



NBRRI

Newsletter

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4TH QUARTER EDITION *The Quarterly Newsletter of the Nigerian Building and Road Research Institute*

DG NBRRI IS NEW
HONORARY TREASURER OF
THE NIGERIAN ACADEMY
OF ENGINEERING

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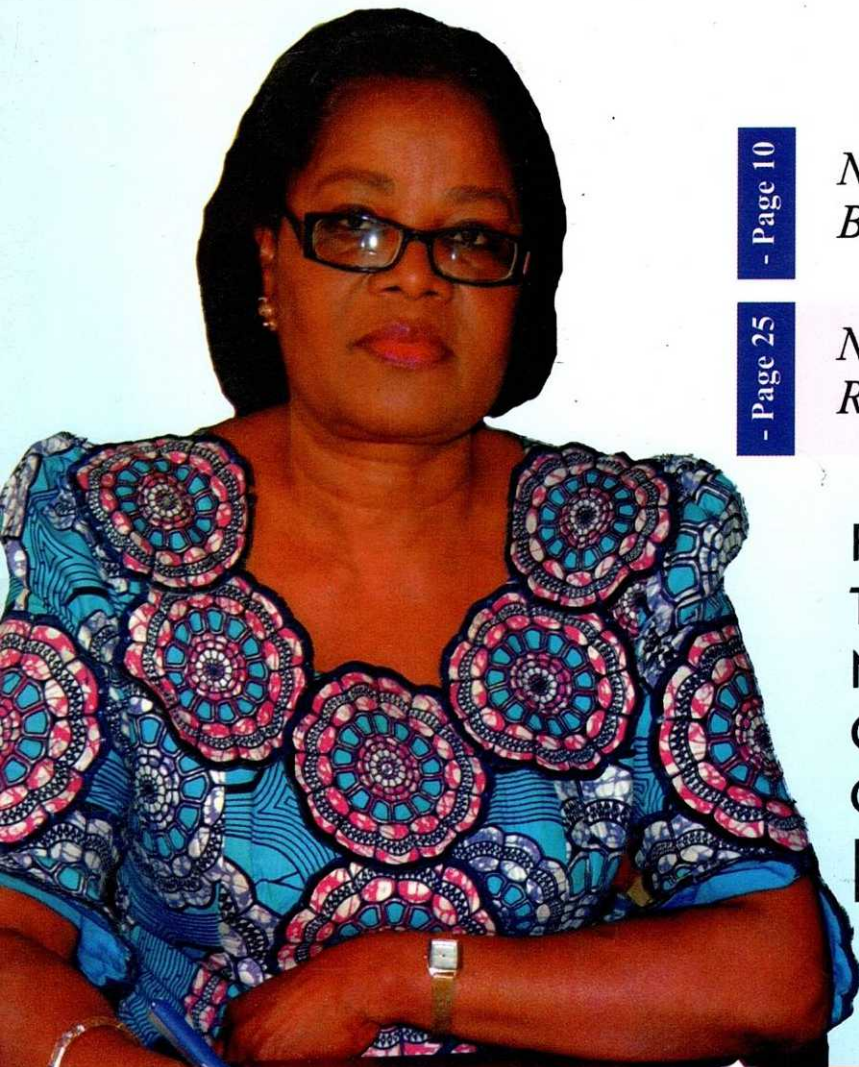


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*NBRRI DG Speaks at Kogi
Building Materials Exhibition*

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*NBRRI Drivers Undergo
Refresher Training*



FMST IS FOCUSED
TOWARDS MAKING
NIGERIA'S ECONOMY
COMPETITIVE IN THE
GLOBAL MARKET PLACE

**Mrs. Belema
Wakama**

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NBRRI CONSTRUCTED SKILLS ACQUISITION CENTER COMMISSIONED IN OGUN STATE



Side view of the newly commissioned Skills center in Ipokia, Ogun State

A Skills Acquisition and Extension Centre, constructed by the Nigerian Building and Road Research Institute (NBRRI) in Agosasa, Ipokia Local Government Area of Ogun State has been commissioned. The commissioning, which took place on Saturday 5th of November 2016, had the Director General/CEO of NBRRI, Prof. Danladi Slim Matawal, as the special guest of honour and the Olu of Ilaro, His Royal Majesty, Oba Kehinde Olugbenle (MFR) as the Royal Father of the day. The massive edifice was facilitated by Hon. Abiodun Isiaq Akinlade; the immediate past Chairman, House Committee on Science and Technology, Federal House of Representatives.

Delivering his address, the DG/CEO of NBRRI, Prof. Danladi Matawal; appreciated the hand of friendship and support given to the Institute by Hon. Akinlade right from his days in office as the Chairman, House Committee on Science and Technology. The DG who was

represented by the Head of Building Research Department, NLC, Ota, Engr. Dr. Nurain Sulymon used the occasion to encourage the youths in Ipokia locality to embrace this opportunity to acquire skills in various areas so as to be empowered and self-reliant. He also pledged the support of NBRRI in building a stronger tie with the State and community to eradicate youth restiveness.

In their separate goodwill messages, various notable personalities, political associates and prominent traditional and religious rulers in the state who spoke at the event, acknowledged the good works of the Federal Government to them through their son, Hon. Abiodun Akinlade. They further gave thanks to NBRRI for coming to the aid of unemployed youths in the area through the establishment of the Multi-Purpose Skill Acquisition Centre.

In his acknowledgment speech, the project facilitator, Hon. Abiodun Akinlade appreciated



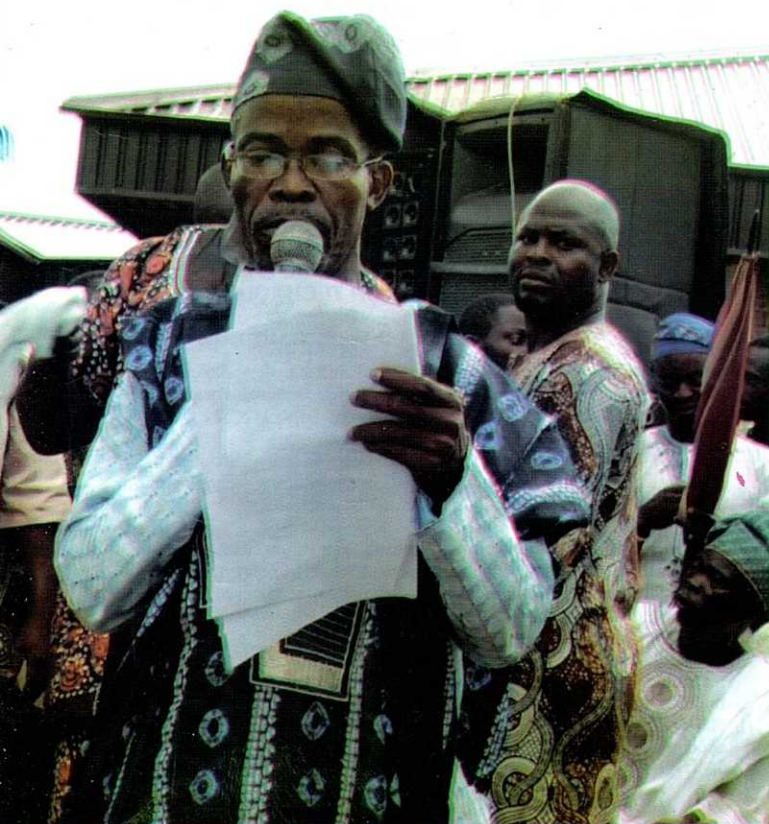
Front view of the newly commissioned Skills center in Ipokia, Ogun State

the presence and support of all in making the day a success. He specially thanked the DG/CEO and all NBRRRI staff for their support right from his days as Chairman, House Committee on Science and Technology. Akinlade stated that without the good ideas and support of NBRRRI, the Skill Acquisition project would not have seen the light of day. The lawmaker further promised the people of his unending developmental support; stating that other projects like schools, hospitals, etc,

within the federal constituency are nearing completion and will soon be commissioned. He finally encouraged the youths to make good use of the opportunity as the projects are for their benefits.

As a mark of honour for the project facilitator, the centre was named after him as: '**Hon. Abiodun Isiaq Akinlade Centre**'.

In attendance at the occasion are: the current member representing Ipokia/Yewa South Constituency in the Federal House of Assembly; Hon. Adekunle A. Akinlade; the National Chairperson of Unity Party; Hon. Oluwafunmilayo Irebi Ogini, Royal fathers/Rulers in Ogun State; the Deputy Chairman of Peoples Democratic Party (PDP) Ogun State, Alhaji Doye Adesina; and the Chairman Ipokia Local Government Area, Hon. Olumide Bankole, among others.



Engr. Dr. Nurain Sulymon delivering the DG/CEO of NBRRRI's address at the event.



Project Facilitator, Hon. Abiodun Akinlade

EDITORIAL

The Editor-in-Chief of NBRRI Newsletter, Mr. George Ngozi Omenge, has created a huge vacuum by his exit from the Institute. His absence may have been noticed by precision and detailed analysts who read our 3rd quarter 2016 and noticed a handful of editorial errors due to the transition. As the Director-General/CEO, it is my responsibility to express appreciation to Mr. G.N. Omenge for the eloquent service rendered to the Institute.

George made immense contributions to the success of NBRRI International conference and editorship of the Newsletters, Conferences Proceedings, Journals, Technical Reports, etc, of the Institute. The Director-General/CEO wishes to place on record his appreciation and that of the entire Staff for his services.

