



Agwor: Nigeria's tunneling space is untapped

UK trained Nigerian, Abidemi Agwor, who is the national chairman of Tunneling Association of Nigeria, TAN, and who is also the first and only Nigerian representative at the world body of tunneling engineering was recently in the country promoting the concept of maximum utilization of underground space. He speaks with Montage Africa's REMI ADEBAYO

You are Nigeria's first and only ambassador on the UN tunneling body. How did this happen?

The idea of developing the tunneling industry in Nigeria was first conceived shortly after I arrived in the United Kingdom after securing an

international scholarship from the Rivers State Government in 2008. I focused on developing myself once I discovered my passion for tunneling and the development of underground structures. I was also immensely helped by those who mentored me in different ways. I was part of the team that developed the crossrail tunnels UK which was at the time the biggest

infrastructural development in Europe worth £16billion of which I was a project ambassador. I am currently part of the tunneling team working on a key part of the Hinkley Point Nuclear Power Project worth £24billion.

Over the couple of years I have had the opportunity to work with the best in the industry and so my network was built from

there. I am a member of the British Tunneling Society (BTS) and in September 2015 I approached the Chairman of the BTS to advice on how to go about setting up a similar organisation in Nigeria since they had just helped set up the Tunneling Association in Saudi Arabia and that was where it really all started from. We have since gone on to incorporate the Tunneling Association Nigeria, registered with the Corporate Affairs Commission Nigeria as the Association of Tunneling Operators Nigeria in June 2016 and I was appointed the Chairman of the Executive committee shortly after.

We had also gotten in touch with the International Tunneling and Underground Space Association (ITA) which has a consultative status with the United Nations Organisation who got involved and adopted Nigeria as a member nation through an exclusive endorsement of TAN. In essence Nigeria now has a seat at the World Tunneling Congress held yearly.

A lot of Nigerians may not be too familiar with the tunneling aspect of engineering. What does it entail?

You are absolutely right; although it isn't totally alien to us it is however an approach that is not readily part of our infrastructural conceptualisation. To put it simply, tunneling is the act of creating useful and effective space below ground level. This cuts across several sectors, covering a wide spectrum from the seemingly small applications to the more sophisticated applications like water and sanitary waste management, telecommunications and power distribution, vehicular and pedestrian transportation, oil and gas product transportation, mining and mineral exploration, agricultural and environmental applications and several other unorthodox applications.

These can be done through conventional and mechanised means, the latter been the most popular. However, delivering an underground infrastructure requires extensive planning and

preparation. Depending on the type of project and structure an extensive ground investigation would be required as that will duly inform the construction method as well as produce a geotechnical baseline report for construction (GBR-C). This helps to determine if we are working in a soft or hard ground, cohesive or uncohesive as well as several other technical parameters that aid the decision of procuring the best suited tunneling equipment as well as proposing a sustainable design and realistic programme. The GBR will also infer if ground preparatory works will be required. We can't fully exhaust all the requirements in delivering an underground infrastructure here but I know that this technology can be applied appropriately and effectively in Nigeria. **You have left your base in the UK promoting this idea. What responses have you been getting from the NSE and government in Nigeria?**

It has been challenging but fulfilling to say the least. The responses have been



mixed and that is the reason we are deliberate and intentional with our approach. We have had key members of the Board of Trustees of the Tunneling Association Nigeria (TAN) champion and promote the idea within their respective professional affiliations and the Nigerian Society of Engineers is one of the bodies currently in partnership with TAN. They have even set up a Tunneling Engineering Study Group to work with TAN. We are also making progress in setting up same partnership with other relevant bodies like the Nigerian Institute of Architects, Nigerian Institute of Surveyors as well as Nigerian Institute of Town Planners. We have also had positive responses from several government parastatals like the Federal Ministry of Power, Lands and Housing; some state governments and some educational institutions like the University of Lagos and the River State University of Science and Technology. So the response in the country has been encouraging, but there is still a long way to go.

Considering the current economic recession in Nigeria, do you think Nigeria can afford investment in tunneling infrastructure?

Based on my perspective the current economic challenges could really serve as an opportunity to evolve. The lack of requisite infrastructure has exacerbated the impact of the economic challenges, though I believe that bridging our infrastructural gap is now government's primary objective. What developing a tunnel or an underground space does is that it enables us maximise the use of a square foot of space thereby adding more value depending on its application whether it be utilities or transportation it would definitely positively affect our lifestyle.

Cost benefit analysis of most of these scenarios will tell you that the value of the benefits that these infrastructures bring over their life span outweighs their delivery cost.

Although, planning and delivering a major underground project will typically take 10 years if everything works according to schedule and, probably half that time for minor projects; so my answer would be yes, we can invest now in the early phases of delivering innovative and sustainable projects that will future proof our rapidly urbanising cities.

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Aside from government and corporate bodies, how can private citizens benefit from tunneling and underground services?

Tunnels and underground structures can be privately developed and one area that can be given keen consideration is the development of underground parking for residential accommodation. It should come naturally that we would consider it as part of a design brief. I would expect that a private developer would be restricted to the scale and scope of structure that can be developed as I presume it would be within foot print of land owned except permission is granted by the appropriate authorities.

How much of expertise and technology are available in Nigeria to make these happen?

Although Expertise and Technology in developing underground infrastructure is still in very high demand globally, Nigeria currently cannot boast of a handful of talents and expertise in this sector. However, I believe we have existing skills that can be easily developed to suit some of the requirements of developing underground infrastructure. Developing our local capabilities is one main reason the Tunneling Association Nigeria was setup. It was set up to promote the use of our underground space through awareness creation, sensitization, knowledge sharing, advocacy and several other means. The Tunneling Association has put together a

10-year plan that would enable us locally engage at least 50 percent of the delivery of major tunneling and underground activities. So, realistically my advocacy is for us to prepare for the mid-term to long-term future trends in the tunneling and underground industries, which has indicated that sub Saharan Africa will inevitably experience its own fair share of the global tunneling and underground space market boom.

What programmes are in place by the Tunneling Association of Nigeria where you are the president to integrate this new thinking into the management of the underground space in Nigeria?

Benefitting from all that the association has put in place to develop capacity starts from being a registered member of the association. We have employed an open ended policy to the membership of the association. Membership of TAN is open to all potential stakeholders in the development of our underground infrastructure including, civil engineers, mechanical and electrical engineers, geotechnical engineers, mining engineers, geologist, surveyors, GIS engineers, architects, urban planners and developers, financiers, insurers, policy makers, legal practitioners and project finance specialists.

As part of our developmental programmes we have scheduled annual conferences and workshops, we are scheduled to host what is the first International Tunneling and Underground Space Conference in Nigeria on the 29th to 30th of March 2017 in Lagos, tagged “Developing the Tunneling and Underground Space Industry in Nigeria”.

We are also scheduling courses endorsed by the International Tunneling and Underground Space Association. We have a team that champions this campaign in university institutions as well as colleges. As part of the benefits of being a member nation of the World Tunneling Congress we have exchange programmes that would enable students and professionals gain foreign practical experience of how tunnels are built. TAN in partnership with other member nations has scheduled tours to project specific sites to expose our members to current global trends in the industry. Our partnership with other key organisations will also help to propagate the idea. **MA**