MAN OF THE MOMENT: PS CHARLES HINGA | NSSF: THEIR ROLE IN SOCIAL HOUSING

NCA QUARTERLY

THE BIG FOUR AGENDA

AFFORDABLE HOUSING
GOOD buildings come from people
all problems are solved by GOOD design
Environment Management in the Construction Industry

National Housing Corporation

Why Buildings Collapse

BAMBURI CEMENT
A Solid Manufacturer of Eco-friendly Green Cements

TRENDS
Launch of ICoRCE 2018

Affordable Housing: An Interview with PS Charles Mwaura

Status of the Built Environment

Eco Tiles
How a small Nakuru business is offering greener, affordable roofing solutions

REGULARS
Holographic projection making waves in the industry

OPINION
Why the matatu ban, on its own, will not work
“The Big Four” and “Affordable Housing” were undoubtedly the buzz phrases of the construction industry in 2018. With billions of shillings at stake and hundreds of thousands of lives set to be transformed, we can certainly understand why.

We caught up with the man of the hour, Housing Principal Secretary Charles Hinga Mwaura who briefly laid out his plan of action, and addressed the issues of land availability, supporting legislation and end user benefits. Read more on page 18.

The National Housing Corporation has been in existence since before Kenya’s independence, and has been responsible for the development of many housing schemes across the country. The Corporation has faced several challenges over the years, and MD Andrew Saisi is fighting hard to ensure NHC remains relevant and effective. He spoke to us about current and future projects as well as the Corporation’s role in the Big Four agenda, as detailed in our feature on page 12.

One of the biggest concerns surrounding the Housing agenda has been the issue of funding: where will the Government source the funds to back up the most ambitious housing project we have witnessed since independence? On page 34, we examine NSSF’s role in bridging that financial gap.

The Authority conducted a research into the failure and collapses of buildings in Kenya, whose findings provide illuminating revelations that will inform the future of construction policy in Kenya. Read more on page 18.

Towards the end of the year, there was a lot of talk about riparian lands, which led to the demolition of a few projects that had encroached on said land. On page 26, read about NEMA’s environmental policy and how construction with regards to the environment can be better managed.

As always, we welcome your thoughts, opinions and contributions towards relevant issues within the construction industry. Have your say via quarterly@nca.go.ke .
Samson Mulondo

Samson Mulondo is a Compliance officer with the National Construction Authority. He has a degree in Civil Engineering from Makerere University and is a holder of PRINCE2 project management certification. He is passionate about entrepreneurship in the Construction industry.

William Maranga

Holds a Bachelor of Commerce Degree with a concentration in Marketing and Communication. He is also pursuing a Bachelor of Mass Media and Communication with a concentration in Corporate Communications. He has gained vast experience in media relations, public speaking and presentation, communication strategy formulation and advanced writing.

Brighton Amwayi

A communications graduate with a wealth of experience in the field. He is passionate about strategic and development communication and has previously worked with the Kenya Institute of Curriculum Development and the Kenya News Agency. Mr. Aamwayi also has a keen interest in ICT applications especially videography and media studio management.
The road to hell is paved with good intentions, they say. On 4th December 2018, twenty four hours after the ban of public service vehicles (PSVs) in the Central Business District (CBD) was effected, the Nairobi City County Governor suspended it in order to “facilitate further consultation with affected parties in order to find a lasting solution to the problem of vehicular congestion.” Pictures splashed across social and mainstream media showed hundreds of commuters walking in the cold and the day long traffic jam became a public relations nightmare.

The Governor’s concern for “senior citizens and those with health challenges requiring emergency medical attention, expectant mothers and children travelling with their parents”, as per his statement, belied his other claim that the ban was undertaken after “months of planning as well as public and stakeholder participation.”

The traffic gridlock was a result of several factors: more commuters using their private vehicles; pedestrians blocking lanes as they trekked to town, and matatus haphazardly using their designated drop off points.

This is the second major disruption to the matatu system after increased bus fares on November 12, when the infamous Michuki rules were enforced by the government.

In all fairness to Governor Sonko, the directive was published by former Nairobi Governor Evans Kidero in May 2017, but was shelved to September that year due to electoral politics.

The matatu problem
Matatus, the slang term given to privately owned public service vehicles, have always been a convenient lightning rod for complaints about the city’s transportation problems. They are ubiquitous, loud and colorful, and they seemingly operate by their own traffic rules, National Transport Safety Authority (NTSA) and Michuki rules notwithstanding. Claims that they are owned and protected by criminal cartels and rogue police officers do not help their perception among the public. However, as the major form of public transportation to (and within) the city, any plan to get rid of them will have to be a well-thought, properly executed one.

It is possible to decongest the CBD, or at the very least improve the situation from what it is, without eliminating matatus altogether.

Political Challenges
Nairobi County has been plagued with a quick fix mentality; leaders make plans according to the electoral cycle, which usually kicks in two years after the previous elections, scampering wonderful plans by policy makers. If the matatu industry is in tatters, and transportation at
large, it is because of this failure of political good will. Vision 2030, Millenium Development Goals and other goals are being held hostage to a lack of political good will.

A transportation plan that will survive the occupant of City Hall and his successor’s whims cannot be overlooked if improving transportation is the aim. Kenya’s obsession with several public bodies overseeing one area of development, replete with overlapping functions, hampers progress. Nairobi County (through its transport executive), Nairobi Metropolitan Area Transport Authority (NAMATA), National Transport and Safety Authority (NTSA), Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works and the Kenya Police Traffic Department all have a role in overseeing the transport sector. One policy objective would be to seek how to minimize duplication of roles for better policy development and supervision of development plans.

**Thinking short, mid and long term**  
It is commendable that Governor Sonko has decided to go back to the drawing board. It is important to put matatus into a larger framework affecting transportation: inadequacy of the current infrastructure with regards to current demand and future urban growth, lack of viable and affordable transport alternatives for the mwananchi as well as management of the city’s transportation infrastructure.

Short term activities may include mapping of the major transportation routes, their feeder roads, the populations served by these routes and the average number of cars, buses and motorcycles. This information will allow the Government (national and county) to develop an idea of the overall transportation position and will guide the planning process.

Decongestion in the short term will include raising of parking fees and introduction of access fees to the city for both private vehicles and PSVs (matatus and buses).

In the mid-term, once the major points of convergence from the outskirts of the city all the way to the CBD have been determined (like rivers and their tributaries), the county can begin moving the matatus from the CBD, replacing them with larger capacity buses, progressively moving them further from the city as more buses are allowed on the roads to meet demand.

Still, in the mid-term, the county and its partners can then work out the suitability of Bus Rapid Transit (BRT) compared to light rail systems, using economic models and cost-benefit analysis. Whichever system is implemented (or both) will eventually form the core of transportation within the city. Execution frameworks, in conjunction with development partners, can then be developed.

In the long term, the county can finally implement the BRT and light rail systems in the city. This will include construction, operation and maintenance. Six countries in Africa (Algeria, Egypt, Ethiopia, Morocco, Nigeria, and Tunisia) already use light rail as one of the components of the transport system. BRT systems are currently in operation in Nigeria, South Africa, Tanzania, Morocco and Ghana.

**A harsh lesson**  
Walking isn’t bad; to the contrary, a few thousand steps daily are recommended by doctors, and the hilarious comments on the need for weight loss among Nairobiains were welcome. Nonetheless, the masses huddled together as they marched to town highlighted the need for alternatives before banning the primary service residents rely on for movement in the city. We hope the county has learned its lesson.
The National Construction Authority successfully held the International Construction Research Conference and Exhibition (ICoRCE), the premier event of its kind in East and Central Africa, between 7th and 9th November, 2018 at Kenyatta International Convention Centre, under the theme ‘Harnessing the Potential of the Legal and Institutional Framework for Inclusive and Sustainable Growth in the Construction Industry.’

In addition to the main conference and exhibition, which attracted over a thousand delegates and almost ten thousand visitors, this year saw the introduction of the Kenya Government Pavilion, a mini exhibition featuring key state agencies involved in the construction industry value chain. The purpose of the Pavilion was to assist both existing and potential investors to navigate their way through the construction industry’s statutory and regulatory requirements, and included the Office of the Attorney General, the National Environment Management Authority, the Kenya Bureau of Standards, the Energy Regulation Commission, the Public Procurement Regulatory Authority, the State Departments of Housing, Public Works, Immigration and many more. Another significant addition was the Construction Industry Business Forum (CIBF), a forum targeting business persons and investors in the industry aimed at generating conversation on opportunities as well as fostering progressive partnerships through pre-scheduled business to business meetings. The forum allowed participants to expose their brands, brainstorm on challenges and possible solutions as well as generate constructive business leads, both locally and internationally.

State Department of Public Works Principal Secretary Professor Paul Maringa presided over the official opening of ICoRCE while representing Transport Housing Infrastructure and Urban Development Cabinet Secretary James Macharia.

In his speech, Prof. Maringa noted that the conference was taking place at a time when Kenya has moved up 19 places to 61st position in the World Bank Ease of Doing Business Report as a result of concerted efforts within government to improve access to credit, protect minority investors and merge all required permits as much as possible in order to ease up on levies charged and time spent on construction approvals.

Speakers at the conference were mainly drawn from government institutions with legal inclinations in their respective mandates. The keynote address, delivered by Kenya’s Solicitor General Mr. Kennedy Ogeto, highlighted the fact that the conference was timely, given one of the pillars of the Government’s Big Four Agenda is housing.

