversee mega infrastructure projects like Entebbe Airport expansion and Standard Gauge Railway without enforcing a genuine local content quota. However, we were delighted to be assured by the Minister of State for Works and Transport Hon. Aggrey Bagire at the closing ceremony that they will ensure more domestic interest is incorporated and monitored as directed by H.E. The President of Uganda.

At the same time, UNABCEC received a copy of the draft **Uganda Construction Industry Commission Bill, 2016** from Ministry of Works and Transport and we were shocked to see the Solicitor General dropping the main clauses to develop the local construction industry in Uganda that contravenes the latest pronouncements of Government

First, mandatory subcontracting of citizen owned consultancy and construction companies by foreignowned companies awarded government contracts up to maximum of 30% of the total cost of the project to transfer skills to the subcontracted citizen owned company with a view to developing capacity of citizen owned companies is one of the pillars of developing our country. Though the amended procurement law recognizes the need for application of margin of preference for domestic contractors, the lack of requisite capacities in terms of equipment resources, personnel/management resources and financial resources and the reluctance of procuring entities to package their procurement requirements to match with the small capacities of local contractors have rendered the provisions of the law redundant. Many procurement entities do not split the projects into very small packages thus making many of our domestic company members fail to participate. In addition the provision for preference schemes provided under the procurement law remains unexploited due to lack of a dedicated organization to pursue it.

Mandatory placement of interns by companies awarded projects is the 2nd pillar. We proposed that companies awarded projects should absorb interns and the number of interns placed will be determined by the procuring entities taking into account the length, nature, scope, complexity, and national interest of the project. Our country produces 1000 graduate engineers, 200 technologists,

600 technicians and 4200 craftsmen every year, 95% of whom fail to be absorbed in the industry thus being unable to perfect their skills and get registered. This is what affects the quality of works produced in the industry which the SG claims to be the reason for deleting local protection clauses. Development must be woven around people and not versa vesa. It should empower individuals and groups.

Finally we submitted to the Ministry of Works that we must have a provision for Registration of Contractors (RoC) and Registration of Projects (RoP) of both public and private sector construction projects. This is aimed at bringing private works and foreign contractors under the control of this bill. Foreign contractors registration should be project-based. The certificate of registration of a foreign contractor should allow the holder to execute only the project specified in the certificate. The certificate should not allow the holder to participate in a tender or to carry out any other construction works. The dates of commencement and completion of the project are set out in the certificate and if for any reason the date of completion of the project is extended, the contractor has to apply to the commission for an extension of the validity of the certificate within 14 days before the expiry of the validity of the certificate.

These ideas are already laid in the policies and laws of our neighboring countries Kenya, Tanzania, Ethiopia and Botswana and are being implemented. This is the time therefore to ensure we also regulate and develop our local contracting industry by developing a citizen empowerment policy. The philosophy of citizen empowerment is derived from the need to;

- i. Build the capacity of nations to respond to the changing economic and political environment
- ii. Recognize the need for economic development to lead to equitable distribution of income and wealth in order to improve the quality of life of citizens
- iii. Intervene to equip citizens with necessary competencies which enable citizens to take better advantage of the economic opportunities thereby having a stake in the process of economic growth and development

Economic growth and diversification in Uganda for the last 30 years of our government without EMPOWERMENT of citizen owned companies has ultimately led to a fragile and vulnerable economy, subject to the vagaries of international markets over which Uganda has little or no control.

Anyone concerned about growth and stability of the construction industry and the strength of the Ugandan economy should consider; enterprise development, job creation and training as major pillars. With so much on the line for our industry and economy, the time to act is NOW. The only question is, will you?

Rooted in 23 years of history, UNABCEC is well positioned to continue its legacy of leadership. We are dedicated to delivering the best in class tools and insights through resources like this Contractor Magazine, and we are looking forward to continuing to guide the industry during this exciting and long awaited period of growth. This is surely only the beginning of what's to come.

95%

the number of Ugandan graduate engineers who fail to be absorbed in the industry.

However, we were delighted to be assured by the Minister of State for Works and Transport Hon. Aggrey Bagire

"These ideas are already laid in the policies and laws of our neighboring countries Kenya, Tanzania, Ethiopia and Botswana and are being implemented."



Now indigenization policies thrive again, this time disguised in terms such as 'empowerment', but just as politicized as in the 1970s. Countries like Zambia, Botswana, and South Africa have taken the lead in developing Citizens Economic Empowerment initiatives in key sectors of the economy e.g. construction sector.

The increasing reliance on foreign businesses i.e. construction companies to take the lead in economic diversification drive in this country may deny opportunities to many Ugandans and affect our economy negatively in the long run. There is no denying that we need foreign expertise in our economic expansion drive but that should not take place at the expense of citizens. We should at all costs encourage and protect the flourishing of citizen's enterprises i.e. local construction companies even if it means enacting policies that strongly promote local content in all the sectors of the economy. The Government should ensure citizen participation in mainstream economic activities at all times

But this can only be achieved through a robust legislation on citizen economic empowerment and citizen participation.

For instance impose a requirement on foreign companies with operations in Uganda to sell a substantial amount of their stake to citizen owned companies. This will in the long run assist in creating a representative society by changing the complexion of wealth distribution to ensure that a vast majority of citizen companies have access to means of production.

For as long as our Government talks of economic expansion to achieve middle

income status by 2020 without a law on citizen economic empowerment and participation, this status could be unattainable.

There is a need for a construction law that leverages citizens to participate actively in the construction sector. Our construction industry is dominated by companies of Chinese origin, which can easily out-compete their Ugandan counterparts on bids as they have the benefit of state subsidies and hence can afford to tender for work at prices not reflective of market forces.

There is a need for Government to ensure citizen economic empowerment and participation through a legislation enforcing joint ventures with citizen construction companies, mentoring of small citizen contractors by large foreign contractors in Uganda through subcontracting packages of work and monitoring their progress.

There should also be employment equity where quotas are imposed on foreign construction companies on number of citizens required to be in strategic positions, skills transfer and skills development where foreign construction companies are forced to put in place a structured training programme to train local labour and impart skills on unskilled citizens.

All the above empowerment plans cannot happen in a vacuum and we cannot rely on foreign companies to use their discretion and goodwill to get Uganda to the level of citizen economic empowerment and participation we require.

An enforceable construction legislation is a prerequisite to achieve citizen economic empowerment and

participation in the construction industry. This is a sector where the Government spends billions of shillings annually and this spending has to a large extent benefit citizens.

Without specific legislation in this direction, achieving middle income status and ultimately vision 2040 could become impossible because the bulk of economic activities are controlled by foreign companies who repatriate their profits and as a result the country loses on the multiplier effect of Government spending which could result in emergence of other sectors in the country if profits were reinvested in the country.

In 2010. Moeti Mohwasa in his article "We need to legislate citizen economic empowerment and participation", highlighted why Botswana needed a law on citizen economic empowerment and participation that would empower citizen companies to take the lead and be actively involved in economic activities. This has been achieved and The Citizen Economic Empowerment Policy (CEE Policy), 2012 is in place in Botswana.

The rationale for citizen economic empowerment comes from the notion that economic growth and diversification without empowerment could ultimately lead to a more fragile and vulnerable economy, subject to the vagaries of international markets over which the country has little or no control. In addition, if the economy continues to depend only on foreign investments with less domestic interests, the country could ultimately lose sight of its strategic socio-economic intents. A feeling of economic alienation by citizens could threaten the sustainability of all investments as citizens might adopt a negative attitude.

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News from the Secretariat

Management at UNABCEC Secretariat, 2016-2021.



Michael Lalia Eratu - Executive Director

Michael who holds a Bachelor of Civil Engineering from Ndejje University, a Higher Diploma and Ordinary Diploma in Building and Civil Engineering has experience spanning over eighteen [18] years in the Construction Industry and has previously worked with organizations like Seyani Brothers & Co. [U] Ltd, ACDI/VOCA, Winrock International and Casals & Associates among others.

In his role, Michael will steer UNABCEC's activities and team in alignment with the association's overall strategic objectives. He will be responsible for the establishment, coordination and running of the Project Implementation Unit that will monitor and support members' work contracts to ensure that they comply with the association's code of conduct.

Michael's vast experience, reliability, dedication and eternally upbeat nature will be a tremendous asset to UNABCEC and its Members.



Ayupo Mariet - Finance & Administration Manager

Ms. Ayupo Mariet has been appointed the new in charge of Finance and Administration at UNABCEC. Mariet brings a wealth of experience in accounting which was gained from the NGO, banking, FMCG and insurance sectors. She has worked as an accountant for Uganda Youth Development Link, Equity Bank, Britam Insurance Uganda Limited and Finance Manager at Dial a Gas Limited. She also has audit experience which was acquired while working for Ruma & Kaka C.P.A. Mariet is a student member of ICPAU and ACCA. Her key role at UNABCEC will be to oversee the accounting and administration activities.



Magdalene Abeja- Finance Officer

Ms. Abeja Magdalene holds a Diploma in Accounting and Finance from Uganda College of Commerce, Soroti. She joins UNABCEC from DACKS Couriers where she worked as a Cashier. She is enrolling for CPA Uganda and her main role at UNABCEC will be to support the Finance and Administration Manager to manage daily accounting operations.



Flavia Kebirungi Balinda - Administrator

Flavia Kebirungi is the Administrator at UNABCEC. She holds a Bachelors Degree in Information Technology from Makerere University. She is in charge of the day to day activities at the secretariat like Communication operations, reception management, Membership services, providing support to projects/events such as trainings, networking events and The Contractor Magazine.



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Eng. Andrew Kavuma, Vice Chairman

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Eng. Gumisiriza Birantana (2007 to 2013)
Eng. Jonathan Wanzira (2013 to 2015)

UNABCEC Secretariat 2016



Executive Director



Finance &

Administration Manager



Magdalene Abej



Administrator



Office Assistant



Global infrastructure cooperation conference 2016 in Seoul, South Korea

It is barely six months since the signing of an MOU between UNABCEC and ICAK and our Chairman Eng. Francis Karuhanga and Vice Chairman Eng. Andrew Kavuma were on a mission to maximize the benefits of the partnership

They promoted UNABCEC's interests and agreed with Korean firms to incorporate the following :

- during bidding /or after award of contracts to nominate domestic companies to subcontract to a minimum of 30% of the total cost.
- enter into joint ventures with our local companies for provision of equipment, local skilled and semi-skilled staff
- provide all additional equipment required for the projects on lease-purchase option to nominated local subcontractor or JV Partner
- placement of graduate interns to transfer skills to local professionals at all levels on site and project office structure
- UNABCEC to act as liaison office for Uganda and only firms registered with UNABCEC would be engaged by Koreans firms and graduate interns that have completed the UNABCEC training package

CONGRATULATIONS



Ms. Doris Akol Commissioner General Uganda Revenue Authority





UNABCEC congratulates URA on 25 years of building the Nation

ABC Stiles & Bathz

breaks into the Ugandan market with world class brands

By Arnold Mugisha

Though they have only been on the Ugandan market for one year, ABC Stiles and Bathz has been in business for 17 years, with operations in India, Dubai, Qatar, Uganda, China, Sri Lanka with a vision to be the market leader in tiles, sanitary wares and bathroom fittings dealer in all different modes of trading operation such as wholesale, retail, import, export and franchising.

Their subsidiary companies operate 7 retail stores approximating to 110,000 square feet of space and 250,000 square feet of storage space. The group's business operations comprising of; retail, projects, imports and distribution had revenues in excess of 50 million US dollars in the last financial year.

Their mission is to market top of the line brands, earn customer trust through quality, innovation and personalized service, building lasting relationships with customers.

Their primary focus has been products related to

ceramic and porcelain tiles, sanitary wares, bathroom fittings and other allied products. They represent some of the top brands including include Roca, Vitra, Toto, Grohe, Artize, Jaquar, Kohler, Grundfos, Franke and Quickstep.

ABC Stiles and Bathz have handled several high profile developments in India and are quickly growing on the local market as a leading supplier of sanitary wares, ceramic/porcelain tiles and distributors of quality bathroom fittings. Their Kampala show room is located at JR Complex Show Rm #3 Plot 101, Next to New Vision, Jinja Road



ABC STILES & BATHZ, JR Complex Show Rm #3 Plot 101, Next to New Vision, Jinja Road, P.O.Box 24961 Kampala - Uganda Tel:+ 256776022333, Email:abcimpexafrica@gmail.com

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The speaker of Parliament, Hon. Rebecca Kadaga has pledged to support proposals brought forward by UNABCEC. She made her pledge at the recent networking event held at Hotel Africana. In her speech read for her by Hon. Aggrey Henry Bagiire, the State Minister for Works & Transport, the speaker reiterated Parliament's commitment to supporting local contractors' in a bid to achieve mid income status. Here are highlights from her speech.

ood evening ladies and gentlemen, members of the Uganda National Association of Building and Civil Engineering Contractors. I am honored to have been invited to address you all this evening. I would like to thank Eng. Francis A. Karuhanga, the chairman Board of Directors and Eng. Godfrey Lubanga the Executive Director for the kind invitation. In the same spirit, I salute all of you members of UNABCEC for maintaining the spirit of these quarterly events. I am sure they will enhance solidarity amongst you in a noble partnership for building our economy. I want to extend my sincere appreciation for the well tailored magazine, The Contractor whose copies you so generously sent to my office and which

contains true insight in the construction industry in Uganda.