In the 4th quarter of 2016 covered by this edition of the Newsletter, the Nigerian Building and Roads Research Institute, NBRRI, continued to make giant strides. The NBRRI Skills acquisition and Extensions Centre built to demonstrate the walling technologies pioneered by the Institute was

commissioned at Ipokia, Ogun State. NBRRI drivers were also all gathered and trained on corporate responsibility and personal effectiveness.

A collaboration of NBRRI-Hydraform yielded a desired result with the production of the initial four (4) machines. The vision is that henceforth, all Machines fabricated by Hydraform would be equipped with NBRRI Patented Moulds which are replaceable to produce either solid interlocking moulds or moulds with grooves suitable for conduit wiring. Ultimately, the entire machines can be assembled in Nigeria and all components produced locally.

Also in this edition is an exclusive with the Permanent Secretary of the Federal Ministry of Science and Technology, Mrs. Belema Wakama, who highlights effort by the Ministry towards making Science, Technology and Innovation as the bedrock of Nigeria's growth and development.

Finally, Director-General/CEO appreciates the cooperation of all Staff for a smooth year 2016 and wishes everyone happy reading of this edition, inspite of its slightly late preparation.

Professor Danladi S. MATAWAL
(Acting Editor-in-Chief).

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NBRRI (VISION, MISSION & CORE VALUES)

BUILDING CAPACITY & SETTING THE PACE IN INDIGENOUS CONSTRUCTION TECHNOLOGY DEVELOPMENT

VISION

To evolve and use a comprehensive and integrated approach in appropriate technology development and transfer, sustainable capacity building and investment promotion.

So as to foster the application of environment-friendly and energy-efficient innovation construction materials, manufacturing technologies and cost-effective building and road construction practices.

Which will enhance job-creation, wealth generation and poverty reduction as well as nurture the emergence of vibrant, knowledge-based and highly competitive indigenous construction companies capable meeting global standards

MISSION

Integrated R&D, capacity building and robust extension services in which technology innovation and knowledge-based practices in the fields of building, road, and engineering materials will be used to provide adequate and affordable housing and road infrastructure as well as increased economic empowerment.

CORE VALUES

- * Professionalism
- * Commitment and integrity
- * Resourcefulness
- * Innovativeness

FMST IS FOCUSED TOWARDS MAKING NIGERIA'S ECONOMY COMPETITIVE IN THE GLOBAL MARKET PLACE"

...Mrs. Belema Wakama (Perm Sec, FMST)

Mrs. Belema Wakama, is the Permanent Secretary, Federal Ministry of Science and Technology (FMST), who is no doubt an epitome of beauty, brains and honour in all ramifications. Born years ago in Port-Harcourt, Nigeria, Mrs. Wakama schooled at some of the most prestigious educational facilities across Nigeria and abroad. She obtained her first degree in Political Science from the University of Nigeria, Nsukka, in 1981; Masters' degree in Public Administration from the University of Lagos in 1995. She rose steadily in her chosen carrier in the Federal Civil service from an Administrative Officer on 1st January, 1982 to the Director (Administration) on 1st January, 2011. Her diligence was crowned in 2015 when she was elevated to the echelon of the Civil Service as Permanent Secretary.

She is an administrator per excellence who is passionately desirous of a new Nigeria made feasible by the enormous Research works embarked upon by the Federal Ministry of Science and Technology and its agencies. She is piloting a Ministry poised to re-position Nigeria towards attaining human developmental breakthroughs through the effective application of scientific analyses in all facets of life.

The NBRI NEWSLETTER crew recently sat down with Mrs. Wakama in her office for an exclusive interview. We now bring to you, our esteemed readers, the thoughts, aspirations and projections of the FMST as captured by its Permanent Secretary:

NBRI Newsletter: Ma, recently you were appointed as the Permanent Secretary, Federal Ministry of Science and Technology and your experience shows that you have been in public service for some time now. How do you intend to use your vast wealth of experience alongside the Minister of Science and Technology to improve and re-position the Federal Ministry of Science and Technology for national growth and development?

Perm Sec: Having worked at the Ministry of Niger Delta Affairs both as a Director and Permanent Secretary, I am privileged to understand the enormity of



socioeconomic, environmental and developmental challenges facing Nigeria's national growth and development. As you are aware these challenges have been exacerbated by the globalization of the World Economy and the major drivers of this phenomenon are our better understanding and utilization of Science, Technology and Innovation. Science, Technology and Innovation has assisted in virtually all spheres of human endeavour, ensuring higher agricultural productivity, affordable housing, better communication, better healthcare delivery, improved quality of life and sustainable livelihood, environmental sustainability, among others. The R&D output from the 17 Agencies of the Federal Ministry of Science and Technology are desirable for the Industries, Agriculture, Health, Education, Works, and Housing etc. to create jobs, generate wealth, save foreign exchange and grow the economy of the nation. With this background knowledge and in my capacity as the Permanent Secretary, I held wide consultation with all the Departments in the Ministry's Headquarters and the Management of the 17 Agencies under

"Having worked at the Ministry of Niger Delta Affairs both as a Director and Permanent Secretary, I am privileged to understand the enormity of socioeconomic, environmental and developmental challenges facing Nigeria's national growth and development."

the purview of the Ministry immediately on assumption of office. That exercise revealed the immense but untapped human and knowledge resources in the Science, Technology and Innovation Sector, which if adequately funded, will place Nigeria among the developed countries of the world within the next decade. To my greatest surprise, there are over 2,000 commercializable R&D outputs from the various Agencies under the Ministry, which if taken up by the Private Sector will at least ensure food security, create jobs and wealth and reduce importation by the agro-allied industrial sector by 50% within two years. And just one Agency, the Federal Institute of Industrial Research Oshodi (FIIRO) can achieve this feat if properly funded. Now, to address your question specifically, how do I improve and reposition the Ministry working together with the Honourable Minister. As you may be aware, the Honourable Minister is a First Class Scientist and Engineer who equally developed patents to his credit before joining politics. I must say that I am very lucky to work with that caliber of Scientist as Minister. We have put up machinery for the review of the National Science, Technology and Innovation (NST&I) Policy launched since 2012. We are working hard to see the National Research and Innovation Fund (NRIF). If this feat is achieved, the critical governance and funding infrastructure for R&D activities in Nigeria will be in place. The Research – Industry linkage, which hitherto is weak, will be strengthened and R&D will be focused towards providing solutions aimed at making Nigeria's economy competitive in the global market place. Further to these efforts, we have designed programmes and projects that have received some funding under the 2016 budgetary appropriation, which



Mr. Peter Ekweozoh (FMST), Mrs Oneshi Umoche (NBRI), Mrs. Belema Wakama PS (FMST) and Mr. Peter Mashem (NBRI)

when fully executed will have impactful outcomes across all the economic sectors for job and wealth creation. Some of these programmes and projects in the Headquarters include the National waste-to-Wealth Programme using Appropriate Technologies that will fast track and expand the quantum of productive and competitive economic activities at the ward level; the Assumpta Science Centre Initiative of Informal Science Learning in Africa that will produce the next Einsteins, Inventors and Innovators from Africa; the Presidential Standing Committee on Invention and Innovation (PSCII) that will produce the Billionaire Technology Entrepreneurs and Companies from Nigeria in the next decade; the Technology and Innovation Expo that will link Research to Industry; etc. This is just to mention but a few. All these are among the numerous programmes and projects from the 17 Agencies under the purview of the Ministry which I had earlier informed you have over 2,000 commercializable R&D Outputs which are available for the MSMEs and willing Entrepreneurs.

NBRI Newsletter: His Excellency, President Muhammadu Buhari, strongly advocates the use of local materials in housing delivery and other aspects of production. What is the ministry doing to ensure that local resources are harnessed for that?

"The Ministry is currently updating the list of commercializable R&D Outputs from all the Agencies under its supervision into a compendium that will be advertised for the MSMEs and potential investors."

Perm Sec: As you may be aware the Nigerian members of the former West African Building Research Institute formed the Nigerian Building and Road Research Institute in 1978. Since then the Federal Government of Nigeria through the Ministry has supported various initiatives, programmes and projects of the Institute to bring to the front burner its critical role in the building and road sector of the economy. Among the landmark support from the Ministry was the approval of the memo from the FMST by the Federal Executive for NBRRI to construct Made-In-Nigeria house in 774 LGAs of Nigeria using local materials and technologies developed by NBRRI in 1992. If that policy was encouraged by subsequent administrations, one would observe that the entire building landscape in Nigeria would not only be iconic in esthetics but also climate-resilient in structure thereby forestalling building collapse. The Ministry has also been supporting the collaborative efforts of NBRRI like the signing of MoU with their Ghanaian counterpart in 2009 to research into building and road construction materials and partnership with the Federal Mortgage Bank of Nigeria (FMBN) and association of Housing Corporation of Nigeria (AHCN) in June 2011 for the construction of 500 housing units in every state of Nigeria. Further to these efforts, the Ministry has assisted NBRRI to acquire state-of-the-art infrastructure like the Materials Testing Laboratory which has facilitated the successful completion of the current National Engineering Soil Atlas Production Project for Nigeria. However, the present economic downturn in Nigeria has necessitated the need for the building and road sectors and indeed all other sectors to look inwards in sourcing their raw materials inputs for their production and services. The use of local materials for housing delivery in Nigeria cannot be over emphasized.