Mr. Ogeto also underscored the importance of the draft Built Environment Practitioners Bill 2017 which he said would act as an effective solution to issues facing the construction industry such as lack of coordination between relevant stakeholders in enforcement of the available construction laws.

The event enjoyed the patronage of political leaders, with Nairobi Senator Johnson Sakaja graceing the CIBF Delegates Cocktail and Elgeyo Marakwet Senator and Senate Majority leader Kipchumba Murkomen visiting the exhibition booths.

ICoRCE 2018 attracted over a thousand delegates and over two hundred exhibitors.

Conference delegates participated in the site visits to Ol Karia Geothermal plant, the Affordable Housing Village, The Standard Gauge Railway’s Ngong Tunnel, China Wu Yi factory and the Crystal Rivers mixed commercial and residential development by the Safaricom Staff Pension scheme.

The next edition of ICoRCE will be held in 2020.
Public Works Principal Secretary Prof. Paul Maringa declared a zero tolerance policy on defying of suspension notices by developers across the country.

Speaking at his office at the Public Works building in Nairobi on November 26th, 2018, Prof. Maringa stated that the government will not compromise on non-compliance with the law.

“It is important that we ensure the law is followed throughout the construction process so that we protect lives and livelihoods. We have developers who have been behaving like they are above the law but today I want them to know that nobody is above the law and that under no circumstances can an illegality be legal.”

Prof. Maringa further urged members of the public to cooperate in the process at their respective levels. “We’ve shared part of the list of notorious contractors and developers so that you in the media can inform the public and so that the guilty can stop pretending they don’t know that they are breaking the law. If by chance you had built your structure without following due process, it won’t automatically be demolished; you can apply for regularisation through National Construction Authority or even the State Department of Public Works. If your structure is sound, it will be given a clean bill of health and you will not have to hide all the time,” he added.

Currently, the construction process begins with approvals from the respective county government, as well as the National Environment Management Agency (NEMA) and the Water Resources Authority (WRA) where applicable. The National Construction Authority conducts quality assurance on the construction sites, checking for compliance with seven guidelines: a registered contractor on site, accredited construction workers, personal protective equipment for those working on site, registration of projects, site boards showing full approvals and consultants engaged in the project as well as safety signage on site.

The Land and Environment Court has been instrumental in assisting the Authority with enforcement, issuing court orders barring developers from proceeding until they have complied with all regulations. NCA is also in the process of amending its enabling Act to enhance enforcement powers.

“The ongoing demolitions are a demonstration of the Government’s commitment to protecting its citizens from shoddy construction,” Prof. Maringa said. “Rest assured we will not rest until full compliance with the relevant legislation is attained.”

The list of suspended sites can be viewed on www.nca.go.ke.
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“Currently, we have over 3,000 construction sites that have defied suspension notices by the National Construction Authority, a majority of them being in Nairobi County, especially in informal settlement areas such as Huruma, Githurai or Gachie. Copies of all suspension notices are shared with the county government, the Kenya Police Service as well as the Directorate of Criminal Investigations,” Prof. Maringa said. “All developers are put on notice that all measures necessary will be taken to ensure they comply with the law. We are working closely with the enforcement agencies to ensure the same.”

Also speaking at the conference was NCA Acting Executive Director Eng. Maurice Akech, who appealed to all developers to comply with the laws governing the sector. “NCA publishes a list of all construction sites that have defied suspension notices on the Authority’s website to aid transparency when it comes to quality assurance, part of which has been shared by the PS,” he said, continuing, “majority of all sites that have been suspended do not have a registered contractor, nor the necessary consultants such as the engineers or architects. This is a recipe for disaster, because it means that construction is meant to progress with no supervision, which is what leads to structural collapse. From the list we’ve shared, you can see that majority of the notorious sites are proposed residential developments meant for occupation by members of the public. If we do not act, all these houses pose a threat to potential occupants.”

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**NCA Quality Assurance Compliance Guidelines**

1. Registered contractor on site
2. Accredited construction workers on site
3. Personal protective equipment for those working on the project
4. Registration of the construction project
5. Hoarding of the site
6. Site board showing full approvals and
7. Safety signage on site

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Andrew Saisi

The man at the helm of the National Housing Corporation speaks on the path to realising the Big Four (Housing) Agenda

Words by Brighton Amwayi
The NCA Quarterly

Our appointment is for 9:00 a.m. and at exactly 8:55 a.m. I am ushered into Andrew Saiši’s 10th floor office at N.H.C. House in Nairobi’s Central Business District. The soft spoken engineer has been at the helm of the Corporation as Managing Director since September 2015, having first joined in 2011 as General Manager of its Extended Polystyrene (EPS) factory.

I spoke with him at length about N.H.C.’s role in the affordable housing pillar of President Uhuru Kenyatta’s Big Four Agenda.

What is the mandate of the National Housing Corporation (N.H.C.)?
NHC as established is the implementer of Government policy on housing, whose target then was primarily the low cost housing, an area where the private sector shies away from. Due to changes in demographics, we’ve diversified a little bit. Currently we provide affordable and decent housing for Kenyans and determine innovative ways of providing housing solutions through the use of alternative building technologies, which is why we have the Expanded Polystyrene factory.

What is the enabling law or laws that N.H.C. operates under?
The instrument that enables N.H.C. is the Housing Act, CAP 117. It came into effect in 1967. This has been revised over the years to meet the ever changing housing needs of the country.

What are the challenges currently facing the Corporation?
N.H.C. is tasked with the delivery of social housing projects, and in the same vein considered a commercial entity. When you put these two aspects together, there is somewhat a mismatch. With social housing you are looking at people who cannot afford to pay upfront for a house and would wish for a flexible payment plan, which is low interest and long term. Such funding unfortunately is not easy to come by, given that the Corporation is not funded through the Exchequer. We have to seek alternative sources to fund our projects, which is quite a challenge.

Often, we open up green fields or brown fields where there is limited or no infrastructure at all. We have to put in the supportive infrastructure which then adds to the cost of the houses. This causes the public to ask why our houses are more expensive compared to those built by other developers, because there is a lack of understanding of just how much more N.H.C. injects to develop these houses.

So there is an element of the public not understanding the terms under which you implement your projects?
Yes. The best example is along Lang’ata Road where N.H.C. has constructed estates such as Otiende, Ngei, Onyonka, Uhuru Gardens, Nairobi West, Madaraka, Jonathan Ng’eno, at the EPS factory located in Mavoko and Stoni Athi amongst others. We did the roads, canalization of river, the water and the sewerage. The private developers easily plug to the sewer line, water, power and road at minimal cost differential.

Another major challenge is that prior to the promulgation of the constitution, NHC had partnered with the Local Authorities. Housing schemes across the country were built using funds lent to the respective municipal councils by the Corporation. At the time of

“ We also have a basket of projects in the pipeline across the country whose master plans we’ve done and that are going to revolutionize how we do housing ”

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amendment, many municipal councils had not cleared their outstanding loans with NHC. Their successors, the County governments, are shy to settle the liabilities of the respective defunct Municipalities despite holding on to the assets, save for Kakamega and Embu Counties who have since paid up. Currently, County governments owe us in excess of KShs.1.5 billion, money which, if recouped, can be channeled back into our current projects and services.

**Do the Counties give reasons for not paying back?**
They argue that there was no clarity from the then Transition Authority on how they should proceed in assuming the liabilities from the Municipal Councils.

**Does the Corporation have plans to address that?**
Yes, we are working closely with the Counties. Trans Nzoia for instance was ready to pay us, prompting a reconciliation exercise between us. The reconciliation audit was carried out by the successor of the Transition Authority, the Intergovernmental Relations Technical Committee (IGRTC). Once that is concluded, we hope to adopt it as a blueprint for settling accounts with the rest of the Counties.

**What are the achievements of N.H.C. since you came in?**
The EPS factory is a great achievement not just for N.H.C. but for the whole country in the sense that we provide innovative building material for construction. I say so because with the recent ban on logging, timber used for construction has become expensive compared to steel. This is the same case with stone which seems really cheap in the short term but if the environmental and social impact of stone quarrying is factored in, quarrying in the long term will not be sustainable.

The Kenyan construction scene is very conservative and has a fixation with stone. With the EPS factory, we were able to get the public to appreciate alternative building technologies. This has spurred at least four other independent factories that manufacture alternative building materials since 2011.

We also have a handful of projects in the pipeline across the country whose master plans we have done and are likely to revolutionize how we view housing in Kenya. We are moving from looking at housing singularly and developing bigger, sustainable communities. One such project is Stoni Athi where we intend to put up a sizeable settlement on land we own. It is yet another green field that we will open up and build all the social amenities including schools, recreational facilities and commercial centers. Once complete, the development will host a population upwards of 24,000 people. Other master plans are ongoing for Mombasa and Eldoret. We aspire to be futuristic in our plans and in what we do. This will ensure our projects are bankable and attractive to investors.

It is not unusual for an organization to go through a rough patch. We had our moment and are now on the rebound with a positive outlook. Leveraging on this, we purpose to be more responsive to the needs of our clientele and stakeholders. Further, our assets have doubled from what we had before. This new found asset base gives us a stronger ability to go out into the market and mobilize resources for purposes of fulfilling our mandate.