There is absolutely no doubt the importance of the construction industry in any economy in the world. Ours is no exception. Civil engineering is one of the more critical aspects of infrastructure development, making this forum an important stakeholder of this country. Encompassing important disciplines of the built environment such as architecture, quantity surveying and construction, civil engineering is the back bone of infrastructure development. This fact is reflected in the sheer size of the construction industry, and the continued development it enjoys.

Through the construction of quality roads, hospitals, and schools, we move closer and closer towards our mission, and ultimately the vision of transforming our economy to a middle income economy and Vision 2040. It is important to create an open opportunity society for all Ugandans, so that they can live the lives they truly value. The only way that government can achieve these objectives, with limited budgets and capacity, is through partnerships with groupings like yourselves, and effective engagements geared towards aligning our collective visions. In this room alone, sits some of the most valued and highly sought-after skills this country has; there is no telling what can be achieved when these skills are brought together in a shared vision.

As a Parliament, we pledge and reiterate our support for the local contractors in the construction industry. There is absolutely no doubt about our conviction to be more in-ward looking in order to support the local construction industry. I am happy to report that last year, we finally passed the Public Private Partnership Act which among others will provide for Public Private Partnership agreements. I think this is a huge step forward and very critical in guiding these partnerships. As you aware, Parliament works through a committee system which is primarily sector-based. We have the Committees of Works as well as the Committee Trade and Industry;

CONTRACTOR! Update



Hon. Aggrey Bagiire, State Minister for Works & Transport presenting the Speakers' speech.

"I am one of those who support the notion the most effective way to support the construction industry in Uganda is to hire local construction companies as much as possible."

please use them to make proposals, file petitions and any suggestions which you envisage can lift the construction industry.

I am one of those who support the notion the most effective way to support the construction industry in Uganda is to hire local construction companies as much as possible. The economic stability of the community a project is located in can be increased through the use of local workers, suppliers and subcontractors. Dollars used to build the project remain in the community. The participation and direct involvement of the local community promotes a greater overall acceptance, cooperation and often excitement for the project. This invariably leads to greater success for the project.

While it is crucial to use local contractors, companies and suppliers, it is just as important that local workers are used. In our industry there is a multiplier effect, meaning that for every dollar earned by a construction worker on your site, the buying power in a local community is significant. When dollars earned in the community stay there, the entire community benefits well beyond just those individuals and companies who are actually working on the project. I therefore encourage all of you here who are stake holders in different companies to, as much as possible target employing our youth.

However, we must be cognizant of the challenge of regulating the construction sector in Uganda characterized by engagement of casual and temporary workers, direct procurement of construction services without formal contracts and without engagement of registered professionals and contractors, use of unregistered

enterprises and the prevalence of unfinished structures usually without planning permission.

Furthermore, low levels of technology utilization, out-dated construction methods, lack of financial capacity, low investment in research and development, as well as poor communication, poor workmanship, skills shortage and low levels of industrialization continue to undermine the potential of Uganda's construction industry to achieve higher development outcomes for the national economy. It can therefore be acknowledged that there is no simple solution that will resolve all the challenges Uganda's construction industry faces, and therefore a continuous performance improvement agenda has to be upheld in order to reduce the performance gap between the construction industry and other sectors of the economy. This is where UNABCEC as an umbrella body should help us and come in and administer self-regulation and prevent potential construction disasters which put people's lives at stake. Fortunately, as a Parliament, we have been able to put in place a Building Control Act 2013 which is incumbent upon you to implement.

In conclusion, I would like to acknowledge, as we are all aware, that the construction industry in Uganda 'has, despite its economic and social importance, had its share of problems and obstacles to surmount. I need not go into the details of that. I do believe, however, that through a clear and dedicated vision, and forums like this one where good practices are shared, these can be overcome and we can continue with the business of building our country.

Thank you for listening to me and please enjoy your evening.

PICTORIAL >>>



Hosea Katamba (L) of Housing Finance Bank with a quest.



Andrew Kavuma, Vice Chairman BOD-UNABCEC (L) with Eng. Alex Turihohabwe, Chairman UACE



Mandeep Rashpal Singh (R) of Khalsa Developments Uganda Limited.

PICTORIAL

working dinner



































UNABCEC members were treated to a sumptuous dinner at the 2nd quarter networking event held at Hotel Africana. The quarterly event brings together engineers, contractors, architects, equipment manufacturers/ suppliers as well as government organizations. The last event was a massive success.















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CONTRACTOR! Advertorial



Big cement factory near Kampala starts production

Kampala Cement Co Ltd is a new cement manufacturer in Uganda. The beginning of 2015 saw Kampala Cement coming into operation at Namataba in Mukono district.

he plant has installed capacity of one million tons of cement under the four brand names of Nyati 32.5, Kifaru 42.5 and Ndovu 42.5 and Supercrete 52.5.

With the latest generation grinding plants from Europe and stand-by power supply, the plant can run continuously throughout the year with little maintenance downtime. On the other hand, the experience in inland transportation add arms to the company's capacity to transport and store raw materials for continuous production.

All raw materials are tested and certified before dispatch from the source and at the state of the art factory laboratory. The company employs technical staff with collective experience of over 60 years in the cement industry.

The cement is manufactured under UNBS / East African standards and periodically tested at central laboratory under Ministry of Works. Keeping in mind the customer requirement for consistent quality of cement, the foremost investment was in an in-house up to date laboratory where the cement under production is checked continuously at half hour intervals. All batches are again checked and tested before dispatch.

The GM-Operations Mr. Nanda Kumar said "since the start of production in March 2015, Kampala Cement has been received well by all

cement consumers in Uganda. It has managed to penetrate all the segments in the industry with good success with ready mix batch plants and 'A' class contractors".

Mr. Kumar added that the cement has been supplied to major projects ranging from road works to building construction to precast manufacturers. Kampala Cement's service strength has been supplying deliveries with currently over 15 bulkers and 20 trailer trucks with a plan to double the delivery capacity within the next six months. The cement is also available through a vast network of distributors and dealers in Uganda.

Kampala Cement's successful growth can be attributed to following:

- Growing customer confidence in the company and its brands.
- Continuous customer satisfaction through consistency in quality, supplies and accessible after sales service.
- Translating employee satisfaction into creating an internal and external environment that attracts customer to repeat their experience with our company.
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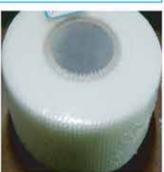
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KCCA launches major infrastructure upgrade

Kampala Capital City Authority (KCCA), has launched the construction of a host of roads around the city suburbs namely, Nakivubo - Mpabaana road in Central Division (contracted to Stirling Civil Engineering Co. Ltd), Kulekana road in Makindye Division (contracted to Abubaker Technical Services) and Waligo road in Kawempe Division which was contracted to Energo Projekt.

This follows the recently signed contracts for infrastructure improvement in all city divisions of Kampala including upgrading various roads and storm water drainage channels.

KCCA has also embarked on naming city streets and houses/properties in Kampala to make it easier for citizens to locate places. This is a welcome relief as Kampala has been very difficult to navigate owing to non-existent place name signs.



The move will enable residents and visitors identify all buildings/ properties in Kampala by their unique numbers which will also enhance service delivery for service providers. The project will also cover access roads in the city.







Standard Guage Railway Update

Standard Gauge Railway personnel were recently on a Joint site visit with China Harbour Engineering Company to key construction points. These include river Nile where a 930m long bridge is going to be constructed and Mpologoma river where a 1.8km long bridge will be built.

SGR also held talks with local steel manufacturers. SGR emphasized their local content policy on materials that will go into construction of the Standard Gauge Railway. At the meeting, SGR outlined the required standards and asked the manufacturers to prepare to participate in construction. As per the policy, local manufacturers should provide up to 40% materials.

Local industries were encouraged to position themselves to be able to meet standards and demand.







THE UGANDA **CONTRACTORS**' **COOPERATIVE** SOCIETY LTD

For more information on registration, please contact the Secretariat

Executive Director (UNABCEC)

Plot M764, Coronation Avenue. UMA Showgrounds, Lugogo Kampala, Uganda Tel: +256 392 795036 E-Mail: executive.director@unabcec.co.ug

Uganda Contractors' Cooperative Society is being formed

The long awaited Contractors' Cooperative Society is in the process of being registered and an interim committee has been elected to steer the process. The organization will be officially launched at the AGM on 17th November.

Here is a list of the interim committee :

- Can. Eng. Jonathan Mwedde (Jami Constructioon Company) - Chairman,
- Edwin Agaba (Tedmack eng. Works Ltd) Vice Chairperson,
- Michael Lalia Eraku (UNABCEC) Secretary,
- Gloria Katureebe (Babcon Uganda Ltd) Treasurer,
- David Ogwang (Davog Technical Services Ltd) -
- Paul Kishaija (Dacosi Ltd) Member,
- Andrew Kavuma (Kavcon Limited) Member,
- Masitula Athieno (Reddy's Engineering Ltd) Member,
- Charles Kyenkya (Pioneer Construction Ltd) Member



Kenya's local content quota comes into effect

Kenya's National Construction Authority has put into effect a new rule requiring foreign contractors to share contracts with local contractors. Effective August 1st 2016, all foreign contractors seeking to do business in Kenya are now required to form joint ventures with local companies who must control at least 30% of the value of the deal.

According to media reports, Chinese contractors are the biggest casualty of this new legislation.

Uganda needs to emulate Kenya in order to save our ailing construction sector.

National Housing and Construction Company in US\$ 2611 Million joint venture



ational Housing and Construction Company (NHCC) recently signed a US\$ 26.11Million contract with Tirupati Development Limited to resume construction works on the Naalya Pride apartments project.

National Housing and Construction Company CEO, Mr. Parity Twinomujuni signed on behalf of NHCC while Mr. Miraj Barot signed on behalf of Tirupati. This deal, the first of its kind between former rival companies has opened doors for more joint ventures in the housing sector.

"With the Naalya project finally moving and slated for completion in 18 months, our plan to reduce congestion and provide affordable housing in Uganda is also being achieved" said Parity Twinomujuni.

"This is also a start to the good relationship with Tirupati Development Limited who were at one time our competitors" he added.

Miraj Barot, Joint Managing Director, Tirupati also remarked that the

partnership was a culmination of hard work from both teams and looked to the beginning of a long and mutually beneficial relationship with NHCC.

While talking about the delays that the project had experienced before, Amb. Agnes Kalibbala, the NHCC Board chairperson pointed out the importance of the project and said that there was finally light at the end of the tunnel as Tirupati Development Limited came highly recommended and their works considered very commendable.

In a similar development, National Housing has embarked on a new condominium development in the same Naalya area, Jasmine Apartments. These apartments will comprise of 3bedroom and 4bedroom units with self-contained master suites as well as front and back balcony, commercial spaces, concrete paved parking, green spaces and roof top terrace for recreation on each block.









- 1. National Housing and Construction Company CEO, Mr. Parity Twinomujuni and Mr. Miraj Barot of Tirupati after the signing
- 2. Ground clearing at the site of the new Naalya Pride apartments at Naalva
- 3, 4, 5. Artistic impressions of Jasmine Apartments under construction in Naalya.
- 6. Progress on the Naalya Pride apartment project



Turkey opens 'world's wides suspension bridge linking Asia to Europe

Turkey has opened one of the world's biggest suspension bridges, the latest megaproject in a \$200 billion building spree that President Tayyip Erdogan hopes will secure his place in history. The bridge creates a new link across the Bosphorus Strait, which divides Asia and Europe.

President Erdogan oversaw a ceremony inaugurating the \$3 billion Yavuz Sultan Selim Bridge, which is touted by its Turko-Italian developers as the world's broadest suspension bridge at 58.4 metres (192 feet) wide.

The toll bridge, spanning 1,408 metres (4,620 feet) over the Bosphorus, is built in the style of New York's Brooklyn Bridge and boasts pylons higher than the Eiffel Tower.

It features 10 lanes, including two rail lines. At 322 metres (1,056 feet), officials say the bridge's towers are also the tallest in the world.

The Yavuz Sultan Selim Bridge on the edge of Istanbul is named after a 16th-century Ottoman ruler.

Erdogan's infrastructure drive is transforming Europe's biggest city, which straddles the Bosphorus Strait. In a little more than a decade. Istanbul's skyline has soared, new highways have been built, and the length of the metro tripled.

But Turkey's stellar economic growth has slowed since 2011

and it could face difficulties attracting investment following an attempted coup last month, which led to a purge by the Government that has seen tens of thousands of people in the military, judiciary, civil service and education being detained, suspended or placed under investigation.

But Erdogan - whose government announced a \$200 billion, decade-long infrastructure investment plan three years ago - has vowed the months of turmoil would not stop planned megaprojects.

The Yavuz Sultan Selim, which runs from the Garipce area on Istanbul's European side to the region of Poyrazkoy on the Asian side, is the third bridge to span the Bosphorus Strait and can withstand winds of 300 km an hour. It ranks among the world's biggest suspension bridges, in terms of width of deck, height of pylons as well as length of span.

It has been built by Italy's Astaldi and Istanbul-based IC Ictas which will jointly operate it for about a decade.