The patronage of NBRRI Technologies, as a case in point, will be encouraged especially keying into Mr. President's new mass housing policy. The Federal Ministry of Housing should allocate 10% of every housing cluster development to be constructed using NBRRI walling, roofing and tiling R&D innovations. The Ministry is currently working out modalities to develop Public-Private Partnerships with the Private Sector to patronize the various R&D Outputs and Innovations from the Science, Technology and Innovation Sector.

NBRRI Newsletter: On the acceptability of the relevance of Science and Technology, many say the satellite technology has no benefit to the common man. What's your view on this and how best can this be defended?

"While we strive on our part to improve the budgetary allocation to the Parastatals under the Ministry, other strategies for improving the Agencies' funding position for capital projects should include the Public-Private Partnerships and collaboration with International Research Agencies for Joint Projects."



PS FMST, Mrs Belema Wakama discussing with Mr. Peter Ekweozoh, Director Environmental Services (FMST)

Perm Sec: I do not in any way subscribe to this. I wish to categorically state that it is not true that Satellite Technology has no benefit to the common man. I want to take you down the memory lane. The Federal Ministry of Science

“These gains can only become very obvious when indigenous skills are identified and given the enabling environment for innovation using these cutting-edge technologies.”

and Technology, in the year 2000, adopted the strategy of leapfrogging the technological advancement of Nigeria using cutting-edge technologies like Space Science and Technology, Biotechnology, Information and Communications Technologies Advance Materials Research and CAD/CAM Technologies, etc. This strategy gave birth to the Institutions now known as the National Space Research and Development Agency (NASRDA), National Biotechnology Development Agency (NABDA), National Information Technology Development Agency (NITDA) and various Advance Materials Research Centres under NASENI. Firstly, the creation of these Agencies generated jobs and wealth for the ordinary Nigerians, some from very poor background who had the rare privilege of securing Federal Scholarship to read Space Science and Technology-related courses up to PhD through NASRDA. Through NITDA, some remote areas of Nigeria are now enjoying internet facilities courtesy of satellite technology. It is also worthy of note that when the NigeriaSat-1 was launched, Nigeria was ranked 15th by New York Times as one of the Space faring Nations developing HI-Tech for National development. And to be precise, satellite Technology has contributed immensely to higher agricultural productivity, improved and better healthcare delivery services; increased internet penetration to inaccessible and remote locations, national security, environmental sustainability and mitigation of impacts of Climate Change, etc. just to mention but a few. In all things I have just mentioned can someone say that Satellite Technology has not benefited the common man? Of course Satellite Technology has been tested in the developed countries and has proved to be of massive importance in the growth of the economy of these nations.

Nigeria needs satellite technology especially in communications, Security/Surveillance, Agriculture, Oceanography, Astronomy, etc. The need for R&D into this technology cannot be overemphasized. Satellite technology is vital for economic growth, youth empowerment, job and wealth creation. These gains can only become very obvious when indigenous skills are identified and given the enabling environment to innovate using these cutting-edge technologies.

NBRI Newsletter: Ma, one of the main challenges of the Parastatals under the FMST over time has been the issue of underfunding.



PS FMST, Mrs Belema Wakama

This greatly affected R&D in these agencies. Do you foresee any immediate plans by your good office to address this issue?

Perm Sec: The issue of underfunding is a general problem and cannot be said to be particular to the Parastatals under FMST. In addition to the allocated funds from budget, I would advise that the Parastatals should create bankable projects and programs that can attract international donors like the World Bank, UNDP, UNIDO and other International Donor Agencies, while we strive on our part to

"There are over 2,000 commercializable R&D outputs from the various Agencies under the Ministry, which if taken up by the Private Sector will at least ensure food security, create jobs and wealth and reduce importation by the agro-allied industrial sector by 50% within two years."

improve the budgetary allocation to the Parastatals under the Ministry. Other strategies for improving the Agencies' funding position for capital projects should include the Public-Private Partnerships collaboration with International Research Agencies for joint studies.

NBRI Newsletter: NBRI through its Technology has the potential for youth empowerment and job creation. How do you intend to create a platform for this to be actualized?

Perm Sec: NBRI is currently developing a curriculum for Artisans in the construction industry which has the potentials to train thousands of the teeming youths; thereby empowering them. NBRI also has technologies in the Building Construction

Sector such as the Interlocking Brick Making Machine, Roofing Tiles Machines, etc. which when deployed at site can give opportunity for the youths to be employed. Also in the Road Sector, the NBRI Roller Compactor is an avenue to employ and create wealth for Nigerians especially the youths.

NBRI Newsletter: What do you hope to achieve in regards to efforts towards commercializing the research findings of the Agencies under the Ministry?

Perm Sec: The Ministry is currently updating list of commercialization R&D Outputs from all the Agencies under her supervision into a compendium that will be advertised for the MSMEs and potential investors to take up. The purpose is to further move critical Research results and innovations from the shelves to the market place for the growth and development of the country. This is line with the current administration's policy of patronizing our indigenous products and services thereby saving the much needed foreign exchange.



PS (FMST) Mrs. Wakama during the interview session with the NBRI Newsletter Editorial crew

NBRRI DG SPEAKS AT KOGI BUILT ENVIRONMENT AND BUILDING MATERIALS EXHIBITION.

When buildings collapse, irreplaceable lives are lost, the amount lost in property is colossal, the environment is polluted, huge waste is generated and panic is spread as well as time and resources are required to clear up debris. These are some effects of building collapse on both human and the environment as enumerated by the Director-General/CEO of Nigerian Building and Road Research Institute (NBRRI), Prof. Danladi S. Matawal, in the lead paper presented at the 2nd Kogi Built Environment and Building Materials Exhibition.

The event held on 15th November, 2016 in Lokoja, with the theme: *Planning Enforcement, Sub-Standard Building Materials and Sanitation Challenge in Development*, was organized to bring tradesmen, professionals, policy makers, researchers, academics in the Building Environment Industry to brainstorm on a suitable way in curbing issue of collapse building in Nigeria through proper application of standard building materials for construction.

The NBRRI DG/CEO, who was represented by the Head of Consultancy and Extension Services Department (CES) of the Institute, Mr. Daniel Makava, , emphasized that the major cause of building collapse is the use of sub-standard materials by contractors.



To this, he enumerated some points as obtained from previous investigations on the causes of some collapsed buildings in the country as conducted by NBRRI as follows:

- ❖ Faulty designs and poor or inadequate designs
- ❖ Absence or inadequate quality of supervision by relevant agencies/experts
- ❖ Lack of adequate preliminary site investigation e.g. soil test
- ❖ Poor workmanship

- ❖ Quackery/professional incompetence
- ❖ Use of fake and sub-standard building materials
- ❖ Poor/incorrect method of construction
- ❖ Building material fatigue
- ❖ Change of use of building
- ❖ Use of un-skilled labour
- ❖ Disregard of approved drawings (design and specifications)
- ❖ Use of unqualified contractors
- ❖ Non adherence of building regulations, bye laws, codes of practice
- ❖ Corruption

He used the opportunity to commend the organizers of the Exhibition and urged them to focus on Planning Enforcement, Sub-Standard Building Materials and Sanitation Challenge in Development.

The DG further called for continuous partnership of various organizations with stakeholders and professional bodies and institutes in the building and construction spheres in ensuring a safer environment that is free of building collapse so as to have a safe and healthy environment.

Prof. Matawal listed the roles NBRRI is playing to achieve a building collapse-free society in Nigeria; stressing one of the major steps the Institute took was organizing an International Conference in 2012 on curbing the menace by pooling together experts in the built environment from within and outside the country to brainstorm and interact over key issues. Also, publications of NBRRI Technical Reports and other relevant materials which were made available for stakeholders on the built environment has helped a great deal in curbing the issue of building collapse to a minimal level.

He encouraged stakeholders in the sector to display highest standards, ethics and integrity when involved in a building construction project by adhering to the following:

They must specify the highest quality materials in the materials schedule right from the design stages of a building.

They must ensure active supervision of any projects they are awarded.

- They must ensure to notify the appropriate authorities in an event of the use of sub-standard materials for necessary actions.
- They must always engage the services of credible suppliers with track records of integrity.

In conclusion, Matawal gave the following recommendations:

- Forums that will enlighten people on the dangers of using sub-standard materials in construction should be organized regularly
- The government through the appropriate standard organizations must ensure availability of only good quality materials for the construction market.
- Manufacturers and distributors of sub-standard materials should be adequately prosecuted.
- Regulatory bodies or agencies in the built environment like COREN, CORBON, ARCON, etc, must closely monitor the activities of their members and provide adequate sanctions for defaulters.
- The government must; through the relevant agencies; like NBRRI, continue to fund and encourage the development of alternative and indigenous building materials. This will reduce the desire for outrageously expensive and sometimes sub-standard foreign material.

THE KEY ROLE OF ADMINISTRATIVE PROWESS IN THE "CHANGE BEGINS WITH ME" AGENDA

There is no doubt that the role played by administration in every facet of an organized sector cannot be overestimated. It is therefore as a result of this all important role that the **NBRRI NEWSLETTER** explores the potentials of some of the Institute's most versatile and experienced personnel in dissecting some of the salient but important role played by administration in the Federal civil service, as well as all other human organized Institutions.

The public outcry for ethical conducts and accountability in the public sector has become very critical and it demands urgent attention, especially now that the campaign for the "Change Begins With Me" Agenda is positioned to establish values of integrity, accountability and positive change in the attitude of Nigerians generally and particularly amongst the public servants. This reorientation is necessary if we must salvage our public institutions from total collapse. Although the public servants alleged lack of moral values and unethical behaviour are said to be partly responsible for this social malady, it could still be argued that all Nigerians share in this disturbing trend in our national psyche.