**How does your mandate marry with the Big Four agenda on providing affordable housing?**
N.H.C. has been in existence since 1953. Most of the houses in Nairobi Eastlands which were developed by N.H.C. are a perfect example of affordable housing. The agenda targets low income earners and blends seamlessly with our mandate which we are eager to see actualized.

**Do you consider the Affordable Housing viable?**
Yes it is. The undertaking is viable as the target beneficiaries, funding and product have been predetermined.

Additionally, viability shouldn’t be viewed from the monetary perspective only. The larger socio-economic impact will be...
significant and positive to the country.

What are the foreseeable challenges that the Housing Agenda may face and how they can be mitigated?

Funding was the major challenge. However, recent legislative amendments creating the National Housing Development Fund have birthed a sustainable mechanism that guarantees the realization of the Affordable Housing Pillar.

Secondly, identification of the beneficiaries is key to ensuring that the program is not abused otherwise it would defeat its purpose. Default on repayments, if any, will be addressed through existing structures in place as well as enforcement.

Do you think Kenyans have it within themselves to comply or should something be done prior, say perhaps civic education?

The public is by and large compliant. Default has an impact on the sustainability of low cost housing. What should be understood is that the enforcement and provision of housing be it rental, tenant purchase or mortgage is for the benefit of all Kenyans.

Why do you think land is very expensive in the country and how can that be resolved?

Not all land is expensive; high prices are reported in urban and densely populated areas and a lot of people, mostly low income earners migrating to urban areas in search of greener pastures. Optimal usage of land is key. Urban areas must embrace high rise buildings. The stakeholders must address the challenges or limitations that deter vertical development, which would ultimately ease this pressure and release more land for more housing developments to cater for the masses.

What do you think will be the impact of the Housing Agenda if fully implemented?

May I reassure the public that the Affordable Housing agenda is a reality and is under implementation. There is no completion with regards to this programme. The planned number of units will be delivered but we cannot term that as completion because after 5 years, the population will have grown and there will be increased urbanization.

Instead this agenda is providing a sustainable model that will ensure that with time, the ownership or access to decent and affordable housing is guaranteed to the vulnerable. The resultant economic activities triggered by the increased construction of houses will impact greatly on our economy. Housing programmes of this magnitude have a bearing on manufacturing and jobs, land, by extension food, improved health and the general well being of the Kenyan. The positive impact is immense.

How often should it be replicated?

Like I said, the Kenyan population won’t stop growing at any given point. This is a programme that will be implemented continuously. There will be lessons learnt from each project that will inform subsequent developments.
Karibu upate Huduma!

NCA is now at all 52 Huduma Centres across the country
Big Four Agenda: Affordable Housing

Brighton Amwayi speaks to the Housing Principal Secretary on the country’s most ambitious housing project yet
Affordable housing is one of the Four Agenda.

President Uhuru Kenyatta was announcing his intent to implement one of his campaign deliverables, the Big Four Agenda.

These were President Uhuru Kenyatta’s words in his now iconic speech during the celebrations to mark the 54th commemoration of Jamhuri Day on 12th December 2017. The President was announcing his intent to implement one of his campaign deliverables, the Big Four Agenda.

Affordable housing is one of the pillars of the Agenda, and Housing and Urban Development Principal Secretary Charles Hinga Mwaura is the man tasked with spearheading its implementation. The writer spoke to him on the sidelines of a stakeholder’s forum for savings and cooperative societies to get an update on the progress made so far in realising the project.

Q. What is the current status of the affordable housing project in terms of progress?

A big and complex program like this one needs a lot of planning, and also the market needs certainty in terms of what exactly are you telling them. So what we have been doing these first few months is laying that groundwork and we are glad to report that the development framework is in place. We are now engaging various stakeholders so that they can give us feedback as to whether this program works for them because it is important for everyone to understand that we as government are not replacing the private sector. If anything, we are creating an enabling environment for them, but for you to do that you need to be very clear on what you are communicating to the market and that’s what we are doing.

Q. How is the issue of funding going to be addressed?

We don’t have funding as Government, what we have is land. Also, we budget for building the infrastructure. So what

“We will assure business for the cottage industries (jua kali)... we are deliberating on tying that to the offtake agreement. The people in charge of providing capital are aware that if they do not stick to the development framework, then our guarantee to buy back the units at the end of five years will fall away.”
we are doing now with this program is channeling the infrastructure in a more organized way. If say, for example, we are building Park Road, the Ministry of Energy, the Water Ministry or even our sister Department of Roads will all make sure that they’re channeling their infrastructure to that particular project. We will also work with the respective counties to ensure that water and sanitation is in place so that when these units are done there is uptake. Once all this is addressed, money for putting up the units then comes from the private sector.

Q. Land in the country is currently very expensive, which may heighten the cost of the project. Are there any measures being put in place to mitigate this?

For this program, County and National governments will combine their land and in so doing put it at zero cost to the end user. By doing just that, we will lower cost by about 40%. We will also set up the infrastructure which accounts for another 15%. That way you’re talking about 55 to 60 percent of the cost being eliminated. We are also adopting these large economies of scale, wholesale bargaining on key components of cost such as cement. We want to engage the cement industry and buy in bulk. We will negotiate on behalf of the market such that if you are in this program you know that when you go to the cement companies, this is an already negotiated price. That way we can be able to drive costs down.

Q. It has been said that for the program to be realized, laws and legislations have to be changed and/or put in place. Is there progress with regard to this?

There are about 35 legislations and counting that we are working on. Some of them have gone through, through the Miscellaneous Bill, some of them are awaiting the second reading in parliament and some of them at the Attorney General’s office. So they are in various stages.

Q. End user benefits are intended to be part of the process of implementation. How are you going to ensure that people in the Jua Kali sector get to benefit?

We are being very deliberate in tying that to the offtake agreement. Whoever is providing the capital knows that if they do not stick to the development framework then our guarantee to buy back the units at the end of five years falls away. That is how I’m then able to secure and ring fence industries like the Jua Kali. Then from there we can say these Jua Kali markets will make doors, for example. The same way we are negotiating with providers of cement or steel is how we will assure business for the cottage industries in general.

Q. Once the project is seen to its intended conclusion, will there be similar ones going forward?

The Government will continue building houses even after this term of His Excellency the President expires. What we are doing is correcting a systemic problem where people are only building for the high end. As at last year we had a deficit of 1.8 million units; it has probably
now gotten to 2 million because we have not built enough units. If we only achieve our half a million housing target, in the next five years we will have created another half a million deficit. This program is going to create the right kind of scale for investors because you must see this program beyond five years, picture it over the next 20-30 years.

Q. Finally, how is the government going to ensure that on completion, the houses are issued to the people they were meant for?

A process that is free of human tampering is being put in place. The process of allocating houses will be fully automated. My relatives can come and talk to me for as long as they wish but I have no power to allocate those houses. It is transparent. There will be criteria for registration on a first come first served basis and that will favour those who register quickly. The algorithm for the registration platform will also be able to recognize that you have started making payments towards your house. So when we are done, say, with Park Road, we close the window. Then you will have 2000 units that are ready and 10,000 Kenyans that are in contention for their ownership, so we run a lottery and issue numbers to those who get picked for that round. With that you have addressed the issue of allocation but then you still have to do the paperwork and everything else for the transfer. On that, we are going to standardize documentation so that we don’t have the typical discouraging paperwork that you go through when applying for a mortgage. We just want to have a simplified and straightforward process that is of course compliant.

Update:
On September 21st, 2018, President Uhuru Kenyatta approved the Finance Bill 2018, which introduced a 1.5 per cent mandatory levy on all workers’ gross salary. The deductions are capped at Kshs. 2,500 for all workers who earn a basic salary of Kshs. 166,000 and above. Employees are expected to match the deductions, which guarantees a maximum contribution Kshs. 5,000 per worker.

These contributions, set to commence from 1st January 2019, are channeled into the National Housing Fund, and will be accessed through a tenant purchase scheme for those in lower income brackets. For those with higher incomes, the deposits can be used as secured for mortgages.

To qualify, users will register their details with the Ministry of Housing and Urban Development through a soon to be established website. The details, which include bank records and the Kenya Revenue Authority (KRA) Personal Identification Number (PIN), will be used to compute an automated score that will determine the category a user falls under, either low cost housing, social housing or mortgage. Those who earn less than Kshs. 15,000 a month fall under social housing bracket while those who earn between Kshs. 15,000 to Kshs. 49,000 will qualify for the low cost housing bracket. The mortgage bracket caters to those who earn between Kshs. 50,000 and Kshs. 99,000. All home buyers will also enjoy a 15% tax relief on their gross monthly earnings.

An annual lottery will then be held to ensure people do not purchase multiple houses.

Failure to remit the contributions will attract a penalty of 5% of the contributions payable by the employer for each month. Those earning above Kshs. 100,000 a month do not qualify for any bracket under the scheme; however, all contributions and interest accrued will be transferred to their retirement schemes and after 15 years or upon retirement age.

There has been some resistance to the Housing Levy, which has informed the setting aside the proposed commencement date until further stakeholder deliberations.
Be Sure, Jenga Smart

www.nca.go.ke
ENVIRONMENT MANAGEMENT IN THE CONSTRUCTION INDUSTRY

Words by William Maranga
Environmental management plans usually have a scope of ensuring air and water quality, minimal noise and vibrations, maintenance of the geology and nature of soils, conservation of nature and non-interference with the activities of the people and the communities.