Officials say the bridge will ease congestion in a city of 14 million people, reduce fuel costs and save workers time.

Environmentalists say the project threatens Istanbul's last forestland and will contaminate water supplies. Some economists warn the costs of such large-scale building is unsustainable.

Contractors stand warned

All members of UNABCFC MUST adhere to our code of conduct

A special presentation from the UNRA Executive Director. Mrs. Allen Kagina, will once again be made at the coming 23rd AGM on 17th November 2016 and recommittment to our code of conduct"



UNRA ED - at a recent engagement with contractors emphasizing the importance of health and safety safeguards at work sites. She pointed out such unhygienic conditions at a recently visited contractor's camp site that would automatically lead to cancelling the contract and blacklisting the contractor. "You cannot make Ugandans live in such conditions while you earn our taxer payer's money" she said.

Entebbe express highway making progress



The Entebbe express highway is nearing completion. The construction of the US500 million 4-lane highway is being undertaken by China Communication Construction Company

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BOMAG AT A GLANCE!!

BOMAG is the global market leader in compaction technology. The company, located in Boppard, Germany, has been part of the FAYAT Group since 2005 and produces machines for soil, asphalt and refuse compaction as well as stabilizers/recyclers, milling machines and pavers.

Light Equipment; A redesign of the controls of BOMAG's entire light equipment portfolio now significantly reduces the hand-arm-vibration load on the operator's body. Whether for tampers, vibratory plates or walk-behind vibratory rollers, the improvement ensures extremely ergonomic machine operation.

Light Tandem Rollers: Regarding light tandem rollers up to 5 tonnes, BOMAG sets the industry standard. They are ideal for soil compaction and asphalt patching and can also be used on footpaths, for

repair work and for finishing work in road construction. Compact BOMAG tandem rollers have also acquired an excellent reputation in gardening and landscaping. Also, thanks to the ECONOMIZER, compaction is simple and reliable, that avoids unnecessary passes.

Heavy Tandem Rollers: Heavy BOMAG tandem rollers are the first choice on sites around the world. Users value their compaction performance as each model proves its reliability day after day. With an operating weight of 12 to 16 tonnes, these articulated tandem rollers are especially suited for thicker layers and for static compaction of open-pore asphalt. The compaction systems ECONOMIZER TanGO and ASPHALT MANAGER also set new standards and demonstrate real innovation. The high wear-resistant drums and a factory warranty of 8,000 operating hours guarantee staying on the safe side.

Single Drum Rollers: BOMAG shows its focus on quality with the new single drum roller range in the 11 to 26 tonnes weight class as well. The 12 tonne category is a new addition to the earthworks portfolio in this product segment. This new generation of single drum rollers features impressive efficiency, eco-friendliness and straightforward operation and all models meet the Tier IV emissions standard.

Recyclers/ Stabilizers: The BOMAG soil milling taps into with more compact and powerful recyclers ranging from 17 ton to 26 ton.

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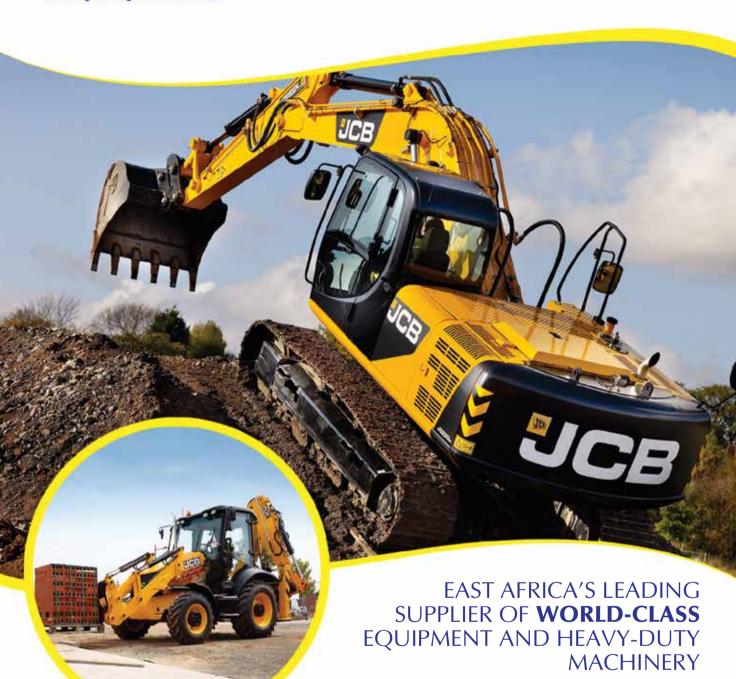
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Construction Equipment; To rent or to buy?

Q & A with FEIL's Muzahura Frank



The decision to rent or buy equipment outright is never an easy one. A contractor has to consider several issues relating to their current financial standing, availability of work and the prevailing market conditions. Luckily, there are companies that offer both rental and purchase options.

One of the companies that is leading the way in this area is Farm Engineering Industries Ltd (FEIL). We took some time with Mr. Muzahura Frank of FEIL to understand more about equipment ownership

Who is FEIL?

FEIL is the leading supplier of earth moving & construction machinery across East Africa. Our primary brands are JCB & BELL- both industry leaders worldwide.

We have a heavy plant section that is comprised of sales, plant hire and after sales departments. You could say that FEIL is a ONE STOP CENTER for all your construction equipment needs.

From mini to large excavators, compact to large skid steers, loaders, dozers, graders, 6X6 dump trucks, we have it all. We deliver and support you all through the process of purchasing or hire.

How do you compare outright equipment buying vs hiring?

Since we offer both options to our clients, I will give the merits for both.

Advantages of renting?

Reduced burden of up-front investment

Most types of heavy industrial equipment

are not cheap. Buying a backhoe or an excavator is a big investment, and it may not always be possible to make the investment when you need the equipment. The clear advantage of hiring a piece of equipment is that you do not need to pay the money upfront in order to use the machinery.

Reduced costs of repairs and maintenance.

Owning a piece of construction machinery is also a long-term investment in terms of maintenance and repairs. When you hire equipment you cut the risk of expensive breakdowns and you don't have to pay for regular maintenance checks. Aside from saving money, this gives you peace of mind knowing that you will always have a piece of equipment that works well, and is up to date in terms of technology. Because you only pay for the time you actually use the equipment, you save a great deal.

Weather uncertainties in the market

As the construction market is volatile and affected by many factors that are largely outside the control of industry participants, it makes sense to hire equipment that can be returned if conditions in the market deteriorate, or acquire equipment as and when new projects are taken on. Hiring equipment is a flexible solution that can help companies cope with the ups and downs of the market.

Don't worry about depreciation

When you buy expensive equipment you're always going to be thinking about when you should sell, and how much you can expect to get from the sale. The fact is, the value of a piece of machinery drops considerably as soon as you pay for it, and you will never get back exactly what you paid. If this is a concern for you, equipment hire is the natural solution.

Hire equipment for individual projects

You can never be exactly sure what your next project will be. Perhaps it will require some specialist machinery you don't own. You can cut down on your outlays and reduce the risk of ending up with an unused piece of machinery in your yard by hiring the specialist equipment instead of shelling out to buy it. Every

project is likely to be a little different, so the equipment you use will differ, too.

When is it better to buy?

Financial situation

This seems like the most obvious factor to consider – do you currently have the capital to buy? Although buying may be a larger one-time financial outlay, the cost of renting can add up quickly, and over a long period of time can end up costing you more – especially if the equipment isn't being used for the entire rental period.

Equipment availability & usage

The big advantage of owing your own equipment is that it's available to you 24/7 – "if you own it, you control it", as the saying goes. You can react to unexpected changes in projects or project schedules, take on jobs at a moment's notice and if equipment is well maintained internally, then you complete projects with less downtime.

Any parting words, Mr. Muzahura?

Well, the popularity of construction equipment rental around the world goes from strength to strength. The attraction of being able to use the exact piece of equipment you need, for the length of time you need it, without having to worry about a long-term financial commitment, is highly attractive.

Never the less, ownership still remains a popular option especially here in Africa mainly because we never get to understand the real cost savings of renting and also partly because we lack enough suppliers of specialized rental equipment and so clients may be forced to buy & own as this guarantees them availability.

At FEIL however, we endeavor to support our clients on both options by providing guidance on which decision you take. We also offer incentives to make sure that you stay satisfied. For example when you purchase brand new equipment from us, we offer free Operator training as a compliment. And when you choose to hire from us, apart from providing you equipment with competent operators, we also offer sizeable discounts especially on long term contracts.



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Afrimech I AMMANN Cooperation

We at Afrimech are excited to announce that we are the official distributor of new AMMANN road construction equipment in Uganda!



Ammann is a world-leading supplier of mixing plants, machines and services to the construction industry with core expertise in road building and transportation infrastructure.

Early October 2016 the first container load of demo units will arrive in Kampala! The first machines to arrive will be the ASC120 single drum roller, the ARW65 walk behind roller and the AR68 rammer.







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AMMANN South Africa, a fully owned subsidiary of the Swiss based **AMMANN** group (www.ammann.com) and **Afrimech** based in Kampala Uganda are pleased to announce that starting with immediate effect **Afrimech** Uganda is appointed as distributor for the **AMMANN** products.

Ammann is a world-leading supplier of mixing plants, machines and services to the construction industry with core expertise in road building and transportation infrastructure.

The family-owned company has enjoyed international success since 1869.

Hans-Christian Schneider, current Ammann CEO, is the sixth generation to run the business. AFRIMECH is a UGANDA based heavy equipment specialist with focus on selling high quality used construction equipment.

Ernst van Hek, MD of Afrimech: At AFRIMECH we are excited about the future of the Uganda market and we believe it is the right time to introduce high quality brand new European made equipment from AMMANN in the Ugandan market place. We will start with the AMMANN range of compaction equipment.

AMMANN's unique range of African spec machines

are extremely suitable for the tough Uganda working environment and has proven its reliabilty in many African countries. With the back up from AMMANN South Africa we believe we can offer the best product at a very competitive price to our customer base in Uganda.

Rocco Lehmann, MD of AMMANN South Africa: Finding a distributor in Uganda was an important element of our expansion plans in East Africa. We have been closely cooperating with Afrimech for some time and are excited about the level of local expertise and customer base the company brings and are pleased that we have been able to add Afrimech to the growing family of AMMANN distributors in Africa.

Early October 2016 the first container load of demo units will arrive in Kampala, followed with an official product launch. The first machines to arrive will be the ASC 120 single drum roller, the ARW 65 walk behind roller and the AR 68 rammer. All manufactured to African specs.

For more details please contact:

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Buildings that generate power

"Glass with integrated solar cells which converts Infra Red and some visible light into electricity – this means that the power for an entire building can be supplemented using the roof and façade areas"

In a recent article in the Business Insider – Photovoltaic Transparent Glass was listed as one of the 17 emerging energy technologies that will change the world. This technology will become mainstream by 2020.

These transparent solar cells can be fitted onto a window and will be able to take care of a building's energy requirements in the coming future. This could make it possible for buildings, houses or electronic devices to power themselves with the use of solar energy.

A start-up named Ubiquitous Energy, has been working in this direction – it develops technologies for light-harvesting in the form of products and surfaces – so that any surface with solar cells could produce energy.

Oxford Photovoltaics based in Begbroke Science Park in UK, is developing a photovoltaic technology to 'deliver efficient and low-cost solar cells that can be applied as a thin film onto glass building facades'. They have also been recipients of many awards over the years from both the business and renewable energy communities, such as UK Business Angels Association and British Renewable Energy Awards. Another company – Onyx Solar develops smart solar solutions for building Integrated photovoltaic cells and currently they offer 10 – 30% of transparency degree

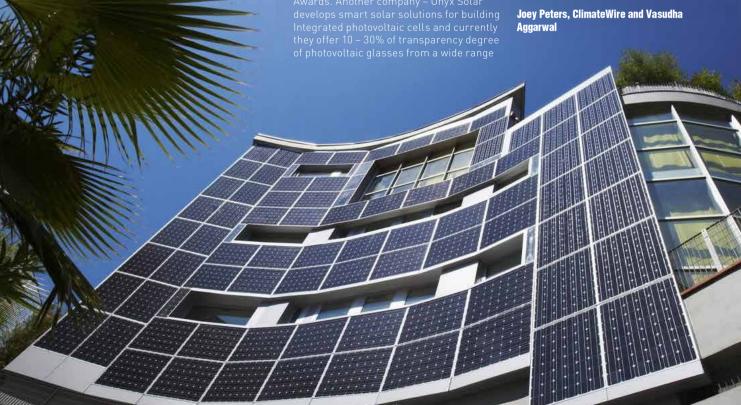
of solutions.

Research is ongoing at various universities as well, such as MIT, Oxford, UCLA and UC Santa Barbara, in this field of technology. And with advances in research, it's not difficult to imagine that buildings would be able to generate power on their own – which will definitely bring about a big change in the world.

Net Zero buildings characteristics

Although it is still loosely defined, net-zero usually means a building that produces as much energy as is consumed. Such buildings combine control systems with "double roof" concept. the top layer of solar panels shades the buildings from direct heat gain. The space between the roof layers, along with the slope, helps the hot air convect, or rise and disperse, instead of raising the temperature in the building.