Obviously, the appropriate use of administrative techniques in the conduct of government business is inviolable to an effective service delivery system. If the negative perceptions held by the public on the activities of public servants are to change, they must exhibit a general public reorientation that will encourage merit, consistent administration of Public Service Rules and Financial Regulations, etc., transparency, coherent and fair implementation of laws and regulations in the conduct of government businesses.

It is important to note that the primary purpose of Government is to improve the quality of life of citizens through its agencies, departments and ministries established principally to provide these public services. These agencies, departments and ministries are believed to have failed in their constitutional responsibilities. Public confidence had been eroded; there is inequality, high level of institutional failures, ambiguities in the dispensation of reward system and wasteful use of resources – all because of lack of ethical conducts.

These have manifested into an enshrined unethical practices and the interconnected adverse effects of bribery, fraud, embezzlement, extortion, nepotism, self-enrichment, absenteeism in the workplace, administrative lapses, lack of accountability and transparency in the conduct of government businesses. It is incontrovertible to say that these negative tendencies have led to poor or ineffective implementation of government policies and impeded developmental efforts generally. In addition, solicitation or acceptance of gifts, either in cash or in kind in exchange for official functions is growing in an exponential proportion.

Various attempts by successive governments have been made in the past to reverse this disturbing state of affairs in the form of institutionalizing mechanisms for enforcing ethical conducts in Nigerian public administration. In spite of all these control measures to ensure an ethical public service system, the efforts have not yielded any positive change.

In order to stem the tide, the "Change Begins With Me" campaign must be embraced as a new paradigm shift in attitudes of public servants.

They must be informed and reminded of our collective national values upon which a new Nigeria will be built. The Public Servants must champion this course. Only those who are prepared and enthusiastic to join this crusade must be encouraged to do so. The driving force will be an administrator who possesses the requisite knowledge in the conduct of doing government businesses.

The responsibility of ensuring that the administrative activities in an organization are run efficiently by the required employees to enable them work optimally is entrusted on the administrator. These activities you will agree, can range from being responsible for the management of human resources, budgets and records to carrying out the role of supervising other employees. It is incontrovertible to say that these key roles are dependent on the type of organization the administrator works for. That notwithstanding, general skills of a good communication and being organized is applicable to all. This requires a number of skills to be deployed to manage the many different people and situations within an organization. The specific skills essential to an effective Administrator may include, but not limited to the following:

1. Directing

The Administrator will have to plan, organize and establish the direction that other employees in an organization will follow. In order to achieve set targets, the administrator will have to be exemplary in leading the employees within the organization and this requires a combination of resources and an effective followership. The administrator's interpersonal skills must be the type that can harness the many different personalities within the organization. The administrator must be able to use the potentials of the staff to ensure the plan succeeds. In achieving these, the administrator must delegate responsibilities and control to other supervisory staff.

2. Planning and Organizing

An Administrator must be able to work-out both short-range and long-term plans that will spell out in clear and unambiguous terms set of objectives that will lead the organization where it wants to

go. It is important to note that if the administrator must succeed in implementing these plans, he must understand exactly what is being planned for and must also maintain effective relations within the establishment and other organizations and to interpret policies and programs accurately and constructively.

3. Staff

One of the important duties of an Administrator is the right staffing of the organization. A comprehensive knowledge of the organization and what the organization needs is of course the strongest determining factor. The Administrator coordinates the human resources and other departments and must have active participation in the recruitment and screening of new staff for the organization. Thereafter, the Administrator will again be actively involved in appraising the career growth of the new employees.

4. Liaison Bureaucrat

The effective administrator of our choice must liaise with the Management and staff by engaging both parties to find solutions to the demands of both Management and staff. Employee's performance will be enhanced if the work environment is conducive for higher productivity. The management of information, performance and expectations of all employees in an organization is a necessary requirement for organizational growth. The Administrator must establish and maintain an organizational climate that encourages the development, retention and a high level of morale among personnel.

In order to harness these key roles mentioned above for the benefit of an organization, the Administrator must be visionary in projecting into the future. The Administrator must be a pathfinder and a model of what he proclaims by demonstrating confidence in ability and display competence in handling the decisions of the organization. In other words, Administrators must strive to do things right themselves and confident that those responsible to them must do so as well.

The four roles identified for an effective Administrator may require different skills and abilities. It is likely that most administrators will not have automatic proficiency in administering

all the four roles; however, in view of the fact that they need to apply those roles positively, an Administrator must be knowledgeable and be able to engage in self-assessment, develop growth plans and build teams that can work collectively and ideally.

In order to avoid the pitfalls of unethical conducts of public servants, an Administrator must:

1. **Build the Capacity of Staff:** Capacity development is a conceptual approach to personnel development put in place by organisations to increase the competences of an employee. Put differently, it involves training, creating opportunities for employees and other means through which their performances could be enhanced.
2. **Have Good Work Environment:** Employees' performance will be enhanced if the work environment is conducive for higher productivity. A convivial environment will naturally elicit higher performance as a result of bonded co-operation. Conflict and rancour must be avoided. An employee has best performance when he has a good relationship with his colleagues at work.
3. **Be A Team Builder:** An Administrator must be able to manage informal group thriving in an organization in order to create interactions which may not have been possible in an official relationship. Administrators must create time to relate with the employees from time to time, to discuss work plan and share their grievances.
4. **Provide the staff with the necessary Work Facilities:** The absence of working facilities is detrimental to achieving organization goals and objectives. Employees must be provided with the necessary facilities to work with. Lack of working implements for employees will make them idle even if they are willing to work.
5. **Be able to Discipline and Punish staff where necessary:** Institutionalization of rewards system will increase performance. Similarly, there must be an awareness of punishment whenever they go wrong. If employees know the gravity of an offence and the likely punishment, they will opt for proper decorum at work place and will play according to the rule. Also promotion is a source of performance enhancement. Promotion or assurance of rewards encourages workers to perform to the best of their ability.
7. **Be able to Evaluate Staff Performance periodically:** An Administrator must be able to examine and evaluate employee's work behaviour by comparing it with present standards and use the results to provide feedback to show where improvements are needed. This will determine who needs what training and who will be promoted, demoted or fired. The awareness itself will spur the employees to be productive.
8. **Be able to Pay Salaries and Wages regularly:** An administrator must ensure as much as possible the regular payment of salaries and wages and other financial entitlements of the workers. If they are delayed unreasonably, the employees will engage in corrupt practices like bribery and the outright leaking of government information. It is important to emphasize that the absence of the above factors will surely lead to the following:
 1. **Official Hostility:** An unfriendly environment breeds hostile relationship among employees. Bosses' negative mien to their subordinates will naturally dampen employees' morale and consequently reduces their performances.
 2. **Individualism:** Collectivism in work place is better than individualism. An employee who works separately without cooperation will not be productive. Rather, cooperation at work increases performance. Cooperation brings new initiative, new idea and new suggestions, and builds team, as workers work as a team and not as segmented entity.
 3. **Lack of Initiatives:** Employees without initiatives are bound to be frustrated on career growth when they see their peers' advancement.
 4. **Monotony:** Some assignments have become so repetitive and monotonous that it leads to boredom and reduces efficient performance. An administrator who thinks outside the box will forestall this boredom.

5. **Low Wage:** Low wage is commensurate to low performance. Employees may not be motivated to put in their best. In some cases, they may be forced to engage in menial jobs that are likely to distract their concentration on their jobs. It is common scene nowadays to see some selling at their offices to augment their take-home pay. These no doubt will reduce their levels of performance.

6. **Lack of Work Challenges:** This is a situation where workers are not encouraged to engage in opportunities that would help them in their work. It can also mean a situation where workers are not given the opportunities to have on-the-job training.

7. **Psychological Factors:** Employees who go through psychological trauma or depression may lack the requisite mental alertness to carry out assigned jobs.

8. **Job Fulfillment/Self Actualization:** Workers who do not love the type of job they do find it difficult to be as productive as they would have been if they love the job they do. It does not count if the job is lucrative or attracts high salary. What matters is job fulfillment without which performance will be hampered.

Finally, for the purpose of convergence and to inspire public confidence and trust of public servant, the "Change Begins with Me" can only begin to make meaning if the following core values in Public Service are imbibed:

Integrity: Putting the obligations of the service above one's own personal interests.

- **Selflessness:** Avoid seeking personal gain or financial reward or other material benefits for one's family or friends through one's official position.
- **Impartiality:** Acting solely according to the merits of a case and serving the Government of the day, irrespective of one's own political affinity or preference.
- **Objectivity:** Favours meritocracy and base one's advice and decisions on rigorous analysis of evidence.

- **Accountability:** Being responsible and accountable for one's decisions and actions.
- **Openness:** Being as open as possible in one's decisions and providing justification for one's actions whenever required.
- **Honesty:** Acting in good faith and being truthful.
- **Justice/fairness:** Adhering to the principles of natural justice and fairness.

Our value system has been badly eroded over the years as a result of the growing unethical behaviours both in public and private lives of the citizenry. If we must instill the virtues of hard work, integrity, honesty, punctuality, hatred for corruption and be patriotic in our daily lives both in and outside of work place, we must join the "Change Begins With Me" campaign to abhor in the strongest way possible all unethical practices like corruption, dishonesty, indolence and other form of vices that have bedeviled our national psyche.