The core services of the Authority include registration and licensing of Environmental Impact Assessment (EIA) and Environmental Audit (EA), Environmental Inspection, Environmental Planning, Environmental Reporting, Development of Curriculum for Training of Environmental Impact and Assessment of experts.

Environmental management plans usually have a scope of ensuring air and water quality, minimal noise and vibrations, maintenance of the geology and nature of soils, conservation of nature and non-interference with the activities of the people and the communities. The plans include the procedures for monitoring construction processes, pollution control measures and appropriate environmental legislations. Further, the plans make provision for the identification of risks involved in the aquatic environment, potential pollution pathways and ultimately the alleviation measures.

According to David Ong’are, NEMA’s Compliance and Enforcement Director, the goal of EIA is to ensure that decisions made on the proposed projects and activities are environmentally sustainable.

For water quality and drainage, contractors ought to adopt...
construction management practices that help minimize the dangers of accidental discharge of pollutants from sites into rivers or ponds and contamination of ground waters as well as any other surrounding water bodies. This ensures that there is no contamination of natural water sources used by the community for domestic purposes. During the construction phase, permanent drainage systems should be put in place where possible since they are critical to the control of rising groundwater levels, remediating ground-water contamination and reducing leakage into underground structures such as tunnels and basements. This aspect of water quality and drainage is and should always be considered as fundamental in the environmental management of construction.

In the conservation of nature, environmental managers monitor the ecological environment and ensure that protected species are safe-guarded. Monitoring includes the minimizing of dust levels to ensure the air inhaled by all living creatures is pure, and calls for measures such as proper hoarding of construction sites. Further, construction should not in any way interfere with naturally existing physical features except where unavoidable.

It is inevitable that there will be some noise and vibrations from active constructions sites. These should however be controlled as much as possible. In case the construction activities extend beyond the normal working hours, permission is sought from the relevant authorities and provision should still made not to interfere with the serenity of the environment. NEMA has noise management policies, and the construction industry is no exception to these guidelines.

To aid in the conservation of the environment, certain areas are off-limits for construction. These include riparian lands, road reserves, waterways, high voltage lines, way leaves for pipelines and along railway lines. As seen in Nairobi in the last few weeks, contravention of the same leads to demolition. Riparian lands are unsuitable for construction as they are susceptible to water logging. Areas with major garbage dumping sites are also unsuitable for construction due to the clogging of waterways. Such cases are usually predictable aspects of environmental degradation which can be avoided. In environmental management schemes, there is always a plan to prevent waterways and storm drains from clogging thus reducing the chances of flooding that are a threat to upcoming or already established buildings.

In the Environmental Impact Assessment process, NEMA works with other lead agencies such as Water Resources Authority, County Governments, National Construction Authority, and the State Department of Health whose input is mostly considered during the review of projects’ reports. In relation to the construction industry, one of the approvals required for construction development is the NEMA license which is issued upon successful completion of a social and environmental impact assessment exercise normally conducted by experts who are accredited by the Authority. The experts are normally private practitioners who are hired by developers through a private arrangement though their practice is normally standard and regulated.

There are specific standard requirements that are normally checked during social and environmental impact assessment that include vegetation, proof of land ownership, size of the plot on which the construction should be done and whether it meets the specified requirements, effects on wildlife, proximity to the water sources, the effects to the social environment and waste management during the construction period. Upon completion of the environment assessment exercise, the report is then submitted to the NEMA offices. The mandatory documents that are normally
submitted with the report are approved drawings, title deed, the developer’s Kenya Revenue Authority (KRA) Personal Identification Number (PIN) certificate and their national identity card. NEMA officers then visit the site to do their assessment based on the documentation submitted, prepare a final report and finally issue the license after forty five working days, barring any objections from other relevant authorities.

In January 2017, the EIA fees were set aside through a Presidential directive, meaning that the administration and review of EIA reports is now offered free of charge. However, since EIA reports are done by NEMA’s licensed environmental experts, the owners of the projects still have to pay the experts based on their agreement.

NEMA also conducts site visits before issuing the licenses. Where there is opposition either from members of the public or other entities, the Authority conducts public hearing meetings whose outcome informs the decision taken which could be approval, rejection or approval with conditions. According to NEMA’s Chief Communications Manager Evans Nyabuto, some of the recent projects that the Authority had to conduct public hearing meetings on include the Lamu Coal Power by Amu Power and the Proposed Hotel Suites in Runda, Nairobi, among others. During these meetings, the public and organized groups who will be affected by the proposed project are required to give their views which are recorded and subsequently inform the Authority in making its decisions.

NEMA undertakes routine inspection of all facilities to ensure compliance with environmental requirements such as effluent discharge and waste management. The inspections are undertaken at no cost as this is part of the Authority’s compliance and enforcement duties. In this case, developers are required to give inspectors access to their premises and provide information required.

To aid in the conservation of the environment, certain areas are off limits for construction. These include riparian lands, road reserves, waterways, high voltage lines, way leaves for pipelines and along railway lines. As seen in Nairobi in the last few weeks, contravention of the same leads to demolition. Riparian lands are unsuitable for construction as they are susceptible to water logging.
Be Sure,
Jenga Smart
NSSF’S ROLE IN AFFORDABLE HOUSING IN KENYA

Words by William Maranga
Part of the government’s Big Four Agenda is the construction of at least 500,000 affordable homes in Kenya across the major towns of the country. Creating a housing market that accommodates low-income earners is currently a top priority, making NSSF a critical player.

The National Social Security Fund is a leading investor in the local property market where it holds an investment list of financial assets valued at billions of shillings. These properties include the Social Security Building at Nairobi’s Community area, Hazina Trade Center, Mountain View Estate in Kangemi and Bruce House in Nairobi’s Central Business District (CBD).

The investment of NSSF in property development is regulated by the Retirement Benefits Authority, which allows a maximum of 30% investment in real estate, and this applies to all scheme funds. In recent times, the 30% limit is being exceeded due to the mega projects initiated by the NSSF, particularly towards the realization of the affordable housing agenda.

NSSF has been taking advantage of the housing boom in Kenya, constructing houses for sale such as the 35 million shilling apartments in Milimani. Put up in 2014, buyers flocked to purchase them off-plan. The provident fund of NSSF also developed 1581 apartments in the Nyayo estate in Embakasi, and added 34 floors to the four storey Hazina Trade Center that housed the retail chain store Nakumatt Lifestyle in Nairobi’s CBD. The Hazina Trade Center project had been expected to cost Sh6.7 billion and set to displace Times Tower from its position as the tallest building in East and Central Africa. Further in July 2010, NSSF entered into a deal with Sahal Construction in a bid to put up at least 4000 two and three bedroomed houses in Mavoko along Mombasa Road at an estimated cost of Sh12 billion. These executive apartments marked a departure from the Fund’s focus of developing commercial buildings and homes for middle income earners.

In early 2010, 675 applicants out of 4000 got to own houses in Embakasi area. Of the 675 units, 154 were maisonettes and 520 were three bedroom flats. Other phases in Nyayo Embakasi Estate were also tendered and their evaluations completed before being occupied. Construction of more houses in that year were triggered by the insatiable demand for housing. This soaring demand saw NSSF revise its initial sale terms so as to be able to manage. The initial terms were that the units be sold on a first come first serve basis with potential buyers paying only a 10 per cent deposit on the value of a unit, while the subsequent terms dictated that certain amounts were to be paid under a tenant purchase agreement and rent would service the remaining amount.

Plans are currently underway by the Fund to construct 30,000 low-cost houses in Mavoko, Machakos County that would cost approximately 500 billion shillings. The initial phase will entail the putting up of 8,200 units on 55 acres of land and another 150,000 units on 1000 acres belonging to the NSSF. This would be in an effort to utilize the lucrative residential property market existing there.
More to that, this prospective project is set to be a flagship project under the Kenya Vision 2030. The Fund is currently seeking a joint venture with various partners so as to meet the requirements of the 30% real estate investment cap for pension schemes. Out of the 500,000 houses, at least 30% of them would be in Machakos County. NSSF is also set to launch a large housing project in Kisumu County’s Milimani residential area.

Following the NSSF Act of 2013, members are now eligible for mortgage provision at lower rates after the Treasury allowed the provision of home loans through commercial banks. Henry Rotich, the Treasury Cabinet Secretary made the exemption in a legal notice that now allows pension schemes to put their money in financial institutions with the ultimate goal of securing interest rates for their members. This exemption will allow NSSF to use cash in banks for onward lending to its members at a rate that analysts say would range between six and nine percent based on similar arrangements in corporate Kenya. Under this arrangement, NSSF will receive interest from the cash deposits placed in banks while the lender will get a fee for administering the mortgage scheme on behalf of the Fund’s members. Thus, NSSF is currently free to invest its assets in financial institutions to facilitate lending to its 3.9 million members at an unspecified rate. It is hoped that NSSF will utilize this opportunity to enable low income earners gain access to mortgages, bridging the housing deficit, particularly in the bottom segment of the market.

NSSF is hoping to ride on the new contributory rates developed to boost its cash deposits for capital intensive projects without breaching regulatory requirements.
• The government, in partnership with Japanese International Co-operation Agency (JICA), is planning to construct a 2km flyover. It will link Industrial Area’s Enterprise Road to the City Centre - making it the country’s longest flyover.

• Kiambu, Meru, and Machakos Counties might be the first counties in Kenya to spearhead an initiative that will see these counties raise funds from the public for the financing of their infrastructural projects through the sale of infrastructure bonds.