Solar panels on the roof generate energy. Other energy-saving mechanisms include using Energy Star-labeled appliances, using equipment to shade the inside from the hot sun and applying high-performance insulation to further reduce solar heat gain.



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Pope Francis's visit to Uganda in November 2015 was a historic moment not only for the christians but also Uganda and Africa at large. His visit was the third time a living Pope has visited Uganda.

he Pope's visit marks the 50th anniversary of the canonization of the martyrs, who died for their faith in the 19th Century.

Hundreds of thousands of christians thronged Namugongo Martyrs Shrine to get a glimpse of the Holy Father as he celebrated holy mass in honor of the Uganda martyrs.

What you may not know, however, is the amount of works that went on behind the scenes, in preparation for the Pope's Visit.

The un-enviable task of preparing the shrine was entrusted to Roko Construction. According to George Akule, senior quantity surveyor at Roko, this is the most challenging project Roko has handled in the 18 years he has worked there.

The 45 billion project which was initially slated to last 18 months, was done in a record 4 months. Despite the long cordial relationship between Roko Construction and the catholic church, the job was tendered and Roko won the tender outright.

It should be noted that the first job Roko

ever did in Uganda was constructing the Basilica at Namugongo, in 1969.

Works in detail

The job required construction of a terraced amphitheater, renovating the basilica, constructing 3 pavilions and a building to house secretariat offices, building the alter and changing room, infrastructure works including drainage, plumbing, electricity, driveways, parking and washrooms.

Owing to the heavy traffic at the function, a new lagoon had to be built to handle waste water from the site. Roko was also tasked with installing fire-fighting equipment and water tanks. They also drained the lake to make a base for the cross-shaped walkway and close to 100 cubic meters of water were pumped back into the lake.

The project currently stands at 80% of the contracted works. The biggest aspect of the job was accelerating and fast tracking the project in time for the Pope's visit. In other words to deliver an 18 month project is just 4months.

Such an insane challenge called for drastic measures from the contractor. At the peak of the project, there were

at least 2500 workers on site doing different tasks. Over 400 flood lights were installed to ensure work went on day and night.

As if the task at hand wasn't difficult enough, the weather made a turn for the worse. Heavy rains created a muddy working environment which made it extremely difficult to make progress.

Government steps in

About 3 weeks to the Pope's arrival, President Museveni paid a courtesy call to the Namugongo site. Realizing the project was not going to be complete on time, he pledged governments support by supplementing the budget for the project and providing manpower from the UPDF engineering brigade who helped in masonry work at the lake and offered logistical support by moving materials on site as vehicles could not access the muddy site. At the peak, 600 soldiers were deployed on site working for 3 weeks.

Challenges and opportunities

The whole operation proved to be a logistical nightmare. For instance, the roof covering for the pavilions was sourced from china. The Chinese supplier had to fly in to install the roof

CONTRACTOR! Coverstory

Realizing the project was not going to be complete on time, the President pledged government's support by supplementing the budget for the project and providing manpower from the UPDF engineering brigade

system, which comprised of 3 layers, a first of its kind in the country. What the public may not know is that only one layer of the roof was installed by the time of the event. The 3 layer system comprises of a ceiling layer, glass wool layer to dampen the sound from rain, and a final water proofing layer made of interlocking steel sheets. Luckily for the local contractors, Roko relied heavily on local sub contractors as their workload was too much for them to do alone. The sub-contractors learned to work fast while maintaining quality. Under supervision of Roko, local sub-contractors received invaluable on-the-job capacity building.

Besides, all materials were locally sourced by Roko to in order control quality.

Lessons learnt

Roko's immense experience and strong logistics team rose to the occasion and delivered a project that stamped their name in Uganda's history book. Mr. George Akule believes that there is sufficient man power in Uganda to handle projects of such magnitude.

About Roko

Roko is one of the oldest construction companies in Uganda. Some of their notable projects include Bank of Uganda, Workers House, Crested Towers renovation, Rwenzori Courts, Essami Building, Coca Cola factories in Namanve and Mbarara, Acacia Mall, Village Mall, Mapeera House, DFCU Bank Building, Shoprite Lugogo and Entebbe Airport apron.

Outside Uganda, they have constructed Juba Airport, Ministry buildings in Juba and Germany Chancery in Juba.

Projects in Rwanda include, Kigali Serena Hotel, Kivu Serena Hotel, Bank of Kigali, RSSB apartments, Acacia Mall, Kigali Airport, Marriot Hotel and Kigali Convention Center interior.

They also built the taxiway for Goma Airport in the DRC.

















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40 years of Carmix self-loading cement mixers. 1976-2016

Carmix is the number one off-road self-loading cement mixer in the world. The machine is easy to use and ideal for producing and distributing concrete in the most difficult worksites, in the most congested traffic areas and on the most remote islands.

armix's history began over 40 years ago, in Venice, and has been focusing on great innovative solutions since the end of the 60s. In 1969, Carman, a company that designed and produced the first dumper and mixer trucks by assembling the parts and components of military and agricultural vehicles, was founded.

This is how the career of Rino Liborio Galante began; he acquired the skills and expertise needed to become Carman's export manager and to later found Metalgalante, in 1976. The objective was clear from the beginning: offering machines that produce high quality concrete on any worksite, even under extreme work conditions. This is how the first Carmix design was created in 1980, a machine that became an icon for worksites worldwide.

The European growth and worldwide expansion

Carmix was already strongly oriented

"...these numbers are the proof of a technological and business success based on the company's winning philosophy " towards the export industry since its foundation. From the very start, as well as for the following twenty years, the company exported about 70% of its production to Spain since this country was regarded as a real national market. A serious crisis hit the country and quickly changed the scenario, leading Carmix to search for great opportunities in other countries. The markets opened their doors on all continents, especially in South America, Africa and the Republics of the former Soviet Union, thus achieving 55% of sales in Latin America, 40% equally distributed between Africa and Asia and 5% in Europe in 2016.

A capillary presence in 154 countries

After acquiring Cambodia in 2016, the company now exports in 154 countries. The continuous growth seriously increased between the early 2000s and today: in fact, the turnover has tripled over the decade. These numbers are the proof of a technological and business success based on the company's winning philosophy:

40 years

of existance since 197

1980 the first carmix was designed

400 Units

innovating in the world of self-loading cement mixers. A sound knowledge of the market, of the foreign countries and of the macroeconomic variables has enabled the company to establish distribution agreements with very effective partners.

The most recent one with the CAT Rental store, in 2015, strengthened the presence of the Italian company in Peru, Colombia, Guatemala, Nicaragua, Honduras, Costa Rica and Mexico.

The future of self-loading cement mixers

With a production of over 400 units a year, the company plans on continuing to export its machines by consolidating its presence in key countries, such as Latin America, and by investing in an Eastern expansion. In fact, the Asian and Caucasian countries are part of the company's strategic plan because they offer a very fertile market and great growth potential. Besides these objectives, new technologies connected to the world of concrete will continue to be developed.

At Bauma 2016, the new Carmix 3500 TC has the most innovative devices - Promix, Concrete-Mate, App - developed by the company to facilitate work on worksites worldwide, together with the very new concrete pump TrailerPump15. The strategy is thus to continue on designing and offering technological tools that can optimize the production of concrete, while ensuring the excellent quality Carmix has been implementing since 1976.

www.carmix.com



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Carmix 5.5XL



For Orders Contact:

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CONTRACTOR! Advertorial



Nordberg® HP Series™ cone crushers

The Nordberg® HP™ cone crusher series is the most popular in the world. Each crusher is proven to be an outstanding performer in thousands of mining, industrial and quarrying applications. High capacity, end product quality, energy efficiency and easy maintenance have helped HP build an unrivaled reputation over the last 20 years.

Highest performance, cost effectiveness, easy maintenance

Features

Nordberg® HP SeriesTM cone crushers feature a unique combination of crusher speed, throw, crushing forces and cavity design. This field-proven combination provides higher capacity and superior end-product quality in all secondary, tertiary and quaternary applications.

Compared with equivalent-sized crushers, Nordberg HP has a larger output capacity, higher density in the crushing chamber and a better reduction ratio, enabling you to produce on-spec yield end products with the same energy consumption. With the latest high-efficiency motor, the HP cone crusher is effective and environmentally friendly.

To ensure maximum security for your operators, the Nordberg HP cone crusher is designed for safe and easy maintenance. You can access the principle components easily from the top of the crusher. Also access to the liner is quick for maintenance. The bowl can be removed simply by pressing a button. Liners have no backing compound. All this and many other features make HP world famous when it comes to reliability.

Other Nordberg HP cone crusher advantages include less downtime and increased operator confidence thanks to the double accumulator combination that results in better hydraulic system reactivity.

Benefits

- The highest crushing force of all the cone crushers
- Unbeatable availability and robust design
- Up to 20% lower power consumption than with other cone crushers
- Quick & easy maintenance

Nordberg HP new generation cone crushers – more production with less energy Nordberg HP3, HP4, HP5 and HP6 are the latest generation and highest performing cone crushers on the market.

An increased stroke, power and retaining force are the key operating principles of the new generation HP Series cone crushers. The crushing chamber density increases to improve the inter-particle crushing action, which results in superior product shape, a high reduction ratio and the industry-leading crushing efficiency. Power consumption is up to 20% lower than with other cone crushers.

Designed for your needs, the new generation Nordberg HP cone crushers are safe and easy to maintain. Guard protection, a new liner attachment and the lack of backing material are some of the features that reduce maintenance downtime.



Easy crushing with Metso IC™ crusher automation

Metso IC70C™ is the new crusher automation system that further improves the operation of your HP cone crusher. With Metso IC, you can control maintenance, setting modifications, production follow up and data extraction. Plus, all parameters can be adapted to your plant characteristics. You can easily do all this close to the crusher or remotely from the control room.

You set the goals and IC70C helps you reach them. It allows you to monitor the feeding, change the settings automatically depending on the load or liners wear, and select the product size distribution according to your preference of coarse or fine aggregate production.

With the first-class intelligent automation system, IC70C, you can increase your production by more than 10%.

Your Metso representative can help you evaluate how a HP cone crusher can improve your operations, performance or cost per ton. HP cone crushers are ideal for new projects or to replace an existing inefficient crusher

For further information, please contact:

Paulo Seiça Leitão, Regional Sales Manager for Southern Africa, Tel. +351 917273467, E-mail paulo.leitao@metso.com

Executive Director (UNABCEC)

Plot M764, Coronation Avenue, UMA Showgrounds, Lugogo Kampala, Uganda Tel: +256 392 795036

E-Mail: executive.director@unabcec.co.ug

Technology enhances contractor tools

By Francis Agaba

Technological advancements have seen several facets of our day-to-day lives taking a major leap forward. The Contracting and construction fields are no exceptions. In this article, we highlight some of the tools that have had a technology makeover.



As the name suggests, the Cat S6 is smartphone designed exclusively for

the worksite.

The phones features the latest in smartphone functionality such as a 4.7" inch touch screen, 13 Mega pixel camera with autofocus and flash and thermal camera. More on the thermal camera later. The phone has internal memory of 32 GB, 3 GB of RAM and a microSD card slot that can accommodate up to 256 GB. With a 3800mAh battery, this phone will last a whole working day and will outlast most of the current high end smartphones.

On the software side, the S6 is powered by Google's Android version 6.0 (Marshmallow). Expect the standard connectivity from a smartphone including 4G LTE, Dual SIM, WIFI, Bluetooth, FM radio etc

The stand out features which give this phone its rugged credentials include salt, dust, humidity, rain, vibration, solar radiation, drop and

CAT S6 Rugged Smartphone

thermal shock resistant. It is also water proof up to 5 meters for 60 minutes with closed lids.

Thermal Imaging

So what can the thermal imaging camera be used for? According to tech blog Gizmodo, There are various use cases. For example, if you are at the scene of a car accident, you can use the FLIR camera to "see" through the smoke and locate wounded bodies. If you work with wires and electricity, locating hot and overheated areas is also pretty simple once you learn the basics of using the device. If you are a plumber, you can see where the heated water is leaking, or where an underground heating system is blocked.

This is truly a workhorse of a phone that will be comfortable on a job site, however remote you may be working as it has a battery to match its other high end features.







STANLEY TLM99S BLUETOOTH LASER DISTANCE METER







The TLM99s Bluetooth Laser Distance Measurer has a range of 100 feet and accuracy of +/- 3/32" (2mm) making measuring easy! This simple design is packed with functionality. Users can instantly calculate area, volume, distance and more with the intuitive touchpad design and with Bluetooth Wireless technology you can connect the TLM99s with your smartphone or tablet.

Features & Benefits

It has a range of 99' (30m), accuracy is +/-3/32"(2mm) for consistent reliable measurements, Bluetooth connectivity syncs TLM99s to most Smartphones, tablets and computers, measures distance, calculates area & volume automatic calculations make job estimates quick and easy, calculator function instantly add or subtract measurements, continuous measurement to help find target distance quickly and easily.

Use with the Floor Plan App

Sync the TLM99s with the STANLEY® Floor Plan App to easily capture space dimensions, and build and save floor plans for future reference.