This can be achieved by the effective use of the key roles of the Administrator, which must be channeled to productive use thereby checking the excessive abuse of public office. Until that is done and effectively too, the slogan will be another wild goose chase.

(Written by Mr. R. A. Menegbe, Mrs. I. E. Jude-Iloma, Mrs. R. A. Emore and Mr. A. W. Udenyi)

REFERENCES

1. Bennis, W. G. (2001). *An invented life; Reflections on leadership and change*. New York: Basic Books.
2. Greenleaf, R. K. (2002). *Servant leadership: A journey into the nature of legitimate power and greatness*. Mahwah, NJ: Paulist Press.
3. Kouzes, J. M. & Posner, B. Z. (2002). *The leadership challenge* (3rd ed.). San Francisco: Jossey-Bass.
4. Senge, P. M. (1994). *The fifth discipline: The art and practice of the learning organization*. New York: Bantam Doubleday Dell.
5. Microsoft® Encarta® 2009. © 1993-2008 Microsoft Corporation. All Rights Reserved.

DG NBRRI IS NEW HONORARY TREASURER OF THE NIGERIAN ACADEMY OF ENGINEERING

The Director General of the Nigerian Building and Road Research Institute, NBRRI, Professor Danladi Matawal has been elected as the new Honorary Treasurer of the prestigious Nigerian Academy of Engineering (NAE).

The Academy was established by statute in 1997 as a non-profit and non-governmental institution for the promotion of excellence in engineering training and practice to ensure the technological growth of Nigeria. The Academy is a national "Think Tank" for Engineering and Technology that provides leadership in national engineering and technological issues by conducting studies and research on relevant issues and making inputs to developmental policies at the highest possible level.

Its Fellows are drawn from among very senior Nigerian engineering professionals resident in Nigeria and abroad who have distinguished themselves in business, academia, and government. Fellowship is spread across all disciplines in engineering and strictly by invitation only.

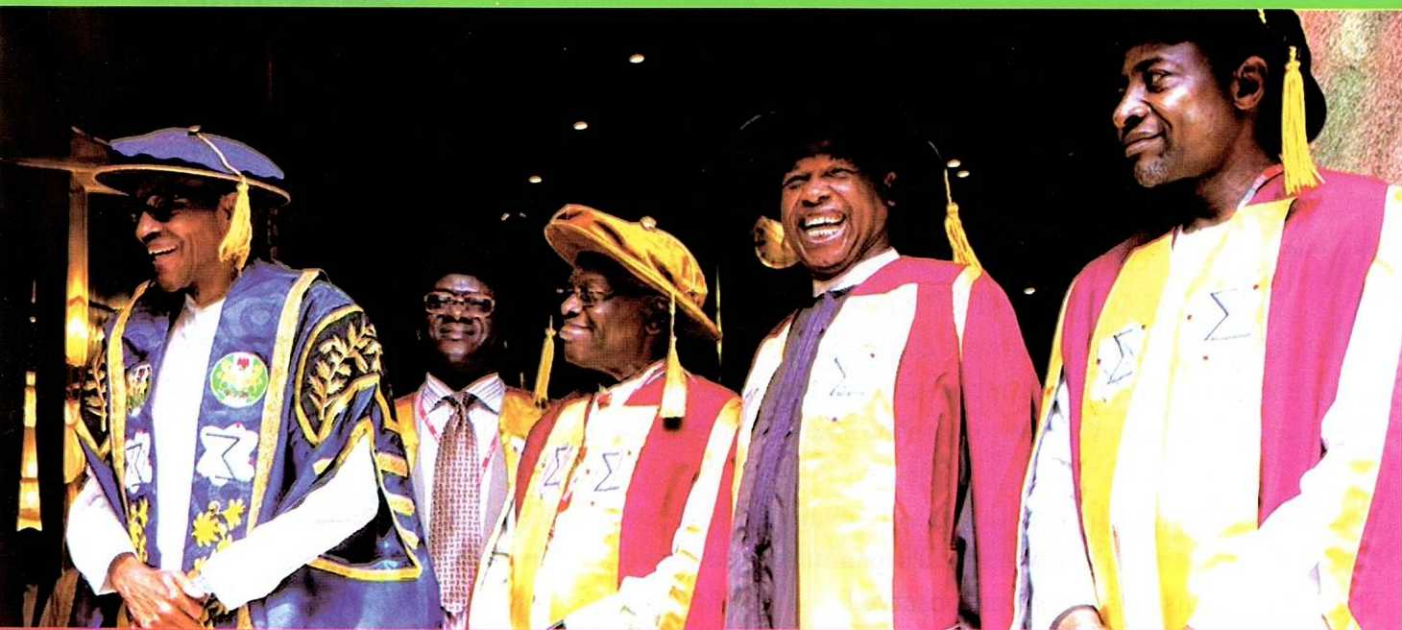
The Mission of the Academy is to provide input and leadership in national technological issues and policies at the highest level possible, through contributions to Science, Engineering and Technology ideas in Nigeria and, by extension, globally.



Prof Matawal was inducted Fellow of the Academy in 2013. He has continued to contribute his quota to the growth and development of the Academy. In 2014 he presented the Annual Academy Lecture on the theme: "Roads and Building Research: Panacea to Nigeria's Quest for Infrastructural Development"

As the Honorary Treasurer, Professor Matawal is now a Council Member of the Academy. He is also, by virtue of the new office, a member of the Executive Committee of the NAEng.

Other Executive Members of the Academy are: Engr. (Mrs.) Joanna O. Maduka, MFR President; Engr. Prof. Fola Lasisi Vice President; Engr. Prof. A. O. Denloye Honorary Secretary among others.



President Muhammadu Buhari with some members of the Academy Fellows (DG NBRRI, Prof. Matawal behind Mr. President)

.....AS ACADEMY CONFERS GRAND PATRONSHIP ON PRESIDENT BUHARI

Meantime, the Nigerian Academy of Engineers has decorated His Excellency, President Muhammadu Buhari as the Grand Patron of the Academy. At the Investiture ceremony held in the State House on November 29th 2016, the Academy led by its President Engr. (Mrs.) Joanna O. Maduka conferred the title on Mr President

In his acceptance speech, President Buhari said his administration will heavily utilize talents and skills of local engineers to rebuild ailing infrastructure across the country, describing the engineers as "competent and cost effective."

President Buhari added that the well-trained and highly experienced engineers had contributed immensely to the infrastructural development of the country, and they remain indispensable.

He said previous administrations over the years depended on Nigerian engineers

for designs and constructions across the country; adding that he respects engineers as he knows what it takes to be trained as an engineer.

The President noted that local engineers contributed more than 90 percent to the design and realization of two refineries, 2,500 pipelines and 20 depots in the country during his tenure as Minister of Petroleum in the mid-1970s, adding that the success of the Petroleum Trust Fund was largely hinged on their skills.

In her remarks, the President of NAE, Mrs. Joanna Maduka, said science, technology and innovation were the key drivers of growth across the globe.

She urged the Federal Government to take advantage of the multiple engineering talents in the country for more purposeful results.

The DG of NBRRI, Prof. Danladi Matawal, who is the Honorary Treasurer of the Academy, was part of the delegation to visit Mr. President

HIGHLIGHTS OF INVESTIGATION OF BWARI - LOWER USMAN DAM (LUD) GURARA ROAD

The Nigerian Building and Road Research Institute was requested by Federal Capital Development Agency (FCDA) Abuja, to carry out an investigation on pavement distress observed along the Lower Usuma Dam – Gurara Road. The road, which is a bituminous pavement, is presently under reconstruction and expansion. There have been observed pavement distresses along sections of the road on the lane from Jere to Bwari.

The purpose of this investigation was to evaluate the possible causes of the observed pavement distresses, and to recommend remedies to minimize distress of the pavement.

The following distress types were observed:

i. Fatigue cracks



Plate 1: Fatigue cracks observed at various sections along the roadway

ii. Patched sections



Plate 2: Ongoing rehabilitation works on some sections

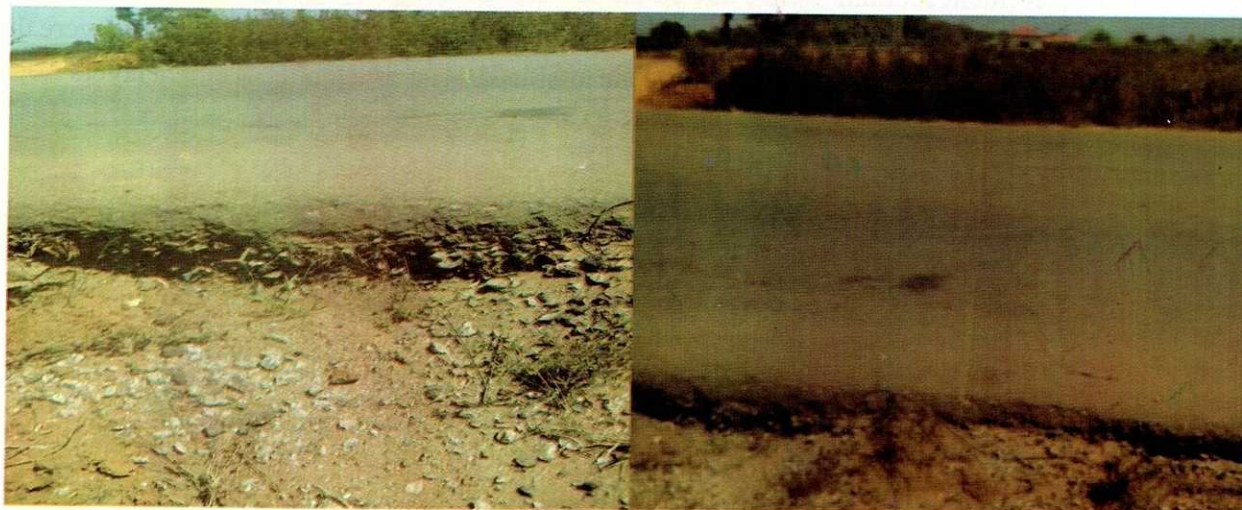
iii. Inadequate drainage

Plate 3: Sections of the roadway without drainage

Highlights of Investigation conducted

Materials sampling and laboratory testing were carried out to ascertain suitability of materials. Excavation of trial pits and collection of disturbed samples from the shoulder of 21Nos selected sections was performed and subsurface investigations conducted. Subsurface investigations of the underlying soil were used to identify and classify subgrade materials, based on the soil type.