• The Kenya National Highways Authority (KeNHA) opened Phase 1 of the KSh 39 billion Dongo Kundu bypass in Mombasa. The road links the new container terminal to the airport.

• The government of Kenya through Kenya Electricity Transmission Company (KETRACO), has began plans to electrify US $3 billion Standard Gauge Railway (SGR).

• The Kenya Railways planned to commence in December 2018 the construction of a 22km Standard Gauge Railway (SGR) line costing KSh. 200 million set to link the Miritini passenger terminus to the Mombasa CBD. Plans are also underway to extend the railway line past the Mombasa CBD and to the Mombasa Port with the aim of facilitating cargo transportation to Nairobi.
• Mombasa Port’s second container terminal expansion begun in May 2018 on 100 acres at Kilindini Harbour and is expected to be ready in 2021. This will allow the port to handle an extra 450,000 twenty-foot equivalent units (TEUs) and increase the port’s capacity to 2.1 million TEUs.

• Construction works on US $2 billion High Grand Falls Dam in Kenya, Africa’s second largest dam is set to commence following a resolved procurement dispute which threatened to delay the project.

• Residents of Kitengela are set to construct their own sewer line targeting to service over 100-homes and approximately 20,000 persons. The 45-km sewer line will be funded by residents who are expected to raise a total of KSh 39.0 million towards the project.

• Kenya has activated its largest solar power plant in the semi-arid eastern county of Garissa. The Garissa solar park, capable of generating over 76,000 megawatt hours (MWh) of power annually is currently injecting 15MW into the national grid and will run at full capacity once commissioning tests are concluded. The solar plant is established on 85-hectare - the biggest of its kind in East Africa.

• The government has committed KSh. 40 billion for the provision of requisite infrastructure within Konza City in Machakos County.

• Plans are underway for the establishment of nine major cities along the ongoing KSh 2.5 trillion LAPSSET Corridor. The towns will also include Lamu, Isiolo, Lodwar, and Mandera. Seven of these cities are set to be complete by 2020.
Cement production came in at 2.8 million tonnes in H’1 2018, a 14.2% decline from 3.2 million tonnes in H’1 2017, while consumption stood at 2.7 million tonnes in H’1 2018, a 7.4% decline from 2.9 million tonnes in H’1 2017. This decrease is largely attributable to the slow-down in construction activity during H’1 2018 and the effects of reduced credit supply in the market.

The World Bank released its ‘Doing Business Report 2019’, a report that compares business regulation across economies from 190 countries. Kenya’s ranking in terms of dealing with construction permits dropped four ranks to position 128 from 2017’s position 124. This is due to the prolonged approval process that takes 156 days on average, compared to the Sub-Saharan average of 146 days. Despite the drop in ranking with regard to construction permits, in overall Kenya was ranked as the seventh most improved economy globally and ranked position 61 - climbing 19 points from 2017’s position 80.
Kilimani is the most attractive area for high-rise residential property development in comparison to other high-rise residential nodes e.g. Kasarani and Dagoretti. This is attributable to attractive returns as a result of Kilimani’s proximity to key nodes such as the CBD, Upperhill and Westlands; its vast supply of social amenities such as malls; and continued infrastructural development as seen through the upgrading of Ngong’ Road.

• Karen is the most attractive area for low-rise residential property development in comparison to other low-rise residential nodes e.g. Spring Valley, Runda and Kitisuru. This is attributed to its affordability.

• In terms of retail rental yields accrued, Westlands, Kilimani and Karen areas recorded the highest. This is resultant of the high rents charged based on the duo-factors of the high-quality malls offered and their prime locations.

• In terms of office rental yields accrued, Karen, Parklands and Westlands areas recorded the highest. This is resultant of the high rents charged based on the duo-factors of the high-quality office space offered (mostly Grade A and high-quality Grade B) and their prime locations.

• The most preferred office location for corporates is Westlands. This is due to its proximity to a wider range of upper middle-income to high-end neighborhoods; and the availability of a wider range of high standard social amenities e.g. schools, malls.

• Syokimau/Mlolongo and Baba Dogo areas are the most attractive areas for warehousing services.

• For Syokimau/Mlolongo, the area has close proximity to the airport and its land prices are relatively affordable. For Baba Dogo, the area has close proximity to the Thika Superhighway and the Eastern Bypass.

• In overall, the hotel and tourism property sector experienced improvement in 2018. This is evidenced by the increased entry of international brands such as Marriott, Accor Hotels and Carlson Rezidor (Radisson Blu).
LAND

- According to the Hass Consult Land Price Index Q3 2018 Report, Upperhill has the most expensive land at Ksh558.3 million per acre while Kiserian has the least expensive land at Ksh7.1 million per acre.

- The lack luster price growth of land is attributable to reduced demand for land from buyers such as developers as they have started adopting a wait and see attitude, waiting to see the direction of the affordable housing project, that is likely to result in inclined focus to certain areas for development.

FINANCING

- A 400% increase in Budgetary Allocation for the Housing Sector for the financial year 2018/19 totaling KSh 6 billion, compared to KSh 1.5 billion in 2017’s budget was recorded.

- The Housing Finance (HF) Group Limited is planning to sell its existing loans to the KMRC, and use the proceeds to provide new housing loans as low as KSh 2.5 million for about 200 new housing units over 2019.
Highest returns to investors is as follows:-
• Apartments: Kilimani and Ngong Road areas
• Detached units: Ruiru and Lower Kabete areas
It is notable that investors are increasingly undertaking the Mixed Used Development (MUD) concept in order to:
• Reduce risk by diversification as MUDs generally offer a safe bet regardless of downturns in either of the various land uses
• Densify in more compact pacts of land thus maximizing on returns, and;
• Encourage use of resources efficiently as mostly residential and commercial tenants would occupy the same building thus utilities such as energy and sewage can be used more efficiently.
The national government seeks to deliver 500,000 affordable homes in five years. To this end, it has so far initiated the following to facilitate the process:

i. Legal and Policy Reforms

a) Implemented:
- H.E. President Uhuru Kenyatta signed into law various bills with an aim of supplementing the budgetary needs of the affordable housing initiative. These are as follows:-
  - 15% corporate tax relief to developers who put up at least 100 affordable residential houses annually
  - Signing into law amendments to the Income Tax Act that will allow buyers get a 15% tax relief to a maximum of KSh 108,000 p.a., or KSh 9,000 p.m., under the newly introduced Affordable Housing Relief section.
  - Signing into law an amendment to the Stamp Duty Act, which will exempt first time home buyers from paying the Stamp Duty Tax which normally is 2.0% - 4.0% of the property value.
  - Signing into law the Finance Bill 2018, which includes a clause on employees’ contribution to the National Housing Development Fund, as proposed in the National Budget reading for 2018/2019. As per the clause, employees shall contribute 1.5% of their gross salary to the fund, while employers top this up with a similar amount.
  - In the month of September, he signed into law the Supplementary Appropriation Bill No. 2 of 2018, with the housing department receiving KSh 21 billion (44.7% of the KSh 47.3 billion supplementary budget and a 223.1% increment from the KSh 6.5 billion allocated in Kenya National Budget 2018/19, in support of the affordable housing initiative). This came just after the Cabinet approved the guidelines for the implementation of the initiative in terms of projects’ financing, cost, design, quality and affordability.
- In November 2018, the Ministry of Transport, Infrastructure, Housing and Urban Development published the Housing fund Regulations 2018 meant to govern the National Housing Development Fund introduced by the Finance Act 2018.

b) Proposed:
- 15.0% tax waiver on Housing Co-operatives.
- NACHU, mainly representing persons from the low-income class, rural cooperatives, persons with informal employment, plans to embark on the establishment of a regulated mortgage Sacco in a model that is set to see the board access mortgage funding from the KMRC.
- The UN – Habitat advised the national government to formulate policies that ensure the 23,000 Savings and Credit Co-operative Organizations (SACCO’s), who have close to KSh 1 trillion in savings, have access to serviced land, professional expertise, and reduced tax on building materials that would facilitate provision of mass affordable housing to low income earners.
A. THE COUNTY GOVERNMENTS

County Governments have participated in the following ways:

- Kilifi County Government signed an agreement with the National Government, cementing a partnership that will see the construction of at least 2,000 housing units within 2019. The projects will be undertaken in Kilifi and Malindi, where the land for development has already been identified. In addition, the project will be funded by the government through the Kenya Urban Support Programme (KUSP).
- County Governments are also launching initiatives towards the achievement of affordable housing e.g. the County Government of Kiambu has initiated the process of developing 12,500 housing units on 50 acres of public land; the County Government of Nairobi has also started the process of redeveloping the old housing estates in Makongeni, Starehe, and Shauri Moyo among other neighbourhoods.
- The government, through a concept paper, intends to work with county governments to fasten the provision of affordable housing. The county governments will aid in creating the much-needed land banks as per the government target of a total of 6,800 acres across various counties i.e. 3,000 acres in Nairobi, 1,200 in Mombasa, 1,000 in Kisumu, 800 in Eldoret and 800 in Nakuru. To this end, the County Government of Homa Bay signed a MoU with the National Government, for the development of 2,000 affordable homes where the County will provide 18 acres for the cause...
# NCA Construction Data