CONTRACTOR! Technology



Dewalt Bluetooth powered tools

Bluetooth technology has made its way into the Dewalt cordless tool line and specifically into the inner workings of the battery. A spokesperson from Dewalt said batteries are initially being used in a program called Tool Connect because they contain a power source and as a result are a form of communication. "In the batteries we can identify the charge or if it leaves a radius

within 50 feet of a smart phone in either direction," he added.

If that should occur, a contractor can simply disable the battery's power supply making the tool useless. "Once somebody starts realizing that 'hey, if I steal a Dewalt tool it is not going to work because it is disabled,' it is going to cut down on the amount of theft," said.



Tesla Powerwall

A powerbank for the whole house or site

The Powerwall is a rechargeable lithiumion battery product manufactured by Tesla Motors for home use. It stores electricity for domestic consumption and backup power.

The 6.4 kWh battery has a nickel-cobaltaluminum cathode and has a projected cycle life of 1000–1500 cycles. The Battery costs US\$3,000 (about **UGX10,000,000/=**)

For families with larger energy needs, multiple powerwalls can be connected to expand the capacity even higher.

Specifications

Voltage 350-450 V DC, Current 9.5 A , Power 3.3 kW, Energy 6.4 kWh, Operating temp. -4 to 110 °F (-20 to 43 °C), Weight 214 lb [97 kg], Dimensions (H x W x D) 51.3 in \times 34 in \times 7.2 in (130 cm× 86 cm \times 18 cm)

Technology

The Powerwall is optimized for daily cycling. Tesla uses proprietary technology for packaging and cooling the cells in packs with liquid coolant.

It includes a DC-to-DC converter to sit between a home's existing solar panels, and the home's existing DC to AC inverter.

Keynote address by the Executive Director, National Planning Authority



Dr. Joseph Muvawala

I want to tell you from the onset that the future holds a lot of potential for the construction industry in Uganda. However, the onus is on UNABCEC to position itself in order to obtain maximum benefit from this potential.

Planning Framework

Uganda has developed a planning framework which was adopted by Government in 2007 as the Comprehensive National Development Planning Framework (CNDPF). From that time onwards, the National Planning Authority which is the institution mandated to prepare national plans has used the CNDPF to prepare long and medium term plans for the country.

The Uganda Vision 2040

The Uganda Vision 2040 was developed and adopted by the nation as the overall long-term development framework. The Vision focuses on transforming the Ugandan society from a peasant to a modern and prosperous country within 30 years and targets an upper middle income status with a per capita income of USD 9,500. by 2020.

The Vision focuses on strengthening fundamentals that include; infrastructure, human capital, science, technology, engineering and Innovations, security and defence to harness the abundant opportunities which include; agriculture, tourism, minerals, oil and gas, industrialisation, knowledge and ICT, geographical positioning, abundant labor force, and water resources.

Uganda Vision 2040 Implementation

As a long term plan, the Uganda Vision 2040 will be implemented through a series of medium term plans called National Development Plans (NDPs).

I am greatly honored to be invited to this function today to deliver a kevnote address to the UNABCEC fraternity present at this event which brings together building and civil engineering contractors. manufacturers and suppliers of construction equipment and materials, and other services providers.

As part of the implementation of the Uganda Vision 2040, the first and second National Development Plans were developed.

The NDP 1 which ran from 2010 to 2014 concentrated on the removal or resolution of bottlenecks and in essence laying a strong foundation for the implementation of subsequent NDPs. A midterm review of the NDP1

was conducted and indicated that it was likely to achieve the purpose for which it was intended. The evaluation of NDP1 after its completion will be done this financial year and its outcome will be disseminated.

The Second National Development Plan (NDP)

It has now been made known to everyone that Uganda intends to move from the poor state to a Middle Income status by 2020. This is the main thrust of the NDP2. In particular the NDP2 is to position the country to achieve this status by undertaking the following key strategies:

- Fiscal expansion for frontloading infrastructure investment
- Industrialization value addition (agro processing and mineral beneficiation) and light manufacturing
- Fast tracking skills development
- Export oriented growth
- A quasi-market approach
- Harnessing the demographic dividend
- Strengthening governance mechanisms

Uganda's Construction Industry

The construction industry in Uganda has continued to limp and it is high time the causes of this miserable performance are examined, if the middle income status is to be achieved.

The industry continues to be heavily polarized with all development projects gravitating to the multinational contractors and consultants and in the process leaving the inconsequential assignments and jobs to the local firms. This has significant and far reaching implications such as giving the country a very low retention capacity. It is known that for all the

funds local and foreign that the country invests only 7% is retained and this results from: importing equipment, use of foreign nationals even where local skills are available, importing material and other inputs like fuel, etc.

This trend needs to be reversed. The country's retention capacity must be improved.

The Government of Uganda is committed to facilitating the development of a significant national participation in the construction sector for the benefit of the Ugandan economy, and the society at large. However, It's important to reemphasize that despite the enormous investment in Infrastructure over the years, national participation has been limited - something that explains why the high growth rates have not impacted in the same proportion the people's standards of living.

The inadequate participation in the development process has majorly been caused by two reasons: 1) the lack of adequate skills and where skills exist, 2) the absence of National Content regulations. The NDP2 prioritizes the need to develop the national content Policy together with attendant regulatory frameworks and to promote employability of Ugandans through skilling, re-skilling and provision of the required certification both local and international.

With these in place and adequately aligned to the national development agenda, the participation of Ugandans in the development process and particularly in the construction sector will be assured.

The problems faced by the industry can be grouped into two main classes. The first and most significant are institutional problems and second are internal problems within the companies.

Institutional Bottlenecks

We realize that there have been policy and regulations flaws that must be addressed. The Government recognizes the challenges in the construction industry and is addressing them by developing suitable policy and legal frameworks to promote the industry. This includes:



Eng. George Bwanga presenting Dr. Joseph Muvawala's speech

The industry continues to be heavily polarized with all development projects gravitating to the multinational contractors and consultants and in the process leaving the inconsequential assignments and jobs to the local firms

1. The strengthening of the Engineers Registration Board. The voice of the Board and that of the Uganda Institution of Professional Engineers and that of UNABCEC and UACE should be listened to when matters affecting engineers, consultants and contractors/builders are being discussed. To this end the amendment of the ERB Act is progressing very well and the bill will soon be before Parliament. It will however be saddening to learn after it has been passed and assented to that due consultations were

not satisfactorily done.

- 2. The proposed Uganda Industry
 Construction Commission (UCICO)
 Bill that is to be tabled intends to
 create various opportunities for
 supporting local contractors. The
 UCICO Bill has been submitted to the
 First Parliamentary Counsel. The law
 is expected to address many of the
 shortcomings in regulation and policy.
 Most of you are more intimately familiar
 with this Bill and can discuss it better
 than me. It is the industry's chance to
 put some things right.
- 3. There have been several complaints regarding the PPDA law. These include the use of Bank Guarantees instead of Insurance Bonds among others. UNABCEC should engage the PPDA in order to find lasting solutions to these problems.
- 4. The local content policy which the National Planning Authority is preparing adds on to the above initiatives. In effect it establishes direct reservation of some work and assignments to local firms, structured mandatory joint venture and partnerships between local and foreign firms, mandatory memberships of local nationals to the management of firms taking up jobs, margins of preference, and others.
- At a national level we also note that there is a serious shortage of skilled labour, and registered engineers and this trend is not restricted to engineering but also to other professions that act as your support. NPA has therefore recommended the improvement of professional and technical education and training to expand the pool of qualified and competent practitioners. NPA is aware that the Directorate of Industrial Training (DIT) is conducting training programmes with a view to ensure that qualified competent operators of equipment get certification. The UNABCEC is encouraged to employ them since this will improve the productivity, prolong equipment life, improve equipment availability, improve the quality of the works and generally improve the image of the company. This effort needs to be replicated for other skills and UNBCEC should be at the forefront to support these initiatives.
- . It is also been argued that the alleged cost overruns (cost and time) are a result of the poor competences of the Government technical staff. This manifests as poor designs, inappropriate completion schedules, unrealistic cost estimates, unprofessional contract administration, and at times unethical conduct. At NPA we wish to introduce mechanisms for assessing the efficacy of designs,





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Power reporting to detect disconnection or bad vehicle battery



Motion detection to secure parked vehicles & unguarded assets.



SOS button to send out vehicle location when in need of assistance.





Ignition detection and disabling (optional)



Speed reporting to eliminate bad driving habits.



Periodic reporting based on time or distance travelled.

remove interference from up to 8



Idle alarm to detect running

GPS antijamming features to

jammers.



engines.



Multiple 1-Wire sensors such as Driver ID and temperature.



Analog sensors for example for fuel and voltage measurements.



Accurate GPS positioning with GPRS & GSM communication.



Landmark data for easy location even when maps are unavailable.





UNABCEC delivers its 7th Strategic Pricing for Profits (SPP) Training



UNABCEC has had seven training sessions on Strategic Pricing for Profit (Estimating, Costing and Building Up Rates) since April 2014. The latest training session was held at Silver Springs Hotel from 8th to 10th September 2016 and attracted 25 participants.

Many small contractors have to cope with the special managerial problems that arise from bidding for and carrying out varied and dispersed projects and are faced with highly cyclical demand. UNABCEC responded by developing "improve construction business short skills courses". These suit the specific needs of small buildings, roads, and public safety interest works contractor's personnel and engineering students that tend to join the industry to move ahead of competition through onsite and top up skills.

Our 3rd intake this year was on Strategic pricing for profit, a 3 day short course was completed last month. Many contractors produce 'guesstimates' - not estimates - of project costs, so they either bid high and lose the contract or even worse - get the work at a price which is below the cost. Next month as advertised on page 50, we shall have our 4th training this year which will be on Construction Site Management, a 3 day course. A potentially profitable contract has been won after the first course. This course gives you planning skills to make you think hard about how you can make your company more profitable by improving productivity on your sites i.e planning for profit, scheduling your plants, material and checking of progress and making it happen on site.

We have twenty practical trainers who underwent a series of top up trainings to assist in preparing and running seminars and workshops to the entire public.

We were glad to host the president of UIPE, Dr. Eng Dorothy Akello who awarded certificates and closed the training. She promised to have the courses incorporated into the CPD program. The upcoming European Union support will go a long to further improve these trainings as we cooperate for furtherance of training in engineering practice with UNABCEC.



Fred Kaweesa, Technical Director, Freematech Services Uganda Limited.

What do you have to say about the training?

I would like to thank UNABCEC for this great opportunity they have given us as contractors. We have really benefited, given the topics of the presentations we have had. They were about cost management and saving. There are things we have been doing because we have good experience when it comes to costing of our projects, but they have given us the basics from the first principles. In university, for instance, as a civil engineer you will do some small costing but not to this extent and I would say we have gotten the principles of how to build rates. I have been doing it the other way and today I have been given an opportunity of cross checking with colleagues, with instructors before me.

What was your main aim of attending the training?

Cost management or building of rates and costs is what I have been doing as a company solely. Before I started doing it for my company, I was doing it for other companies when I was employed but this time I have gotten an opportunity of associating with other contractors headed by an umbrella, that is UNABCEC, and I feel it was a good measure of sharing with other contractors that I did not know. Usually we have been making a few phone calls to colleagues that we know but this time we have gotten an opportunity of sharing with people we have never seen, companies that we did not know, so it was a good interaction.

Did you meet any new contacts?

I was able to interact with presenters and trainers. My company is not a member of UNABCEC. I feel it is important for my company to become a member. I also interacted with members of other professions within the training.

Do you think these will help you going forward?

Yes, in one-way or another. You never know when a friend will help you, but definitely they do help.

What are you now able to do that you were not previously able to do?

I think I have been doing it all, but not from first principles. I may not have been in position to explain better what I was doing but now I am able to explain it in a more serious and technical way.

Trainees share their experiences as interviewed by Nathan Magoola



Charles Ochan Cost Estimation Specialist-Ugand National Road Authority-UNRA



Rebecca Komugisha Graduate Quantity Surveyor- Arch Forum Limited

What do you have to say about the training?

The training is a relevant training, its timely, it brings minds together. It provides an opportunity for people to share knowledge, share experiences and table it for the betterment of how costs are handled in the construction industry, more so at the bidding stages, and pricing and it kind of points us in the direction where we can have uniformity in cost build ups.

What was your main aim of attending the training?

Actually my aim has evolved. When I started, my main target was to come and understand the mind of a contractor in terms of pricing, because I have struggled to understand how they come up with their prices. I think I have come to understand that they were not consistent; they were not using best practices. The beauty of it is that now they are trying to point in that direction of having uniformity and consistency.

Do you think you achieved your goal?

Like I said, I have achieved a different goal, because my target was different from what I have achieved. But it's because I came with a bias.

Did you meet any new contacts?

Yeah, I have interacted. There have been clients, contractors and people from different environments.

Do you think these will help you going forward?

I hope so. I highly want to keep linked to them because what we have done is a beginning, which I think is a journey. And we are just at the start of it. It is something that must be improved in order to achieve its objectives.

What are you now able to do that you were not previously able to do?

I have definitely learnt from this. I have taken something out of this course. I will try to use it to improve what I do

What is your opinion of the trainers?

For the three days I have been here I have been keen to see that things go right. In some instances speakers were not quite informed on the subjects, but regardless they took it and we have had those discussions, we have shared and I think the message going is that for the next session they will take on the advice, which is a good thing. But the thing, which I applaud, is the attempt. The trainers are not professional trainers to train the subject area but they take an effort. I applaud them.