Plate 4: Dynamic Cone Penetration test

Coring of the pavement sections were carried out to determine layer thicknesses, the bonding and integrity of layers. Sixty three cores were drilled from the section. Other testing conducted were the Dynamic Cone Penetrometer, DCP to determine the in-situ CBR parameter of pavement layers.



Plate 5: COLLECTION OF CORED SAMPLES FROM THE SITE.

Traffic count was conducted to determine the traffic loading along the roadway in order to ascertain if the pavement layer design is adequate for the vehicular load. Traffic count was conducted for 24hrs for one week using automated traffic counter. All data gathered were analysed to help identify the most likely cause(s) of the problem.

These investigations were conducted in line with highest professional standards and international best practices.

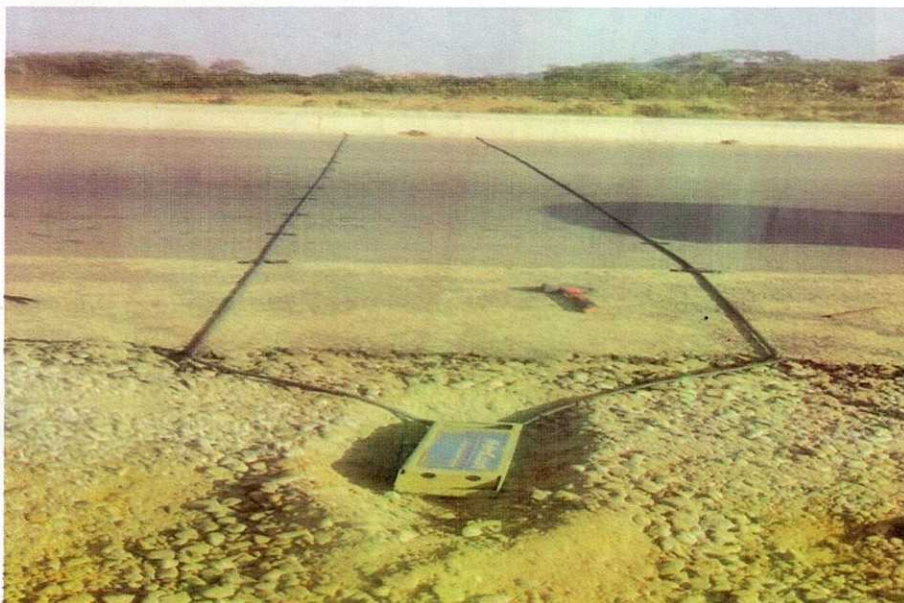


Plate 6: Automated Traffic Counter Setup at CH 41+00



Plate 7: Truck weighing Process



Plate 8: Typical layout of trucks to be weighed



Plate 9: Typical 4-Axle truck loaded with sand

From the investigations conducted, considering the percentage of commercial vehicles, the traffic volume of the commercial vehicles fall in the category of heavy vehicles. This road network is a class C secondary Roads as described in the Nigerian Highway Manual Part 1 (2013) of the Federal Ministry of Works , hence design volumes as stipulated is 500-4000veh/day for such class. The traffic volume before the road was opened for traffic is over 300 Commercial Vehicles per day(CVPD), hence the road should be been designed as heavy traffic volume road. The road network has exceeded the standard design service volume and it is categorized as a heavy traffic corridor. It has been shown that the volume has exceeded the prescribed design volume for such class of road. This may have necessitated the expansion program going on. Also, during the investigation, the only distresses observed in the Hot Mix Asphalt (HMA) were Alligator cracks, rutting , patching, and raveling.

Samples of HMA from the field did not show any inconsistencies and could not have contributed to the failure of the HMA. All the base materials meets the minimum requirement with the exception of the materials in one of the locations which is below the requirement. In All but one location out of the six locations, the subbase materials also met the requirement. All the subgrade materials were ok and above the minimum requirement which is obvious that the materials were stabilised.

The loading on the pavement is 20msa which is much higher than what the pavement was designed for. Unanticipated loading can further stress weak layers of asphalt and can contribute to accelerated failure if overweight loads are not taken into consideration during the design process. The main factor was load and also contributing to the failure was the incomplete layers along the road network (i.e wearing course missing) to withstand the tensile stress. It is our opinion that the runoff from precipitation penetrates the binder course which is more porous than wearing course which in turn exposed the pavement to more damage due to overloading.

The current design of 40mm wearing course, 60mm binder course, 150mm base course and 150mm sub-base course is inadequate for the level of high traffic currently. The binder should be grooved to a depth parallel to the center line to 1mm at .5mm each then the tack coat of 0-0.5mm placed on the surface before placing a wearing course of 50mm in other to increase the life span of the pavement material. Based on the 20msa computed as the axle load the road network will carry, the institute is also recommending that the ongoing dualization which will now be the Jere-Bwari lane when fully opened should have wearing course of 40 mm, 85 mm of binder course, 250 mm of base, 200 mm of subbase,

THE CRITICAL ROLE OF EXTENSION SERVICES IN THE NBRRRI MANDATE



1.1 INTRODUCTION

The term EXTENSION was first used to describe adult education programmes in England in the second half of the 19th century, these programme help to expand-or extend- the work of the universities beyond the campus and into the neighbour community.

In Extension, Expand, Extend and Disseminate are three main words to be recon with when discussing extension. Extension is too vital that if it is weak, some excellent technologies and innovations will die in the shelves. They will never reach the end user which is the ultimate goal of the research. Extension plays a significant role in bringing new innovations to the end users/consumers. Hence, research institutes outputs and results remains largely academic jamboree if it is not made known to the public.

Research focuses on the technical aspect for generating useful technologies, while Extension focuses on the acceptance and adoption of those technologies by user. The good technologies, in order to be considered by the users for possible adoption, must first travel the distance between relevant research institutes and the user's area, (that is why Extension staff must always travel in order to meet with their end users or the public. Then, they should be introduced to the users in non-technical language and the advantages of the technology over the traditional practices (readily available technology) must be demonstrated in a convincing manner such as through field demonstration and the necessary ingredients for trying the new technologies such as cost and any risk factors that have to be explained to them (end users).

1.2 DEFINITION OF EXTENSION

Extension which its main function is to extend, Expand and disseminate is defined differently by many authors. However, there is no widely accepted definition of Extension. The few examples given below are taken from a number of books on extension published over some years ago by different authors.

Extension is a service of embedded communication intervention that are meant among others, to develop and or induce innovation which supposedly help to resolve problematic situation.

The problematic situation in this context and in relation to NBRR may be lack of individuals owning their own houses due to high cost of building materials. However, NBRR innovation "Locally Sourced Affordable building material" now emerged. It is now the duty of the extension officers to create awareness, induce, expand, extend, disseminate the information on the innovation that is newly researched to the individual, public, communities, federal government to adopt them, for resolving their housing problem in their area or in the country.

Extension is the organized exchange of information and the purposive transfer or dissemination of information for a new research innovation skill. The skills involve in the use of NBRR research innovations/products should be transferred or made known to the end users of the innovation.

Extension involves the conscious use of communication of information to help people from sound opinions and make good decisions. People often ask the question, your block and the conventional block which is cheaper. As an extension officer, it is now your duty to convenience the person to form a sound/better opinion to make good decision/choice of material to use in order to solve their problem on housing.

1.3 IMPORTANCE OF EXTENSION/ Extension Staff

New innovations are made known to the public. This can be achieved by Extension Staff taking the new information/innovation right to the door step of the user/public. Objective of this task is to improve the efficiency of the use of the product. This can be achieved by organising public talk, demonstration of the skills involved in the new innovation, constructing with the new materials for public view, building a prototype like public toilet, bus-stop, parks, motor station offices, market, cinema houses etc.

Extension staff is the link between the research officers and the public. In other words, research officers and extension staff work hand in hand. This is because research innovations are useless when the end users are not aware of the existing innovation. And an innovation in the shelves is equal to a dead and none existing innovation until the public becomes aware of its existence.

The central task of Extension is to help rural families help themselves by applying science research innovation in their activities by being open to adopt new innovations easily.

Any country, state, communities, a family that easily adopts research innovation finds it easy to solve their scientific problems whether in education, building, health, agriculture etc.

Extension officer must be erudite of his research product, by giving answers to the interested users question any time anywhere. This will eventually convince them. But were answers are not given immediately, it seems to them that you are not serious.