## PROJECTS APPROVED BY NCA

### Cost Range of Projects

<table>
<thead>
<tr>
<th>Below 5M</th>
<th>5M - 50M</th>
<th>50M - 200M</th>
<th>200M - 500M</th>
<th>500+</th>
<th>Total</th>
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<tr>
<td>285</td>
<td>1,929</td>
<td>265</td>
<td>51</td>
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### Type of Projects

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<th>Road works</th>
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<th>Mechanical works</th>
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<tr>
<td>2,252</td>
<td>23</td>
<td>9</td>
<td>-</td>
<td>2,294</td>
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### Client Type

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<th>County Governments</th>
<th>NGO/Social Organization</th>
<th>Parastals Agencies</th>
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<tr>
<td>1</td>
<td>22</td>
<td>117</td>
<td>57</td>
<td>2,564</td>
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### Source: National Construction Authority

#### 1st July 2018 – 27th November 2018

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<th>No. of projects (1st July 2018 – 27th November 2018)</th>
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<tr>
<td></td>
<td>Below 5M</td>
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<tr>
<td>1st January 2018</td>
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<td></td>
<td>Mechanical works</td>
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<th>No. of projects (1st July 2018 – 27th November 2018)</th>
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<td>1st January 2018</td>
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### Source: National Construction Authority
## Development Permits for Nairobi

**SEPTEMBER - NOVEMBER 2018**

<table>
<thead>
<tr>
<th>Development permit applications approved</th>
<th>Month with highest number of approvals</th>
<th>Development classification approvals as a percentage of total approvals</th>
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<tbody>
<tr>
<td>756</td>
<td>November (383)</td>
<td>1. Karen (18%)</td>
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<tr>
<td>Month with lowest number of approvals</td>
<td>Total value of development projects approved</td>
<td>2. Westlands (16%)</td>
</tr>
<tr>
<td>September (163)</td>
<td>KSh 44.09B</td>
<td>3. Kilimani (14%)</td>
</tr>
<tr>
<td>Average number of days taken to issue approvals</td>
<td></td>
<td>4. Eastleigh (12%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Kasarani (9%)</td>
</tr>
</tbody>
</table>

- 2 technical meetings were held on this month

Top 5 areas where most developments were carried out:

- 1. Karen
- 2. Westlands
- 3. Kilimani
- 4. Eastleigh
- 5. Kasarani

Source: Nairobi City County Government

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Why Buildings Collapse

A study on Failure and Collapse of Buildings in Kenya sheds light on what needs to be done ahead of the Implementation of the Affordable Housing Agenda

Words by Wangui Kabala
In May of this year, the National Construction Authority released a study titled "Research on Failure and Collapse of Buildings in the Construction Industry of Kenya". As the industry continues the implementation of the Affordable Housing Agenda, it is critical to examine the causes of building failures, and adopt the mitigation measures proposed by the report.

The report, sanctioned by the then Ministry of Transport, Infrastructure, Housing and Urban Development, was informed by the notable structural failures and collapses in Kenya since the mid-1990s. The study was carried out in 2017 and 2018. The report set out to describe building failure and its determinants, establish the relationship between the two and synthesize a framework for more effective regulatory control of construction activity in Kenya. The findings are being used as a basis for various amendments in existing policy as well as drafting of new legislation to combat this perennial issue.

The report found that there is consensus amongst industry players that duplicity and overlap of development control functions spread over government agencies, coupled with poor coordination of professionals are the underlying causes of building failures and collapses in Kenya. There is therefore an urgent need to establish a synchronized overarching institutional framework in order to enhance team synergies for a more productive and efficient industry. According to the report, the probability of building failure remains high, and is influenced by seven variables: technical, financial, institutional, legal and ethical inadequacy, poor welfare on a construction project as well as unforeseeable events occurring in the project’s lifetime. Institutional factors, such as dissonance, incapacity or laxity were found to be the underlying cause of building failure as they are the ‘fertile ground on which other factors thrive’.

The construction industries of four countries were used as a benchmark for best practice, and it was found that the policy, legal and institutional frameworks of the United Kingdom, Malaysia, Sri Lanka and Canada are relatively more organized, dynamic and detailed. The report thus noted that effectiveness in the regulatory control of building activity can greatly be boosted by adopting an integrative framework – of planning, design, construction, on-site quality control, and statutory regulation – whereby the participant institutions operate in harmony and synergy.

The collapse of buildings in Kenya remains an intractable problem, and dates back 25 years, with the first major recorded case being the collapse of Sunbeam Supermarket along Moi Avenue in Nairobi in 1996, which killed 35 people. Previously, a multi-storey building in Dagoretti had collapsed in 1990, killing one person and injuring a few others. Since before Kenya’s independence, the construction industry has been regulated by by-laws. The first by-laws for building development control were introduced to the country by the colonial government in 1926. They were applied to the then Nairobi Town Council, and replaced by the Nairobi City Council By-laws (Building) in 1948, which included town planning and zoning requirements. In 1968, the Local Government (Adaptic By-Laws) (Building) referred to as the Building Code, a replica of the then British Building Regulations, were adopted.

As the country developed, it became necessary to carry out a comprehensive review of planning and building regulations to accommodate changing socio-economic dynamics in our society. In 1995, Code 95 was introduced. Its aim was to enable Housing Standards and Procedures through reducing building costs, promoting innovative designs, encouraging use of local materials and putting emphasis on performance rather than specific construction materials. However, this was only adopted by a few Local Authorities and hence failed to have the intended nationwide impact.

In 1996, after the collapse of the Sunbeam Building, a commission of inquiry to examine the existing building laws and regulations was formed. The Commission’s mandate was mainly to investigate and determine the cause of the collapse of the Sunbeam Building, to examine the existing Building Laws, By-laws and Regulations and make recommendations with a view to prevent similar incidences.
In 2009, a committee for the review and harmonization of planning and building laws and regulations was established under the then Ministry of Housing, charged with coordinating the review process. Subsequently, the Ministry brought together key stakeholders comprising of private sector players, academia, professional bodies, various interest groups and relevant public institutions. The outcome of the review committee was the Draft National Planning and Building Regulations (2009) which were referred to as the Building Code (2009) meant to replace the Building Code (1968). Once more, the 2009 version failed to garner nationwide recognition.

On promulgation of the new constitution, the Local Government Act (CAP 265) under which the Building Code (1968) was domiciled, was repealed. The Building Code (2009) lacked an enforcing authority. This administration gap manifested itself in diverse ways, evidenced by failure by the county authorities to enforce the building regulations.

The housing sector in the country has been characterized by both formal and informal settlements, the latter more prevalent in urban areas. This dates back to the colonial period where the Vagrancy Act and Pass Laws of that era made movement across the country difficult, and for those who made it to towns a segregated housing policy barred urban African workers from the planned residential areas, forcing them to establish informal settlements on the outskirts of the towns. The informal settlements were largely ignored by the colonial government and omitted from the development plans; even the Nairobi City Master Plan of 1948 did not capture or plan for them in any way.

Their growth was characterized by a lack of infrastructure and related amenities, such as roads, water supply and sanitation, electricity and recreation facilities that guarantee higher standards of living. This lack of an operational, inclusive, and comprehensive policy supported by a legal and institutional framework for development control in the country continues to inadvertently propagate marginalization of a section of the society in post-independence Kenya.

Whereas in the pre-independence era the practice was founded on the Master vs Subject social structure, the practice is currently propagated by inequality and socio-economic exclusion. The terms “development planning” and “control” are more closely related to affluence and political influence rather than physical development policy or legal and institutional framework stipulations.

Physical planning policies are only enforced selectively in urban suburbs while land use and construction in rural areas, informal urban settlements and urban outskirts are allowed to progress without proper planning. This has led to numerous conflicts and avoidable loss of public resources through inflated compensation, where future developments like roads, utility way leaves and public amenities affect existing private facilities.

The archaic nature of the Building Code of 1968 which deals with controls in housing quality, building materials and planning standards means that it is grossly inconsistent with modern construction materials and technologies and thus unable to comprehensively guide industry professionals. Thus, it is largely ignored by professionals and regulators, a factor that has played a role in precipitating failures of constructed facilities.


To date, there are 87 building collapses on record, with 170 documented deaths as a result. 2016 had the highest number of fatalities at 63, the highest ever
To date, there are 87 building collapses on record, with 170 documented deaths as a result. 2016 had the highest number of fatalities at 63, the highest ever recorded in one year. This followed the April 30th collapse of a seven-storey building in Huruma Estate, Nairobi, that claimed 52 lives.

The common thread with all building collapses as detailed in the NCA report has been negligence/laxity among actors, unstable grounds, use of poor quality concrete and unapproved modification made by clients without requisite approvals. Other factors include poor workmanship, use of substandard material, weak foundation, failure of form work, inadequate propping, accident by vehicle, fires, landslides, heavy rains and introduction of basements beneath foundation level. The report also notes that documentation of collapses in the country is one other challenge, implying factual data has been erratic.

Three salient policy recommendations can be highlighted from the NCA report, the first one being the adoption of a one-stop shop for development approvals and the associated revenue collections. Such a move would reduce the approval delay and spur vibrancy in the construction industry. This year, Kenya went up 19 places in the World Bank Ease of Doing Business report, now ranking 61st in the world and third in Africa behind Rwanda and Mauritius. The improvement was aided by reforms in starting a business, access to credit as well as dealing with construction permits. NCA in conjunction with the County Governments of Kisumu and Nairobi as well as other State agencies in the construction industry have been piloting a “one-stop-shop” approval and payment window, and if wholly successful will be replicated in other counties.