What do you have to say about the training?

The training has been good. When I was given the opportunity to do it, seeing the title of the training definitely got me interested because I am a Quantity Surveyor and costing is part and parcel of my profession. I wanted to know how to do it better and I think that has been achieved.

What was your main aim of attending the training?

I really wanted to improve my costing skills. Working with architects sometimes doesn't give me a lot of opportunity to go into the detailed costing because my company predominantly does architectural work and project management, so I have been absorbed into project management for most of my time and getting more skills as a Quantity Surveyor specifically the costing bit has been a challenge. This has been an opportunity for me to brush up on those skills.

Did you meet any new contracts? Yes

Do you think these will help you going forward?

Of course being in the construction sector, we need to exchange ideas from time to time. Who knows who will give me that idea that I am missing or that connection that I need or an opportunity to better my career.

What are you now able to do that you were not previously able to do?

Previously, I wasn't able to justify certain rates that we use as a company. I will admit that some of them are got from previous projects and we factor in a certain allowance, say for the economic conditions, but now being able to derive them from the basics will of course help me get the confidence to own them as an estimator and say this is the reason why this is like this and you know we will go with that because it is the best thing for us as a company

What is your opinion of the trainers and content?

I think the trainers were pretty knowledgeable. They were confident in what they were saying and they seemed to use the experience that they have gained over time which also helps us take their word for it because they have done it before and teaching using their experience of course helps us get more knowledge on what the actual field is like, not just theoretical but what practically happens and what actually works in the field

The content was good, though I think there were some sessions where we had so much information to digest in such a short time, but then the notes that we have, we can always revisit them. I think that if given more time to tackle them, it would have been even better.



Notice is hereby given to all Certified members of Uganda National Association of Building and Civil Engineering Contractors that the 23rd Annual General Meeting will be held on Thursday 17th November 2016.

UGANDA NATIONAL ASSOCIATION OF BUILDING AND CIVIL ENGINEERING CONTRACTORS (UNABCEC)

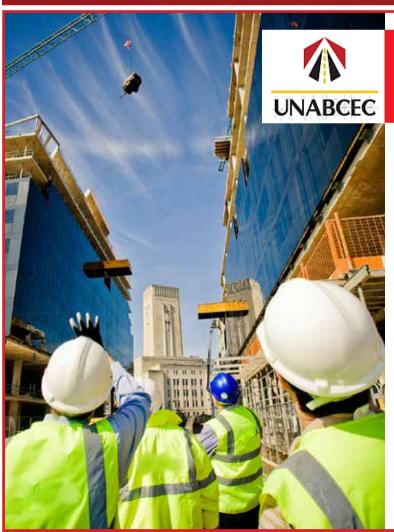
Contact UNABCEC Secretariat, Monday to Friday 8am to 5pm

Plot 764, Coronation Avenue, UMA Show grounds Lugogo/P.OBox 34046 Kampala-Uganda Tel: +256 392 795036/ +256 312 209400

Email: unabcec@unabcec.co.ug/ finance@unabcec.co.ug/ executive.director@unabcec.co.ug/ www.unabcec.co.ua

Date: 17th November, 2016 **Venue: Silver Springs Hotel Time: Starting at 9:00am** Agenda:

- 1. Opening Prayer
- Review of the Minutes of the 22nd Annual General Meeting
- 3. Chairman's Report
- 4. Consideration of Financial Statements and Auditors Report
- 6. Current Projects and issues7. Close of Meeting



CONSTRUCTION SITE MANAGEMENT TRAINING 1ST TO 3RD DECEMBER 2016, IN KAMPALA

UNABCEC is organising a three day non- residential training course on Construction Site Management for all those involved in managing construction sites.

About the Course: The training will be delivered by a team of Ugandan expert trainers. The training is designed to provide practical skills to improve contractors' performance and profitability on site.

By the end of the training, participants will be able to

- Design site layout.
- Prepare work schedules and make realistic plans for site work.
- Asses and manage common risks and make contingency plans.
- Plan for optimum use of resources.
- Monitor work progress.

Training Dates 1st to 3rd December 2016, in Kampala.

Registration: The Course is open to the public at a cost of UGX 700,000/= to cover tuition, training materials, a certificate, lunch and refreshments, payable in advance.

Certified UNABCEC members will be subsicided at a cost of UGX 600,000/= Registration deadline is 5:00pm Wednesday,30th November

Payment Options: By cheque to Uganda National Association of Building and Civil Engineering Contractors

By Bank transfer to Acc No. 0102010826300 Standard Chartered Bank, Speke road Branch

4th day - Site Visit to New Jinja Bridge. The cost is included in the training fees

Upcoming Trainings

Strategic Pricing for Profit Training $16 \mathrm{th} \ \mathrm{to} \ 18 \mathrm{th} \ \mathrm{March} \ 2017$

For further information, contact: Tel: +256 392 795036 Email: unabcec@unabcec.co.ug

Website: www.unabcec.co.ug

CONTRACTOR! Advertorial

Ulto Engineering growing from strength to strength

By Arnold Mugisha

In slightly under a decade of existence, Ulto Engineering has had tremendous growth. Ulto Engineering is a wholly Ugandan owned company. Our reputation for delivering projects on time and on-budget has earned us repeat business and several referral clients.

Our speedy growth path can be attributed to experienced and professionally trained Engineers, Project Managers, Information Technology experts, Computer Scientists, Technicians and associating Consultants who provide input for specialized areas that they may not have in-house. This pool of professionals coupled with long experience in Power Systems, Civil Works, Projects Management, Networking and Systems integration as well as database design and multimedia software has propelled Ulto Engineering by leaps and bounds.

Our ability to deliver on projects has been

derived from the capacity of the firm and the individuals that we propose for each specific assignment.

Our list of clients keeps growing and includes; Office of the Prime Minister, World Vision Uganda, several local government projects, schools, hospitals, private companies as well as sub-contracting on various projects.

Some of our recently concluded projects include; construction of primary school facilities in Kyangwali refugee camp – Hoima, construction of a 13km of 33kv commercial power extension - Buwama

water project, construction of health centres in West Nile, detailed electro-mechanical design for a medical centre in Mogadishu – Somalia, construction of one library block in Namanyonyi - Mbale district under World Vision Uganda, construction of new dormitory block at Ora Technical Institute - Zombo district, electrical & mechanical works at the construction and rehabilitation of offices and laboratories at the department of geological surveys and mines at Entebbe, construction of secondary school facilities in Erussi Secondary School - Nebbi District and construction of secondary school facilities in Parombo Secondary School - Nebbi District.

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Case study:

Eco Concrete Ltd innovating to save on construction costs



Eng. Apollo Buregyeya

Handling and transporting construction materials is one area that escalates construction costs leading contractors to place higher unit rates to cover unforeseen costs.

It costs a property developer/contractor a minimum of UGX 400 to handle and transport a block unit (150x200x400mm) from any yard to a construction site in a 20km radius. An average construction project will take 20,000 blocks making a total of UGX 8 million (US\$ 2,300) in transport costs alone. This is just one type of a material used in construction but a project involves many other construction elements. The cost of handling and transporting all construction materials on a project varies from a minimum of 15% to over 50% of the total construction budget on most projects in Uganda. The figure can go much higher if we also consider waste, theft and other expenses associated with the quality of materials used.

Unfortunately, clients and sometimes developers easily forget considering these costs that are hard to examine when work has been completed and the tracks left by the delivery trucks are long washed away by the seasonal rains.

There is a lot of ongoing debate about how the cost of housing and other infrastructure development in Africa is very high compared to other continents. The debate is focused mainly on high costs of quality materials leading "innovators" to lower the frontier of quality.

Unsustainable construction methods such as soil-stabilized blocks have gained massive support from governments only to lead to massive losses for those early adopters

Suppliers of good quality materials haven't helped either as premiums put on these

materials leave the majority of developers in Uganda without a choice but to go for poor quality construction products. I want to argue that innovation doesn't have to be about lowering quality. Innovation makes much more sense when it improves quality and lowers cost

Let us take a case study of Eco Concrete Ltd, who have chosen a unique path. After an exhaustive study of the entire chain of production of construction materials, they opted to push quality higher in order to save money for their clients. They studied different materials and built a substantial knowledge base before embarking on their venture.

After looking at the value chain of the different construction materials, it was found that three key variables common in construction materials production processes were; Technical competences, Technology in production, and Post production handling of materials

A closer look at these key parameters;

1. Technical competences are necessary to understand that raw materials, process environment and project expectations will always vary in quality and adjustments in mix proportioning and other appropriate decisions have to be made in time not to compromise on the expected quality of finished products. Where adequate technical knowledge lacks, the cost of production will be high.

2.

Technology is mainly critical in processes that require energy input for a material to be produced. A good example is that of a block. The compactive force of a block making equipment is important and must be optimized and standardized for maximum density, strength and uniformity of good concrete blocks. Automation of production is also an energy saving measure but having conveyor belts deliver raw materials may not save a poorly proportioned mix. Energy is important and must be focused on the critical stages of production is to be controlled.

3.

Post production handling of materials will determine whether maturity of processes involved in production of materials is achieved. Proper handling also protects materials from getting damaged and downgrading their original quality.

Eco Concrete considered the above three factors as key to addressing the 15%-50% of the project cost that goes into handling and transporting. They chose to start with the commonest elements of construction, walling units and pavers.

They trained their staff on quality assurance and quality control aspects of producing blocks and pavers in different environments. Next was to select the right production technology that focuses on what is very important in the production process of blocks, the compactive force. The technology had to be mobile

in order to take production of the construction elements on site and save contractors and developers that extra cost of material transportation and handling discussed above.

Their production process is open-source and clients are engaged along the whole process so that they (clients) are sure of the quality they are getting.

Eco Concrete currently produces concrete blocks and pavers since these are the most basic construction units. Starting out with a single set of equipment in January 2016, they have since expanded, purchasing one extra piece of equipment every month to meet the growing demands of clients. Their equipment is stationed at clients' sites in order to cut on transportation costs of finished materials.

Their equipment has capacity of 1,000 blocks a day. They guarantee the best quality blocks and pavers at the most competitive price in town.

We shouldn't forget that cost of construction is also dependent on the social, political and economic state of a nation. Good legislation and competent institutions are key in bringing the cost of construction down. The individual also has a role to play in bringing the cost of construction down in our country. A well-managed government is the starting point.





Give your money more mileage!

It costs a property developer/contractor a minimum of UGX 400 to handle and transport a block unit (150x200x400mm) from any yard to a construction site in a 20km radius. An average construction project will take 20,000 blocks making it UGX 8 million (US\$ 2,300) in transport costs alone. Avoiding this cost alone reduces your construction costs by about 10%. We at Eco Concrete have decided to be generous.

We return the UGX 400 you spend in transporting a unit block back to you our

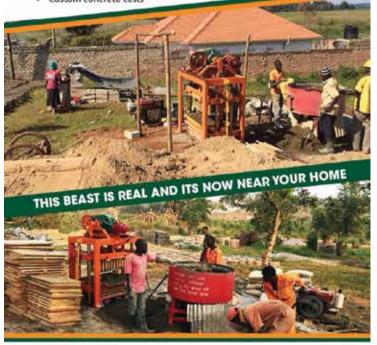
clients. We actually move to your site and make the whole process more cost-effective for you. Meet one of our beasts that has a capacity of 1,000 blocks a day. The beast wants to visit you.





Other products on offer:

- · Pavers of all types (heavy duty and light duty)
- · High performance concrete
- · Concrete Chemicals and additives
- · Concrete bricks and blocks of all types
- · Hollow crib retaining wall units (heavy duty 35kg each unit)
- · Engineering consultancies and concrete works
- Custom concrete casts





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Building up rates for gravelling

UNABCEC SPP trainers

1. Build-up of a unit rate for gravelling on a road project

Estimating the cost of gravel includes, estimating the cost of labor, equipment and material. The analysis of the entire job requires a thorough review of the plans and specifications of the bid documents, an evaluation of the soil investigation report and a visit to the jobsite where the project is to be constructed. For earthwork estimates, the bid documents usually contain a soil report that provides geotechnical information about the soil and subsurface conditions. The estimator can use other sources that help in developing an accurate estimate.

11. Swell and compaction factors

To estimate the cost of excavating and hauling earth, it is necessary to know the physical properties of earth because the volume changes during construction operations. For an earth work operation, the soil is excavated from its natural state, placed in a hauling unit and transported to the disposal area, where it is distributed and compacted. For example, one cubic meter of soil that is excavated from the ground may occupy 1.25 cubic meters after it is loosened and placed in the hauling unit. After the soil is compacted in place it may occupy 0.9 cubic meter. The soil to be excavated is called bank measure, in its undisturbed condition, prior to excavating or after being compacted in place. Also, any additional requirements to support the excavation operation should be also added to the cost estimating of an excavation operation. For example, excavation support, dewatering, etc.