Written by

Mr. Makava D. O and Mrs. Obidozie V. N



NBRI DRIVERS UNDERGO REFRESHER TRAINING

To ensure optimum professionalism when driving, the Nigerian Building and Road Research Institute recently organized a workshop for its drivers.

The 2 day – workshop took place on the 9th and 10th of December, 2016 at the North gate Hotel, Mararaba Nasarawa State, with all the Institute's Drivers in attendance.

The workshop with the theme: Corporate Drivers & Personal Effectiveness was organized by MOKOHI CONSULTING LIMITED

The training exposed the Institute's drivers to understand:

- i. That NBRI requires professionals in driving to guarantee the lives of its employees as well as its properties towards achieving its mandate.
- ii. That a driver is not an ordinary staff, his role are immense.
- iii. How he fits into the set-up, culture and values that drive the operation of NBRI.
- iv. How a driver can be efficient and effective

towards discharging his duty.

- v. How he carries the image of the Institute especially driving a branded vehicle.

The participants were further taught on:

- Catching clearly the Vision, Mission, Culture & Core values of NBRI
- The Causes, Effects and Prevention of Road Traffic Crash
- Health Issues in driving
- Safety Issues & Basic Vehicle Maintenance
- Work attitude, Ethics & Time Management
- Qualities and Responsibilities of a good driver
- Managing emotions when driving from within:
- The role or functions of Traffic control Agencies.

The various resource persons who spoke during the workshop told the participants that they should consider it a privilege to work as drivers in NBRI, as it is not a right; therefore they must be determined to put in their best. They also emphasized to the drivers not to allow their emotions and behaviours affect their work and

others around them hence the need to control and manage themselves.

Speaking after the training, Transport Officer of the Institute, Danladi Makwin said the Drivers learned a lot including: That road network as part of the development of the nation as it contributes immensely to social, economic and political activities. He also mentioned that they learnt a vehicle crash is avoidable and so nobody should be a victim or make someone else.

Also speaking, a driver of the Institute, Francis Muar, said he learnt that some health conditions can affect a safe driving, and so if anybody is complaining about their driving, they should check themselves or get checked by a doctor.

He added that Drivers should therefore maintain good health; rest, eat the right diet and exercise.

On his part, Head driver of NBRRI, Mr. Bala Ibrahim, said the workshop taught him on the need to be proactive in carrying out daily vehicle parade as well as exude confidence and knowledge when performing his work on the road.

At the end of the training certificates were awarded to the participating drivers.

The drivers on their part expressed appreciation to the Institute's Management for the privileged given to them to participate in the training and promised to put into practices all that they have learned at the workshop.

A QUICK GLANCE AT PARASTATALS UNDER THE SUPERVISION OF THE FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY

1. National Board For Technology Incubation (NBTI)
2. Energy Commission of Nigeria (ECN)
3. The Nigerian Institute of Science Laboratory Technology (NISLT)
4. Nigerian Institute for Trypanosomiasis and Onchocerciasis (NITR)
5. National Biotechnology Development Agency (NABDA)
6. National Centre For Technology Management (NACETEM)
7. National Office For Technology Acquisition And Promotion (NOTAP)
8. Nigerian Natural Medicine Development Agency (NNMDA)
9. National Space Research & Development Agency (NARSDA)
10. Raw Materials Research and Development Council (RMRDC), Abuja
11. Nigerian Building and Road Research Institute (NBBRI) Abuja
12. National Institute of Leather Science and Technology (NILEST), Zaria
13. National Research Institute for Chemical Technology (NARICT), Zaria
14. Sheda Science and Technology Complex (SHESTCO), Abuja
15. Project Development Institute (PRODA), Enugu
16. Federal Institute of Industrial Research, Oshodi (FIIRO)
17. National Agency for Science and Engineering Infrastructure (NASENI), Abuja

WORLD'S BEST STRUCTURES BUILT USING LOCAL MATERIALS

A GREAT RELIGIOUS CENTRE IN DJENNÉ, MALI



The Religious Centre of Djenné was built in 1907 and is considered by many to be the greatest achievement of the Sudano-Sahelian architectural style, with definite Islamic influences. It is also the largest mud brick building in the world.

The walls of the Great Centre are made of sun-baked mud bricks called ferey, a mud based mortar, and are coated with a mud plaster which gives the building its smooth, sculpted look. The walls are between 41 cm (16 in.) and 61 cm (24 in.) thick – the thickness varying with the wall's height. Bundles of palm branches were included in the building to reduce cracking

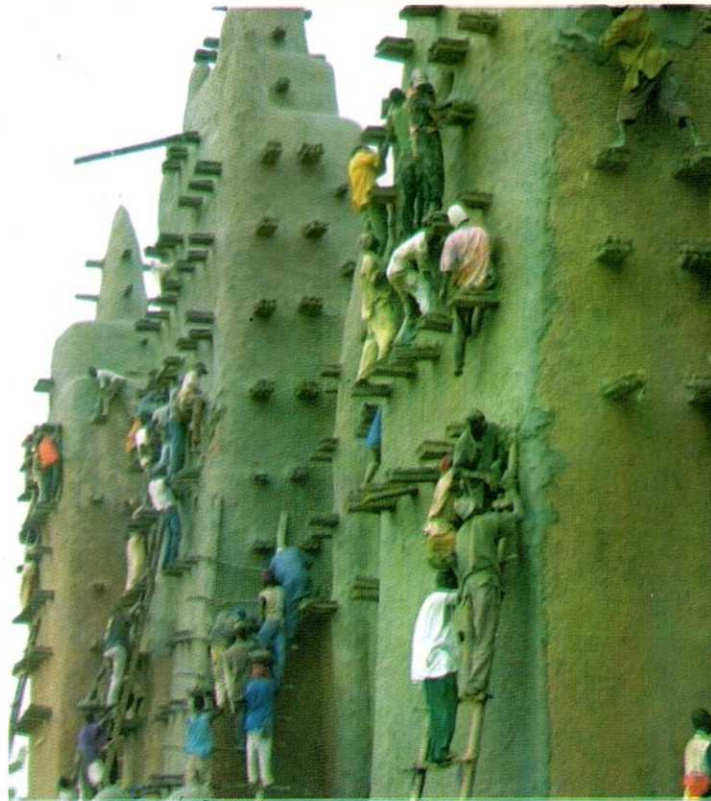
caused by frequent drastic changes in humidity and temperature and to serve as readymade scaffolding for annual repairs.

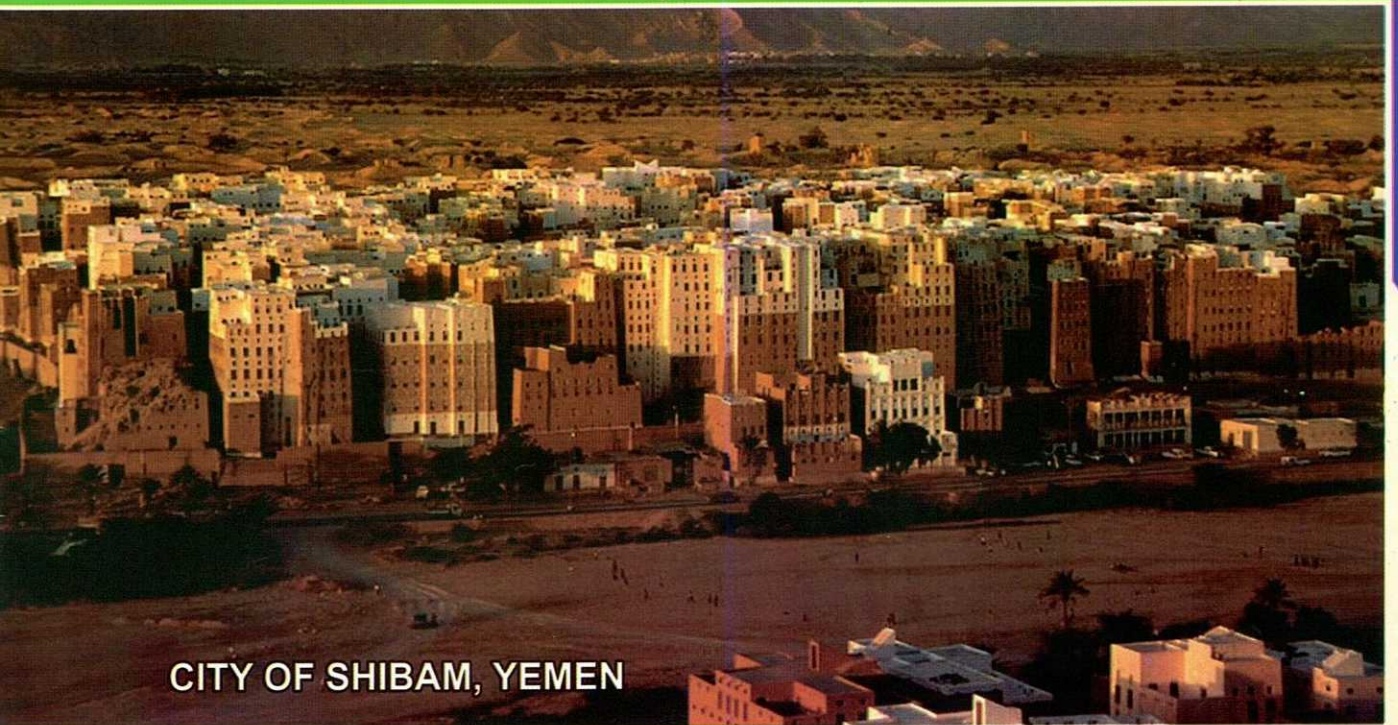
The walls insulate the building from heat during the day and by nightfall have absorbed enough heat to keep the centre warm through the night. Gutters, made of ceramic pipes, extend from the roofline and direct water drainage from the roof away from the walls. To protect the Great centre from water damage, in particular flooding by the Bani River, the entire structure was constructed on a raised platform 3 meters high. A set of six stairs, each decorated with pinnacles, leads to the centre's entrance.