The second recommendation was that technical capacity in the industry should be boosted through increased institutional resources in order to grow numbers of construction staff-professionals, technicians and artisans – in the industry. In this regard, benchmarking with international best practices would greatly advance local skills and strengthen the industry’s capacity for internal audits to rein in lethargy and corruption.

Thirdly, the report recommended a review of the NCA Act 2011 and its regulations, and anchoring of various building regulations in the same Act. The proposed amendments to the Act are currently under review in the Authority’s parent ministry.

In a nutshell, the report underscores the need for the enhancement of better regulatory control in the construction industry, which includes a comprehensive overarching National Construction Industry Policy to streamline, regulate and guide development of the construction industry. The Draft Construction Industry Policy is currently at stakeholder validation stage.

These recommendations are even more relevant in the wake of the Affordable Housing agenda, the country’s most ambitious housing project since the independence era. With half a million houses projected to be constructed in the next few years, the last thing the project needs is any structural deficiencies, which can be mitigated by a strong legal framework.

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Mombasa Port's second container terminal expansion begun in May 2018 on 100 acres at Kilindini Harbour and is expected to be ready in 2021. This will allow the port to handle an extra 450,000 twenty-foot equivalent units (TEUs) and increase the port's capacity to 2.1 million TEUs.

Construction works on US $2 billion High Grand Falls Dam in Kenya, Africa's second largest dam is set to commence following a resolved procurement dispute which threatened to delay the project.

Residents of Kitengela are set to construct their own sewer line targeting to service over 100 homes and approximately 20,000 persons. The 45-km sewer line will be funded by residents who are expected to raise a total of KSh 39.0 million towards the project.

Kenya has activated its largest solar power plant in the semi-arid eastern county of Garissa. The Garissa solar park, capable of generating over 76,000 megawatt hours (MWh) of power annually is currently injecting 15MW into the national grid and will run at full capacity once commissioning tests are concluded. The solar plant is established on 85-hectare - the biggest of its kind in East Africa.

The government has committed KSh. 40 billion for the provision of requisite infrastructure within Konza City in Machakos County.

Plans are underway for the establishment of nine major cities along the ongoing KSh 2.5 trillion LAPSSET Corridor. The towns will also include Lamu, Isiolo, Lodwar, and Mandera. Seven of these cities are set to be complete by 2020.
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Eco Tiles
How a small Nakuru business is offering greener, affordable roofing solutions
shillings per square meter while imported stone-coated tiles usually cost twice or thrice that price. Clay and concrete are priced almost the same as our eco tiles, however, these are much heavier and clients end up paying up to 40% more on timber costs as they need much heavier trusses. Since our tiles are lighter, handling and installation is easier and quicker. They are also waterproof, inhibiting the growth of mold and helping maintain a longer aesthetic look of the roof as well as cleaner harvested water. Our tiles are stronger and harder to break as the polymer binds excellently with sand when heated during production. This gives us an edge over clay tiles where developers are at times forced to purchase up to 30% more than they actually needed to complete their roof so as to cover for breakages during transportation, handling and installation.”

Kevin is influenced by the late Nobel Peace Prize Laureate Prof. Wangari Maathai who challenged the society to contribute to the wellbeing of the environment. He has garnered accolades at home and abroad for his work, and was named as one of the Total Startupper Of The Year winners in 2016, the Most Promising Social Entrepreneur by UN HABITAT and was one of the finalists of the African Entrepreneurship Award by BMCE Bank in Morocco. He was also selected as one of the Mandela Washington Fellows, a fete that enabled him to meet then United States of America President Barack Obama in Washington DC. His journey in recycling and green technology has however not been without challenges.

According to him, very few housing developers know about his product, the technology behind it and the value it offers. He however remains upbeat and reckons that the construction industry could play a pivotal role in promoting eco-friendly technologies and is proud to be one of the green ambassadors, since in his view the future, which is green, is here with us already.

Kevin can be reached through kevin@tracekenyagroup.org or at Eco Tiles Kenya on Facebook, Twitter and Instagram.
It is slightly a year since the National Environment Management Authority put in place a total ban on use of plastic bags in Kenya, a move received with mixed reactions. On one side were conservationists and the general Kenyan populace, happy with the ban and its perceived impact towards restoring the country’s ideal ecological and environmental status. On the other side were plastic traders who saw the ban as a death sentence to their businesses, as well as critics who saw the move as papering over the cracks due to the fact that there were tons of plastic waste accumulated prior to the ban that had not been properly disposed of.

For Kevin Mureithi however, the tons of plastic waste were a blessing since he has come up with an ingenious recycling-based solution. The environmental engineer developed the passion for recycling while running Trace Kenya, a non governmental organisation (NGO) that dealt with environmental conservation. He set it up in 2008 after graduating with a Bachelor of Science in Environmental Studies from Maseno University. It is while running the NGO that his passion and interest grew, leaning especially towards the green circular economy concept, prompting him to pursue a Master of Science degree in Environmental Science and Technology from the Netherlands based IHE Delft Institute for Water Education, [formerly known as UNESCO-IHE Institute for Water Education].

While studying in Holland he pitched his business idea, the production of high quality, pocket friendly and durable roofing tiles made from carefully selected plastic polymer waste and sand, at the renowned Africa Works conference. He was selected as the overall winner of the Startup Business contest. This fueled his desire to work on his idea and upon completing his Master’s degree in 2015, he resolved to set up a company that would recycle problematic plastic waste in to products of higher commercial value. This is how Eco Tiles Ltd came to be. Based in Gilgil in Nakuru County, Kevin’s company uses waste plastics used to make water tanks, chairs, buckets, margarine bottles, lids, cups and other similar products in the production of roofing tiles. The plastics are scientifically known as high-density polymers (HDPE) and Polypropylene (PP). “Once we get the plastic, mostly from recycling entrepreneurs in Nairobi and other major towns, it is shredded and mixed with sand along with UV stabilizing pigments at proprietary ratios,” Kevin explains. He then goes on to talk about why sand is important to the process. “Sand is a major component mainly because it helps in the insulation of a house, noise reduction during rainy seasons and also flame retardancy.”

After mixing, the aggregate is loaded into the company’s patented extrusion machine and heated evenly to produce a resultant polymer that is then ready for pressing. The pressing is done using a machine that presses the tiles with a force of 400 tons, making them very hard to break. Within two minutes of cooling, his product, which comes in a variety of colors, is ready for use with each complete tile weighing 2.3 kilograms.

The environmental engineer is proud of his product, as is evidenced by his animation when describing its merits over the traditional clay roofing tiles. “Most developers buy our roofing tiles because of affordability, aesthetic appeal and cost savings in construction. They cost 800
The production of cement has traditionally been considered as a process with inherent negative environmental effects. This is due to the combustion of the main ingredient, limestone or calcium carbonate to decompose it to calcium oxide and carbon dioxide, gases released into the atmosphere. Secondly, the mining of raw materials used in cement manufacture would typically leave huge open quarries on the ground.

Bamburi Cement is an environmentally sensitive company that took cognisance of the environmental impact of various cement manufacturing processes and initiated measures that ultimately led to unrivalled production of green eco-friendly cement products. This was holistically approached on all facets, from mining activities, intermediate product processing all the way to the manufacture of the final product.

70% of limestone typically comprises of clinker, the main product in the manufacture of cement. Cement manufacturers...
will thus heavily mine limestone and its use has a dual concomitant effect on carbon dioxide emissions and scarring of the ground.

Bamburi Cement mitigated the extensive use of limestone per unit of cement through blending with other materials in line with the Kenyan cement standard specifications. Bamburi has the widest product range and manufactures blended limestone and pozzolanic cements in both 32.5 N/mm² and 42.5 N/mm² strength classes. Bamburi is the only producer manufacturing limestone blended cement products in Kenya. The pozzolana and the limestone do not undergo any burning but are directly inter-ground with clinker to produce cement. They replace the clinker component and by extension reduce the amount of carbon dioxide liberated per unit of cement.

Bamburi Cement is a responsible manufacturer and rehabilitates its quarries once mining has been completed. Lafarge Eco-systems in Kenya, previously known as Haller Park or Nature Trails is a Bamburi subsidiary tasked with the quarry rehabilitation. Mined quarries have been successfully regenerated through a rigorously designed and highly controlled process of landscaping, systematic introduction of flora and fauna species and maintenance. Casuarina trees were planted due to their massive leaf shedding ability coupled with the ability to grow on the rocky quarries. Botanists introduced millipedes to breakdown the needle like casuarina leaves into soil and over time, transformed the land to into a vibrant and diverse ecosystem of forest, grasslands and ponds, making it even better than the pre-mining state. A dense forest was created from barren quarry wasteland and wild animals introduced to form a distinctive nature reserve. The Park consists of a Game Sanctuary, Reptile Park, Fish Farm area, Palm Garden, crocodile pens and a giraffe viewing platform. Lafarge Eco-systems is open to visitors and is a major tourist attraction. Animals such as hippos, giraffes, antelopes, crocodiles and giant tortoises are easily seen, something unexpected in Mombasa where the park is a local tourist attraction.