1.2 Calculating truck requirements

The estimator has to determine the optimum number

of trucks required to transport excavated materials. A simple formula can be used for this calculation based on the premise that it is desirable to have sufficient trucking capacity to ensure that the excavation equipment is able to operate continuously and not have to waste time waiting for trucks. Obviously, three trucks will be required if it takes 10 minutes to load a truck and 20 minutes for that truck to unload and return for another load, because while the first truck is away, two other trucks can be loaded. Thus, the number of trucks can be calculated as:

Number of required trucks = truck cycle time / loading time	5.1
Truck cycle time = loading time + going time + return time + dumping time	5.2
Loading time = truck capacity / production rate of loader	5.3
Truck capacity (bank measure) = truck capacity (loose) / (1+swelling factor)	5.4

Note that the number of trucks obtained from Eq. 5.1 should always be rounded up no matter how small the decimal.

Most estimators consider it better to have more rather than less capacity so that the excavator is kept occupied.

Waste factors

When estimating the material required for any job, it is necessary to add a portion for the wastage of material used. The quantities of material taken off are the unadjusted net amounts calculated from the drawings. Allowance for waste and spillage of this material can be made by increasing the takeoff quantities or by raising the price by the percentage factor considered necessary. The values of waste factors usually lie between one and 10 percent for different materials.

1. 4. Establishing the unit costs for labour, plant and materials by examples.

14.1 Unit cost for labor.

To evaluate the human effort used in the creation of a service/ product is tedious because so many factors will affect productivity/output. Weekly and annual time analysis are very important to establish the effective Labor costs which translate also into Labor efficiency. Note that all work hours translate into productivity,

The table 1. below will give us an insight in developing the effective labor cost /hour for a casual laborer and a Foreman. interest on capital.

Labour Category	Casual Labourer	Foremen	
Basic Wage Rate/Hr	1,000	5,000	
Basic Cost Per Day	8,000	40,000	
Total Paid Hours/Year	2,874	2,874	
Basic Annul Pay	2,874,000	14,370,000	
Basic Pay Per Month	239,500	1,197,500	
Rent/Housing Allowance	100,000	200,000	
Transport Allowance	50,000	50,000	
Food Allowance	75,000	75,000	
Total Wage Bill	464,500	1,522,500	
NSSF- Employer's Contribution 10%	46,450	152,250	
Bonus 5% of basic	11,975	59,875	
Total cost per month	522,925	1,734,625	
Cost per year	6,275,000	20815500	
Effective Labour cost/Hr	3,179	10,545	

For a given Project activity, it will be therefore Necessary to develop a complete list of labor requirement which may include, Operators, Drivers as dictated by Work Breakdown Structure.

BOQ item: 5.2.1			
Equipment	Operator	Driver	Labourers
Wheel loader CAT 966	1		1
Bulldozer D8	1		
Tipper truck(18T 9m³ cap)		1	
Other Labour(misc) eg flagmen			2
Total	2	1	3
Effective cost/man/hour	14,000	6,000	3,179
Effective cost/man/9hour/day	126,000	54,000	28,611
Effective total labour cost	252,000	54,000	85,833
Effective item: 5.2.1 labour cost/day			391,833

1.4.2 Unit cost for material, gravel.

The Unit cost of Gravel will be having components of Loading and offloading as previously stated in section 5.2, the cost of the Gravel, transportation, wastage and storage when required.

DESCRIPTION	QTY	TOTAL
Gravel Gravel tip 3.5m3(forward Truck)	1	30,000.00
Add Transport	1	20,000.00
Add Wastage 5%	1	1,500.00
Add Handling 2%	1	600.00
Total cost per 3.5m³ truck		52,100.00
Total cost per m³		14,886

1. 4.3 Plant unit costs

The Factors associated with equipment/plant unit cost used on a particular activity will include, Capital costs, Plant economic Life and Operating costs. Most of this information is available in the Manufacturers catalogues and handbooks and quotations from suppliers.

Owning costs is evaluated as =
[Peplacement cost]/[Economic working life
of the plant],where Replacement cost =
Capital cost -Residual Value

The table 3 in the next page shows a summary of Various Plant unit rates.

1.5 Unit rate analysis for gravelling a road.

At this stage, we have all the relevant data for building up a Unit rate of a Gravel a road section which can be inserted in Bill item.

The Labour, Plant and Material (Gravel) are all aggregated in the Unit Rate Analysis (URA) sheet to develop the total cost of the activity.

The Total cost is the divided by the total quantity of the material to raise the unit cost.

The tables below give the example of deriving the final unit cost of Gravelling.



Costing

The table 3 shows a summary of Various Plant unit rates.

		UNA	CEC ESTI	MATING, O	COSTIN	G & BUI	LDING	UP RAT	ES C	OURSE	- PLA	ANT L	INIT R	ATES, MBA	IRARA AF	PRIL 2015			
DESCRIPTION	HORSE POWER (H.P.)	PLANT	ECONOMIC	LIFE	FUEL				SHIPPING DIMENSI			ENSIOI	vs	Capital Cost	Quote date	COSTS / HOUR			TOTAL
		Hours	Res Value	Spares /1000hrs	Fuel Type	Av. Ltr/hr	Lube %	Lube	L	w	н	Vol m3	Wt			Owning	Spares	Fuel & Lube	
	Α	В	с	D	E	F	G	н						1		J	к	м	N
			15%*B			0.1*A		F*G								C*I	D*I	(F+H)*1.35	(J+K+L+M)
CAT D8 c/with Blade S & multi-tyne Ripper	300.00	15,000.00	2,250	7%	D	30.0	20%	6						330,000.00		18.70	23.10	30.60	72.40
CAT 966 Wheel Loader with 3.1 m3 bucket	232.00	12,000.00	1,800	7%	D	23.2	20%	4.64						181,400.00		12.85	12.70	23.66	49.21
CAT 950E Wheel Loader with 2.4m3 bucket	167.00	12,000.00	1,800	7%	D	16.7	20%	3.34						146,324.00		10.36	10.24	17.03	37.64
6 x 4 Tipper Truck 18T 9m3 capacity	138.00	10,000.00	1,500	7%	D	13.8	20%	2.76						65,000.00		5.53	4.55	14.08	24.15
Concrete Mixer 21/14 - diesel	13.60	6,000.00	900	8%	D	1.4	20%	0.272						30,000.00		4.25	2.40	1.39	8.04
Site dumper 2-T	11.00	6,000.00	900	8%	D	1.1	20%	0.22						7,500.00		1.06	0.60	1.12	2.78
Cat 120G Grader	125.00	12,000.00	1,800	7%	D	12.5	20%	2.5						122,747.00		8.69	8.59	12.75	30.04
Dynapac CA 15D Vibrating Roller	72.00	10,000.00	1,500	7%	D	7.2	20%	1.44						76,766.00		6.53	5.37	7.34	19.24
Diesel-driven Concrete Saw	11.00	2,000.00	0	8%	D	1.1	10%	0.11						9,200.00		3.91	0.74	1.03	5.67
Cat CB 534 double drum Vibrating Roller	125.00	10,000.00	1,500	7%	D	12.5	20%	2.5						85,000.00		7.23	5.95	12.75	25.93
Diesel driven Concrete Vibrator	5.00	2,000.00	0	8%	D	0.5	10%	0.05						2,400.00		1.02	0.19	0.47	1.68
Atlas Copco Compressor Spiroflo 320HP	112.00	10,000.00	1,500	7%	D	11.2	20%	2.24						31,000.00		2.64	2.17	11.42	16.23
Atlas Copco Compressor Spiroflo P100	31.00	10,000.00	1,500	7%	D	3.1	20%	0.62					İ	10,500.00		0.89	0.74	3.16	4.79

KEY & NOTES

1.5.1 Quantity of Gravel extracted from the Bills

Carri	Carrigeway width: 5m Thickness of gravel: 150mm									
S/N	Quantity	Description	Works Methodology	Units	Total Quantity					
1.1	7350.00	5.2. Base Cons	Works to be executed using machines as listed	m³	7350.00					
1.2										
	Total(A)				7350.00					

1.5.2 Establishing the Water quantity in materials Rate Build up Water quantity is 20% of the gravel volume

S/N	Materual	Units	Quantity	Cost (Ug.Shs)/Unit	Total Material cost (Ug.Shs)
c.1	Gravel	m³	7,350	3,125	22,968,750
c.2	Water	Itrs	1,470,000	5	7,350,000

1.5.3 Outputs and Methodology

Methodology	Output (m3/day)	Duration (Days)	No. of Equipment
Bull Dozer D6	500	16	1
wheel loader -3m³	600	16	1
Tipper truck -10m3	600	16	10
Water Bowser - 10,000Ltrs	375	20	1
Roller - 10ton	375	20	1
Grader	375	20	1

I) D - DIESEL 0.85 US\$ PER LITRE

²⁾ RESIDUAL VALUE OF PLANT IS ESTIAMTED AT 15% OF THE CAPITAL COST OF THE MACHINERY

³⁾ SPARES ARE ESTIAMTED AT 7 - 8% OF THE CAPITAL COST PER 1000 HOURS OF ITS ECONOMIC LIFE

⁴⁾ FUEL PER HOUR IS ESTIAMTED AT A CONSTANT OF 0.1 x MULTIPLED BY THE HORSE POWER OF THE PLANT FOR HEAVY PLANT, THIS SHALL VARY FOR SMALLER PLANT

⁵⁾ LUBRICANT IS ESTIMATED AT 20% OF THE FUEL COST PER HOUR

⁶⁾ THE OWNING COST OF THE MACHINE IS TAKEN AS THE REPLACEMENT COST (CAPITAL COST LESS RESIDUAL VALUE) DIVIDED BY THE ECONOMIC LIFE OF THE PLANT

⁷⁾ THE TOTAL COST PER HOUR SHALL BE THE SUM OF THE OWNING COST, SPARES COST, FUEL AND LUBRICANT COST ALL PER HOUR

CONTRACTOR Costing

1.5.4 Plant Rate Build Up

S/N	Description	Units	Qty of labour force	worker Days	Hrs/ Day	Total Cost/ Hr(Ug.Shs)	Total Labour cost(Ug.Shs)
A.1	Bill Dozer	m³	1	16	8	153,000	2,040,000
A.2	Wheel Loader-3m ³		1	16	8	115,000	3,264,000
A.3	Tipper Truck-10m³		10	16	8	74,000	1,114,080
A.4	Water Browser-10,000 Its		1	20	8	74,000	2,049,792
A.5	Roller		1	20	8	76,500	2,562,240
A.6	Grader		1	20	8	90,000	9,244,160

1.5.5 Labor Rate Build up

S/N	Description	Units	Qty of labour force	worker Days	Hrs/Day	Total Cost/ Hr(Ug.Shs)	Total Labour cost(Ug.Shs)
B.1	Supervisor	m³	1	20	5	20,400	2,040,000
B.2	Surveyor		1	20	8	20,400	3,264,000
B.3	Chainmen		3	20	8	2,321	1,114,080
B.4	Operators -Dozer & WL		2	16	8	8,007	2,049,792
B.5	Operator-Grad &Roller		2	20	8	8,007	2,562,240
B.6	Driver-Tipper		10	16	8	7,222	9,244,160
B.7	Driver-Water Bowser		1	20	8	7,222	1,155,520
B.8	Labourer		7	20	8	2,321	2,599,520

S/N	Description	UNIT	Qty of Eqp/ Lap Force	Work days	Hrs/day	Total cost per hour (Ug.Shs)	Total Materials cost (Ug.Shs)	Total Labour cost (Ug.Shs)	Total Plant cost (Ug.Shs)
A.	Plant								
A.1	Plant		1	16	8	153,000			19,584,000
A.2	Bulldozer 06		1	16	8	115,000			14,720,000
A.3	Wheel loader 3m3		10	16	8	74,000			94,720,000
A.4	Tipper truck 10m3		1	20	8	74,000			11,840,000
A.5	Water Bowser 10,000lts		1	20	8	76,500			12,240,000
A.6	Roller		1	20	8	90,000			14,400,000
	Grader								

В	Labour							
B.1	Supervisor	M3	1	20	5	20,400	2,040,000	
B.2	Surveyor		1	20	8	20,400	3,264,000	
B.3	Chainmen		3	20	8	2,321	1,114,080	
B.4	Operators Dozer &WL		2	16	8	8,007	2,049,792	
B.5	Operator-Grader & Roller		2	20	8	8,007	2,562,240	
B.6	Driver –Tipper		10	16	8	7,222	9,244,240	
B.7	Driver-Water Browser		1	20	8	7,222	1,155,520	
B.8	Labourer		7	20	8	2,321	2,599,520	

C	Material	Unit	Quantity	Cost (Ug.Shs) /Unit			
C.1	Gravel	M3	7,350	3,125	22,968,750		
C.2	Water	Lts	1,470,000	5	7350000		
	Total				30,318,750	24,029,312	167,504,000

1.5.7 Calculation of the Rate per CM for inserting in the Bill item

Description	Total Material Cost (Ug.Shs)	Total labour Cost (Ug.Shs)	Total Plant Cost (Ug.Shs)	Total Cost (Ug.Shs)
Total	30,318,750	24,029,312	167,504,000	221,852,062
TOTAL QUANTITYY - (M3) 7,350				
unit rate (USHS)/m3	4,125	32,269	22,789	30,184

Opinion

How to Make Investment in the Construction Sector Development Inclusive.

By: Dr Dan Tindiwensi (BSc. Eng (Civil), MSc. Con. Mgt., PhD)



The Role of Government

It seems there is a theoretical framework crisis in donor dependent economies (DDEs) in regard to construction industry development (CID). There is a struggle between the objectives of infrastructure delivery and those of local capacity building.