Annual repair of the centre is almost a festival and the entire community of Djenné takes an active role in it. In the days leading up to the festival, the plaster is prepared in pits. It requires several days to cure but needs to be periodically stirred, a task usually falling to young boys who play in the mixture, thus stirring up the contents. Men climb onto the mosque's built-in scaffolding and ladders made of palm wood and smear the plaster over the face of the centre.

Another group of men carries the plaster from the pits to the workmen on the mosque. A race is held at the beginning of the festival to see who will be the first to deliver the plaster to the centre.





CITY OF SHIBAM, YEMEN

The historic areas of Djenné, including the Great centre, were designated a World Heritage Site by UNESCO in 1988. While there are many centres that are older than its current incarnation, the Great centre remains the most famous landmarks of the town and the entire nation of Mali.

Surrounded by a fortified wall, the 16th-century city of Shibam is one of the oldest and best examples of urban planning based on the principle of vertical construction. Its impressive tower-like structures rise out of the cliff and have given the city the nickname of 'the Manhattan of the desert'. Outstanding Universal Value

Located at an important trading route across the Southern Arabian plateau, The tall cluster of sun-dried mud brick tower houses of the 16th century walled city of Shibam, rises out of the cliff edge of Wadi Hadramaut. The city has houses up to seven storeys high developed on a fortified, rectangular grid plan of streets and squares. The city is built on a rocky spur several hundred metres above the wadi bed.

The dense layout of Shibam surrounded by contiguous tower houses within the outer walls expressed an urban response to the need for refuge and protection as well as their economic and political prestige. As such the city constitutes an outstanding example of human settlement, land use and city planning.



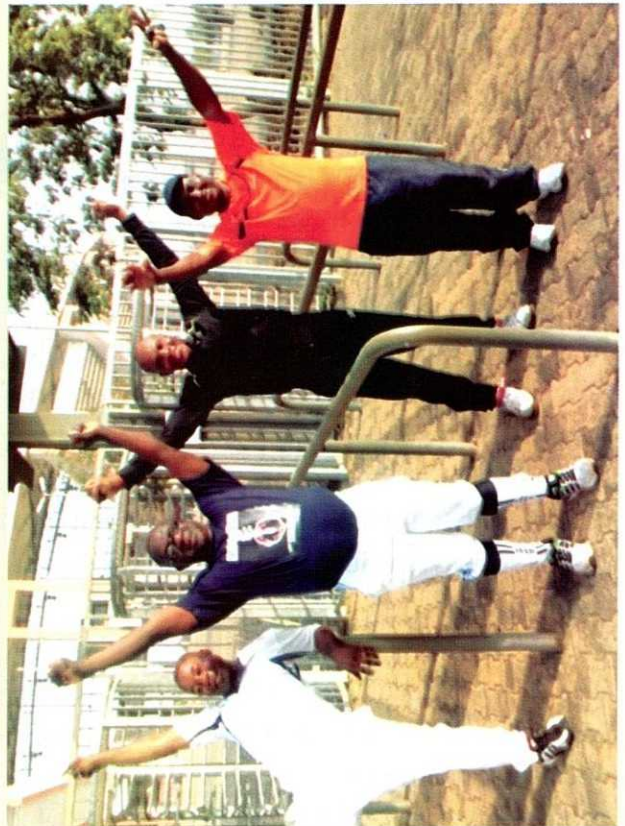
The domestic architecture of Shibam including its visual impact rising out of the flood plain of the wadi, functional design, materials and construction techniques is an outstanding but extremely vulnerable expression of Arab traditional culture.

DG NBRRI LEADS FITNESS OF STAFF BY EXAMPLE

The DG/CEO of NBRRI, Prof. Danladi Matawal led other Staff of the Institute to the National Stadium, Abuja for the monthly fitness Exercise. The NBRRI team was in the gym to work out their body muscles and later had outdoor aerobics.

Here are some shots of the exercise:





Social Diary

Asuquo E. Asuquo of SLTRD, OTA
married former Miss Mercy Emmanuel
on 16th of April, 2016 in Calabar



**Engr. Ajayi Samuel
of Building Research Department, Ota,**
Married former Miss Francisca Ajanaku
on November 5th, 2016



Jude Akorah of RRD, OTA
married former Miss. Grace Ubah
on the 28th of November, 2016 in Lagos

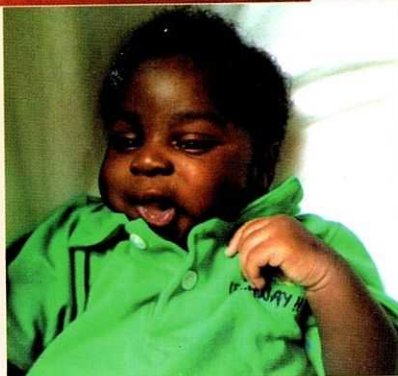


Makava O Richard of PITD
married former Miss Silverline
Oluchukwu Ibe
on 17th of December, 2016 in Abuja



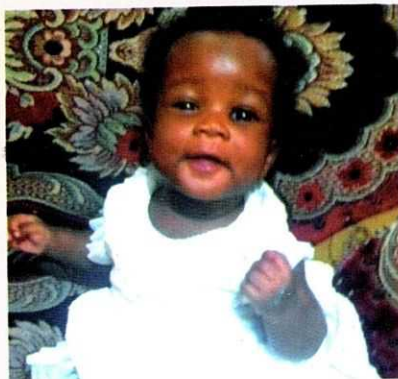
**Thank God Ntem
of Building Research Dept, OTA,**
married former Miss Mercy Odey
on 29th of October, 2016

Social Diary



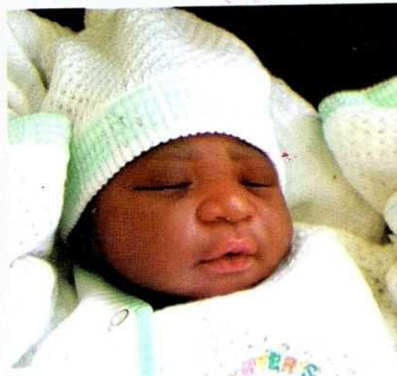
Teminireoluwa Sanusi.

Born on 28th of August, 2016 to the family of Mrs Folake Sanusi of PITD, OTA



Dokunmu Delight Toluwalope.

Born on 16th September, 2016 to the family of Mrs. Adebimpe Dokunmu of PITD Ota



Emmanuel Jesuferanmi.

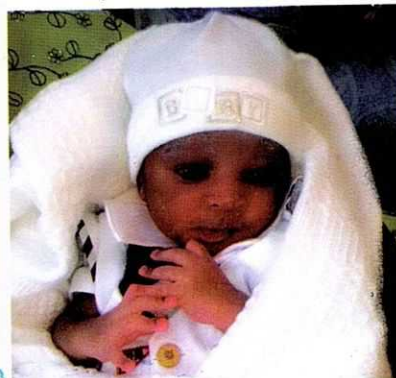
Born on 1st October, 2016 to the family of Mrs. Odetola Phoebe of PITD, OTA



Nathan Anuoluwapo Adetunji. Born on 28th of December, 2016 to the family of Engr & Mrs. Adeyinka Adeyemi of RRD & PITD Ota Respectively

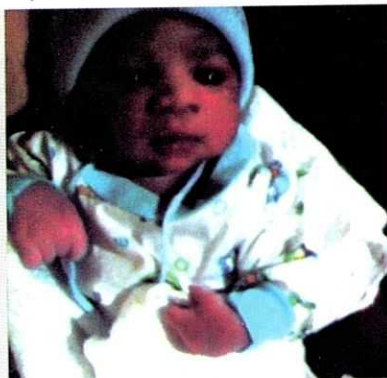


Emmanuel Olamilekan Okikiola Born on 1st of January, 2017 to the family of Mr. Falayi Christopher of A & F, NLC OTA had a baby boy



Ayomide David

born on 28th of January 2017 to the family of Mr Adebola Abiodun of Admin & Fin, Ota



Oluwabusayomi Daniel Arsene, was born on the 26th of January, 2017 to the family of Mr. Ajayi A. A of RRD, Ota.



Khadija Moyi Zayyan, was born on 4th December, 2016 to the family of Mr. Moyi Zayyan of Kano zonal office



Praise O. Sunday

was born on 4th October, 2016 to the family of Mr. Agbo Sunday of Maintenance Dept., Abuja



Bethany Malti Bweh Dafang Born On 26th October 2016 to the family of Arc. Dafang Maton of BRD, Abuja



Isreala Mahwel

Born on 10th October 2016 to the family of Umbule Mahwel of Accounts Unit



Habiba Zara Abdullahi

Born on 5th October 2016 to the family of Yatasu Abdullahi of PIT Dept. Abuja



LATEST PUBLICATION



This Latest Publication, which is available at NBRRI Offices across the country, will be found useful by all stakeholders' in the Construction Industry including Professionals, Professional Bodies, Construction Companies, Contractors, Governments, The Academia, Individuals, etc.

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