In its journey towards green cement production, Bamburi Cement partially replaced fuel oil in its combustion process. Clinker is manufactured by burning raw materials to temperatures of 1,450°C to sintering point. The main constituents such as pozzolana are pre-processed by drying prior to inter-grinding with clinker. Bamburi uses alternative fuels such as rice and coffee husks, old tires, waste condemned maize or rice to provide latent heat in the burning and drying processes. Additionally, Bamburi engaged in a bio-fuels project through planting trees in conjunction with neighbouring communities on its land reserves for use as alternative fuels and for reduced dependence on non-renewable coal and fuel oils as well as reduced greenhouse gas emissions.

Bamburi is at the forefront of advocating for the use of cement stabilised earth blocks in affordable housing. The technology of stabilised earth bricks is an eco-friendly alternative to the prevalent use of burnt clay bricks that are rapidly decimating our forest cover in various regions in Kenya. The sum total of quarry rehabilitation, use of alternative fuels and manufacture of blended products results in the production of eco-friendly green cements by Bamburi Cement. Any visitor to our Mombasa factory will be welcomed by Oryxes that roam free on the premises, a true testimony of our green footprint.
Construction is a multi-billion-dollar industry. Yet, many of its processes have remained unchanged. Even though many technologies have been introduced to construction and related industries over the last decade, holographic computing is now fundamentally changing how people visualize things, collaborate, and work in the industry.

Designers, especially in architecture, have to deal with space, shapes, and 3D objects as part of their job. Moreover, they need to create designs and translate them into a set of 2D documents. It has always been difficult for architects, engineers, and contractors to collaborate remotely and interpret physical and digital information as well as dimensional relationships with utmost effectiveness.

Until now, paper drawings have been one of the most common and effective ways to interact and show the dynamics. A few sophisticated tools and softwares exist in the market and allow engineers to design and build 3D models of a building or construction site. Such files are very large, making it difficult to share them, and they require high-end engineering computers to render 3D models.

Not everyone is good at visualizing 3D. When making important decisions related to designs, concepts, and structure, showing the dynamics is difficult, but a technology called Holographic Projection immediately solves that problem.

It is described as a photographic recording of a light field, rather than of an image formed by a lens, and it is used to display a fully three-dimensional image of the subject, which is seen without the aid of special glasses or other intermediate optics.
This new member to wearables brings powerful mixed-reality technology features and amazing capabilities, enabling users to bring complex architectural designs to life. Mixed reality provides an unparalleled level of real-world proportion, scale, form, and perspective. Perhaps you can relate this technology to how Robert Downey Jr. in the Iron Man movies and Tom Cruise in Minority Report manipulate data and holographic objects with just their hands, or how Michael Jackson and Tupac Shakur were brought to life through realistic holographic performances at the 2014 Billboard Music Awards and the 2012 Coachella concert, respectively. With augmented reality, getting things from geometry into the physical world has become very simple.

Microsoft has its hand in the industry too with HoloLens, which bridges the gap between the 2D and 3D space. It is the world’s first fully self-contained holographic computer, running Windows 10 and enabling engineers and architects to cost-effectively visualize and navigate a holographic representation from the convenience of their workspace.

Improved collaboration, quality, and transparency across the Design-Build-Operate lifecycle of buildings enables engineers to make important design decisions in real time instead of having to wait for several months.

HoloLens can transform the way you work by providing a more natural way to collaborate and interact with teammates irrespective of location, by bringing holograms to life in your own real world and by allowing you to interact and control holograms in the most natural way possible – it understands your voice, gestures, and gaze.

A few HoloLens app development companies including Softweb Solutions Inc. along with engineering, health, and automotive companies have already partnered with Microsoft to explore new possibilities with HoloLens. When it comes to the construction industry, holographic computing and mixed reality certainly introduce a new way to scale model or conceptualize a blueprint in a more immersive manner.

HoloLens in construction
Aviad Almagor is the Director of the Mixed Reality Programme at Trimble, providers of technology to the construction industry and shares his thoughts on this groundbreaking development.

“Mixed Reality technology such as Microsoft HoloLens and Trimble’s Mixed Reality applications blends real world objects with digital content, interactively, and in real time. It helps users efficiently interpret physical and digital information, and the spatial relations between them. Unlike virtual reality – in which the user is fully immersed in a digital world, disconnected and isolated from the surrounding – mixed reality is anchored to the physical space. This allows keeping the user engaged while enriching the environment with related digital content.”

There are three main aspects of mixed reality which provide clear advantage for the construction industry:
Real 3D Visualization
The Architecture, Engineering and Construction (AEC) industry is spatial by definition. The last few years’ transition from 2D documents to 3D models was a natural evolution, which improved team communication and coordination. 3D models are common today, but still, interacting with volumetric data behind a 2D screen is extremely limited. Mixed Reality and holographic technology bring the models out of the screen and provide users the ability to engage and interact with design data more intuitively. Moreover, unleashing the 3D model democratizes the data by offering a natural way to experience and understand the design. While years of education and practice might train architects to visualize their designs in 3D, other stakeholders have a hard time deciphering them.

By using Mixed Reality, stakeholders can walk around and explore the design in real 3D without the need for an expert to guide them and dictate their point of view. The freedom to move along the Reality – Virtuality Continuum is an additional advantage of Mixed Reality, with a major impact on the efficiency along the design-build-operate workflow. For some decisions or specific tasks, a real “unmodelled” world is required as visual input. For other tasks, a mixed reality – a “world partially modelled” – or even a completely immersive Virtual Reality mode is ideal. With Mixed Reality, the user controls the “mix” and adjusts it according to his task requirements. Mixed Reality and holographic technology also improves remote collaboration. The ability to share 3D holograms with remote stakeholders improves communication and collaboration efficiency.

Seamless Translation
In every construction project, there is a decisive process, in which design is transformed into reality and abstract ideas are translated into physical objects. As almost every project is unique, site-specific and labour-based, intensive and accurate “translation” of the design information is required. The current translation process of turning design documents into reality is a constant struggle. It is a complex cognitive process in which wrong interpretation of data often leads to costly errors, quality issues and rework.

Digital 3D models reduce the level of abstraction and help clarify the design intent, but still, at the execution stage, there is a clear boundary between documentation and the real world. Mixed Reality technology blurs this line. With Mixed Reality, the information is superimposed on the physical environment. This minimises the need for translation and reduces subjective interpretation.

The user visualises the design in context, and can better understand, interact with and execute the required actions in real time. The immediate visual feedback also supports a more effective production control process. Overlaying design on
as-build structures reveals any deviation and provides immediate feedback.

**Extending the Digital Thread**

Integration of business workflows and improved communication are clear goals in today’s AEC industry. The silo structure and the need to re-create data, when moving from one stage to the other, are still sources for major inefficiencies. Project delivery methods like IPD and technology changes such as Building Information Modelling (BIM) support this trend and have proven to positively impact project quality, cost and schedule. Mixed Reality technology supports integration and collaboration along three main axes:

1. **The Project Stage Axis: Design to Build (and Operate)**
   Moving along this axis, Mixed Reality brings 3D data to life and puts information in the user’s hands without the need to change or adjust the data format.

   A sign-off BIM model can be projected in context to guide construction teams on-site, and later, by facility management teams when evaluating required changes or maintenance work.

2. **The Digital to Physical Axis**
   Holographic display is not limited to 3D models. In fact, using Microsoft HoloLens, multi-layered datasets can be overlaid as holograms on the real world. A partial list includes 2D documents, energy analysis, light simulation, acoustics, layout data and equipment metadata. The ability to integrate digital and physical content and present data in context improves communication and leverages confidence in decision-making.

3. **Office to Field Axis:** Sharing up-to-date design data with on-site teams is crucial in the dynamic construction environment.

   Using Mixed Reality technology, construction, teams benefit from access to geo-located, context-based data, which can be projected and anchored to the physical environment around them. The ability to map the as-built physical environment supports communication from the field to the office and completes the Build to Design – Design to Build loop.

The National Construction Authority advises the public of a notable increase in fraudulent phone calls, emails and letters sent to NCA clients with offers of registration certificates, due diligence letters, practicing licenses or category upgrades on counterfeit NCA letterhead(s) or registration templates in exchange for monetary considerations.

The persons behind these fraudulent phone calls, emails and letters are posing as National Construction Authority registration officers in an attempt to extort money from unsuspecting applicants seeking Authority services.

We would like to notify the general public that all fees payable to the Authority appear on our Citizen Service Delivery Charter, and apply to registration, renewal of practicing licenses, upgrading of categories, accreditation or training. Facilitation of all Authority services is free of charge. Clients will never be requested to send payment in advance by check, Mobile Money Transaction, or Bank Wire transfer as ‘facilitation fee’ for any purposes.

The Authority does not receive any cash payments; all payments are made on the E-Citizen platform through the registration portals on the Authority website, www.nca.go.ke. Members of the public are advised NOT to send any payments to any persons directly, whether the persons are Authority employees or not.

In case of any queries or complaints, call the official Authority contact numbers, 0709126102, 0709126172 or 0709126173. You can also contact us via info@nca.go.ke, feedback@nca.go.ke, or through our social media pages as listed below. If any person asks for a payment for or on behalf of the Authority, report the incident immediately to any Authority office or to the nearest Police Station.

Members of the public are advised to strictly adhere to this notice.

**Eng. Maurice Akech**
**Ag. Executive Director / Registrar of Contractors**
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Nothing comes easy and I bet you know that. Coming in at 3rd place in the 2018 Volleyball African Club Championship is a commendable achievement. It has all been a build up through the years. With all the different successes, our galant girls are now one of the top three teams in Africa. Congratulations KPC ladies volleyball team. Thank you for making us and your country proud.

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