On the one hand, there is need to deliver infrastructure services, i.e. access donor funds despite some 'bad' conditions, execute the projects despite lack of local capacity, hoping that the infrastructure developed will stimulate economic activity hence develop local capacity later. On the other hand, there is need to build local capacity, deliver increasingly more proportions of infrastructure locally, retain and re-invest the donor funds more within the economies, hence benefit from the multiplier effect.

The managers of DDEs have favoured the former rather than the latter for obvious reasons, but with very little success if any. For example, there are no vibrant local capacity and no strong civil society institutions in these economies. An alternative theoretical framework upon which DDEs can base their CID policies and programmes is therefore urgently required. The government(s) in DDEs must play an active role in stimulating local participation on large infrastructure projects in addition to the traditional role of boosting aggregate demand.

In fact, the construction industry has been variously used as a transformation tool for the economy by different countries. For example, Singapore faced with shortage of land for housing and the lack of natural building materials

like sand and stone, decided to make construction quality the thrust of its CID activities. South Africa continues to use the construction industry to address the economic imbalances of its apartheid past. Malaysia has opted to make construction a high quality, high technology industry responsive to the environment in order to attract and retain skilled manpower as a basis for it competitiveness. United Kingdom has used stimuli for quantum leaps in construction to address moribund trends in skills and technology through revolutionary industry studies, e.g. the Egan (1998) and Latham (1994) reports.

Success Stories

The following sections present some construction industry development efforts in countries where some level of success has been achieved:

1. Singapore (http://statutes.agc.gov.sg)

The Construction industry development board (CIDB) in Singapore was established by an act of parliament in 1984 and revised in 1987. The functions of the Board are:

- To promote the development, improvement and expansion of the construction industry;
- To facilitate and assist in the mechanisation of the construction industry;
- To advise and make recommendations to the Government on matters affecting or connected with the construction industry;
- To promote proper standards and efficiency in the construction industry by encouraging the standardisation and improvement of construction techniques and materials;
- To provide consultancy and advisory services with respect to construction works;
- To keep under review the training requirements of the construction industry and assist in providing training facilities;
- To promote the advancement of the skills and expertise of persons engaged in the construction industry; and
- To promote or undertake research into any matter relating to the construction industry.

The Board has power to do anything for the purpose of discharging its functions under the Act, or which is incidental or conducive to the discharge of those functions and in particular, but without prejudice to the generality of the foregoing, may:

- Provide financial assistance in the form of grants, loans or otherwise to persons engaged in the construction industry and provide any guarantees on their behalf;
- Promote and assist in the export of services to carry out construction works overseas:
- Organise courses and award diplomas and certificates of proficiency;
- Form or participate in the formation of a company;
- Enter into a partnership or an arrangement for the sharing of profits;
- Charge fees or commissions for services rendered by the Board:
- Promote or undertake publicity in any form; and
- Do anything incidental to any of its powers;

Some of the major revolutionary undertakings of the CIDB Singapore include the Construction 21 national long term strategy and agenda for transformation of the Singapore construction industry by the year 2000 and the Construction Quality Assessment Scheme (CONQUAS).

2. South Africa (http:www.cidb.org.za)

Construction plays a vital role in South Africa's economic and social development. It provides the physical infrastructure and backbone for economic activity. It is also a large-scale provider of employment. The legacy of apartheid has, however, left the South African construction industry with a number of development and transformation challenges. These include:

 Improving effectiveness of public sector spending on physical infrastructure development and maintenance.



- Improving labour absorption, labour relations and job stability.
- Accelerating sustainable transformation through access to opportunity, finance and training.
- Reducing the impact of HIV and AIDS in construction
- Ensuring international competitiveness.

In 1997 Government published the green paper on "Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry" paving the way for establishment of the CIDB. The CIDB Act (Act 38 of 2000) was passed in October 2000 establishing the CIDB mandate to lead stakeholders in construction development.

The Construction Industry Development Board (CIDB) - a Schedule 3A public entity - was established to promote a regulatory and developmental framework that builds:

- The construction delivery capability for South Africa's social and economic growth.
- A proudly South African construction industry that delivers to globally competitive standards.

The CIDB's focus is on:

- Sustainable growth, capacity development and empowerment
- Improved industry performance and best practice
- A transformed industry, underpinned by consistent and ethical procurement practices

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- Establish a national register of contractors and of construction projects to systematically regulate, monitor and promote the performance of the industry for sustainable growth, delivery and empowerment.
- Promote improved delivery management capacity and the uniform application of procurement policy throughout all spheres of Government.
- Promote improved performance and best practice of public and private sector clients, contractors and other participants in the construction delivery process.
- Promote sustainable participation of the emerging sector.
- Provide strategic direction and develop effective partnerships for growth, reform and improvement of the construction sector.

...the full paper can be accessed on our website @ www.unabcec.co.ug

The World's 25 Most Impressive MEGAPROJECTS

Source http://www.popularmechanics.com

In this 2 part series, we shall explore the world's biggest and boldest construction projects. Look out for Part 2 in the next issue. Now feast your eyes and senses on the planet's most extreme projects.



Panama Canal Expansion, Panama

Time to build: 11 years
Cost to build: \$5.25 billion

The Panama Canal is so 1914. That's why the expansion project, set to complete in 2016, will carve out a new 3.8-mile-long channel for new locks—which require 4.4 million cubic meters of concrete—and widen and deepen what is already there. Ships have grown a lot over the past century, and so the world's most famous canal must do the same to keep pace, even if that does mean whittling away more of Panama.





2. Three Gorges Dam, China

Time to build: 17 years Cost to build: \$22 billion

We can't even comprehend the amount of concrete needed to construct the world's largest dam. Standing on China's Yangtze River, this 17-year, \$59 billion project measures 595 feet tall, 131 feet wide, and more than 7,600 feet long, with 32 main turbines producing electricity.

3. Port Mann Bridge, Vancouver, B.C.

Time to build: 6 years Cost to build: \$1.93 billion

The widest bridge in the world (until the Bay Bridge's east span recently opened), the bridge east of Vancouver, B.C., which opened in 2012, remains the second-longest bridge in North America. The cable-stay bridge uses an impressive 288 cables to reach a total bridge length of 6.866 feet.



4. Aizhai Suspension Bridge, China Time to build: 5 years Cost to build: \$600 million

The world's highest bridge, connecting two tunnels in China, is also one of the world's longest suspension bridges. Opened in 2012, the bridge sits 1,200 feet over the Dehang Canyon and spans a tower-to-tower distance of 3,858 feet. The mountains on either side anchor the suspension towers.



5. FFR Grand Stade, Paris Time to build: 4 years Cost to build: \$552 million

Retractable roofs are nice. Retractable fields, too. Put them together and add 82,000 seats and the rugby federation of France will have a nearly mobile stadium on a giant scale located south of Paris. The two million-square-foot venue will become one of the largest stadiums in all of Europe, including serving as the largest roofed entertainment venue. And one of the most moving.





6. Jubail Industrial City, Saudi Arabia Time to build: 10 years Cost to build: \$11 billion

The ongoing expansion of a city built from the sand up starting in the 1970s required plenty of logistical planning. The project, located in the Eastern Province of Saudi Arabia, is undergoing an \$11 billion expansion to update all things industrial. The four-phase project over nearly eight square miles includes eight blocks of industrial plants, four blocks of petrochemical industry, three blocks of support industries and four blocks of aluminum and other smelting plants. And that doesn't even include removing hills, building tunnels, expanding fiberoptics, building highways and using seawater for daily cooling.

7. Marmaray Tunnel, Turkey Time to build: 9 years Cost to build: \$4.5 billion

It took nine years and \$4.5 billion to build, but the 47-mile underwater railway tunnel connects the European and Asian sides of town, giving Istanbul a new rail line into and out of the city when it opened in 2013.





12. Hong Kong-Zhuhai-Macao Bridge, China Time to build: 7 years Cost to build: \$10.6 billion The incredible scope of this mega-infrastructure project includes a 16-mile bridge-to-tunnel structure, with the tunnel portion spanning about four miles. Two artificial islands for the tunnel landings will help engineers create both the tunnel section and anchor the bridge portions, which will connect Hong Kong and the mainland via a megacrossing.



8. Liuchonghe Bridge, China Time to build: Unavailable Cost to build: Unavailable

Opened in 2013 with a 1,437-foot span, the second-highest cable-stayed bridge in the world rises 1,100 feet above the Liuchonghe River. With one of the river canyon's walls acting as a virtual cliff and the two towers sitting above the canyon—one at 623 feet tall and the other 517 feet—you can expect some crazy views if you visit here.

9. London Crossrail, London Time to build: 11 years Cost to build: \$23 billion

London continues to grow underground. Eight tunneling machines recently wrapped up 26 new miles of tunnel for new subway track that will connect 40 stations—including 10 completely new ones—to improve transportation in England's largest city.

10. Songjiang Hotel, China Time to build: 2 years Cost to build: \$538 million

Don't mind the waterfall. It's a key feature of this hotel built into a 328-foot-tall quarry outside of Shanghai. The 19-story hotel will have the waterfall cascading down the middle and two hotel floors that are entirely underwater.

11. Hyderabad Metro Rail, India

Time to build: 14 years Cost to build: \$2 billion

It will take all of the \$2 billion-plus to create a new, elevated Hyderabad Metro Rail system in India. With initial phases nearing opening, the 46-mile light rail system will modernize an entire region. Elevated stations will appear every kilometer and are expected to handle 15 million riders, with trains arriving at stations every three to five minutes. With trains running at an average of over 20 miles per hour, all technology—track, stations and support—will run above ground.





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The company **MASSENZA** is one of the worldwide leaders in bitumen handling equipment with more than 70 years experience. Based in the North of Italy – some 100 km south of Milan – the Italian firm was founded almost 100 years ago and since then has been continuously managed by the Massenza family, actually successfully reaching the 4th generation. New partners have also been included in the company improving its structure and for sure greatly contributing to keep such a high team spirit alive over decades.

The business activity had always been focused on the export, with the aims of keeping the customers satisfaction as a key target and always offering top quality standards for all products manufactured. The involvement of the company in the bitumen business started in the late Fifties, when the management decided to build a simple, efficient and integrated system for hot bitumen storage further to the request of one of the major oil companies in Italy.

Since then, a lot of different developments followed and several new equipments/plants were designed and successfully marketed worldwide.

Actually the overall products range can be split into the following main product lines:

- Bitumen, emulsions and cut-back sprayers and transport tanks;
- Bitumen storage facilities (e.g. horizontal and vertical bitumen and emulsion tanks, hot oil heater, etc.).
- Drums and bags melting units;
- Cut-backs plants;
- Bitumen emulsion plants;
- Polymer Modified Bitumen (PMB)
 Plants:
- Machines for road maintenance and repairing

MASSENZA company proudly claims to be a leader on all these different items, thanks to the innovative technology and the advanced concepts developed on both the engineering and production side. Its extensive knowledge, built up trough uninterrupted research and field experiences, has resulted in a wide range of reliable and top quality products.

Provided that bitumen sprayers represent one of the key businesses, for which **MASSENZA** is well known worldwide, over the last years the company put a major effort to implement a specific innovation able to ensure breakthrough performances and meet the highest quality standards.

The result, called "C" model, is a more advanced and modern unit where the conventional heating system by direct flame has been replaced by a thermal oil heater installed on board. The hot oil circulates through the coils inside the tank as well as through the jacketing system of both bitumen pump and spray bar by means of an hydraulically driven pump.

Such solution brings to the users the following key advantages:

- Preserving bitumen quality, thanks to a much more gentle heating up of the bituminous product, avoiding the overheating occurring with the direct flame (especially in the first section of the piping, where temperatures can raised up to even 400 to 500 °C);
- Having a unit ready for emulsion spraying too, thanks to no risk of overheating the product at more than 100°C, what would result in water boiling and emulsion premature breaking;
- Providing accurate control on the temperature, effectively kept inside the tank;
- 4. Improving pump operation and lifetime while reducing maintenance,



by keeping it hot and free from cold bitumen deposits;

- 5. Ensuring constant and perfect dosage of the product on the road, thanks to a quicker and more efficient cleaning of the spray bar against the use of diesel oil and compressed air;
- Operating more easily and more efficiently, provided that with one operation (turning on) you perform both product heating and spray bar cleaning

The highest performances of such a unit can be achieved by installing a special computer cab – made by MASSENZA – able to ensure a perfect control on the product applied on the road. As a matter of fact, this system continuously and automatically adapts the spraying pressure accordingly to the truck's speed: in such a way the operator can drive the truck at variable speed while the computer automatically adjusts the spraying pressure for ensuring a constant dosage.

Let us together enter in a new era for bitumen sprayer technology!

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It comes as no surprise that the world agrees with what we already know; that Nile Special has a truly rich satisfying taste. One that

over the years, has earned Nile Special 12 Gold Medals and 3 Grand Gold Medals at the prestigious Monde Selection Quality Awards.

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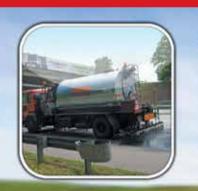
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LOOKING FOR A SPRAYER?

MASSENZA

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