

## #AfricaCom Expanding internet connectivity throughout rural Africa

According to the GSMA 2016 report on 'Unlocking Rural Coverage', "The internet is the most important enabler of social development and economic growth of our time". And, while connectivity across the globe is extensive, there are still more people not connected than those with connectivity; over 1.6 billion of them live beyond the reach of a 3G network.



The tendency is for suppliers of technology to look at the developed world, and this most commonly involves advances that enhance the lives of citizens in the wealthier nations – think Elon Musk's Hyperloop, the Apple Watch, driverless motor cars, etc.

"Economics is what generally drives new technologies," explains Dr Vanu Bose, social entrepreneur and former UN Commissioner for Broadband for Sustainable Development. "If it pays and can generate profits, it will succeed."

And this has been the challenge for the expansion of mobile connectivity in rural areas in emerging economies. While mobile phone adoption has been quite phenomenal in Africa, connectivity to the internet remains very low, especially in the rural environment. This is largely because the costs of delivering connectivity outweigh the profits that can be made in these environments.

According to Bose, "It has not made sense to the current mobile network operators to move beyond urban areas since the revenue per site is considerably smaller since people's incomes are lower and because the population is more dispersed –

fewer people per square kilometer than in towns and cities. In addition, the cost of the energy needed to power the service is generally much higher: rural areas often do not have the electricity grid found in the urban environment and so the alternative is expensive diesel.

“So, we need to look at things differently. In essence, we need to change the way we roll out connectivity to rural areas,” he says. “Connectivity can be viable only if the network operating costs are far lower.”

Through this focus, Bose is now making the rural network profitable, and it’s being done through three important innovations: small cell network innovations, solar-powered base stations, and wholesale network operations. The smaller sites operate on far less power than the usual urban mobile mast, which is why solar power is workable as a power source for this model. And the traditional service providers are now interested in taking their products to the rural market – they can use the connectivity that Vanu provides at a fraction of the cost of their own masts.

“We have tried the concept out in Vermont in the USA,” Bose says, “and the successes there have led us to implement our first project on the African continent, a co-operation between our company, Vanu, and the Government of Rwanda. Rwanda was selected as the site of our first developing market implementation of this model because it is a country that has created an enabling environment for the deployment and testing of ICT related technology. The project is well under way, and will soon bring connectivity to 1 million people in rural Rwanda.”

With a total population of around 12 million, this project will increase connectivity by close to 10% of the population. “An increase in connectivity like this is significant for GDP growth,” Bose explains, referring to the GSMA study, which found that every 10% increase in mobile penetration results in an extra 0.81% increase in country GDP. “Connectivity provides access to educational tools, to health care information, to apps for a range of beneficial services, and to financial services,” he says, “and it is these things that improve the quality of life of the people in various ways, including their ability to earn larger incomes.”

Dr Bose shared the story of his work with leading figures in the telecommunications industry from all over the world at this year’s AfricaCom conference in Cape Town, South Africa, where he was a keynote speaker on Tuesday, 15 November. His vision is to take his solution to many other parts of Africa, so improving the lives of millions of people through bringing them into the mainstream economy and so enhancing their standard of living.

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