



expanding horizons

2/2009

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Expanding Horizons is a quarterly publication aimed at ICT decision-makers in the private and public sectors. It explores the socio-economic benefits that mobile technologies offer as well as best practices from around the world in order to encourage affordable mobile communications and bring Internet to the next billion consumers. It also shows how to create a favorable environment for market growth.

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editorial



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Story behind each number

Every day, more than 1.8 million new mobile subscribers join the digital community. China added nearly 94 million subscribers in 2008; while India added a staggering 15.41 million in January 2009 alone. Yet, it is the African nations collectively that enjoy the highest growth rate of mobile phone subscriptions. Nigeria has witnessed one of the most amazing growths in the continent, from close to zero mobile penetration in 2002 to over 40 percent today. Affordability through a favorable regulatory environment, increased competition and innovation has been and is a driving force behind the growth that emerges more and more from the rural areas of the world.

Behind each and every number comes a story. A tale that highlights how mobile communications has changed individual lives and made them simply better. Laxmi from Pappanapet in India is a new mobile phone owner. Bought through microfinancing, it helps her to run her business, keep in touch with her family and feel safe. By giving her the chance to improve her income, the mobile phone is helping Laxmi achieve her ambitions of better education for her sons as well as improving comfort at home. She is joined by Laskhmi, Anitha and thousands of others edging their way from poverty through a virtuous circle created by the mobile phone.

At the same time in Kenya, Gabriel is taking a pick-up call from a client. His motorcycle taxi service 'boda-boda' runs from early morning to late evening. In Africa, microenterprises constitute over 90 percent of new jobs created and mobile phones have gained special significance for these entrepreneurs; from farmers to casual laborers from information services to mobile banking. Mobiles support income creation in India as well, so states the latest Vodafone Policy Paper. Mobile communications is enabling small and medium sized enterprises to move successfully up the value chain and become more profitable. A mobile phone is often the first crucial step from the street corner to the formal economy.

The key to improving the economic and productivity performance lies with the greater and better-focused use of Information and Communications Technology. By 2015, 83 percent of the global population will live in emerging markets and 45 percent will be under 25 years old. These are the people who stand to reap the biggest benefits as the mobile communications industry reaches out to the next billion Internet users. And once again, wireless connectivity with a mobile phone in the front seat will drive the change, one individual at a time.

Enjoy our latest issue. ■

Alex Lambeek

Frederic Astier



How usefully connected is your country?

From Argentina to Vietnam, the 2009 Connectivity Scorecard now rates 25 emerging markets around the globe on their deployment and use of ICT. What are the lessons?

When the Connectivity Scorecard was first published in early 2008, its researchers knew it was an innovative measure of how information and communications technology (ICT) supports national economic growth, but none predicted the intense worldwide reaction it would generate.

“The response was heartening. The results had an incredible uptake. Many governments and organizations recognized that →

Briefly Stated:

- **Connectivity Scorecard 2009** rates 50 countries, of which 16 emerging markets were added to this year’s list of resource and efficiency-driven economies
- **The index measures** infrastructure and usage plus skills including literacy, the use of enterprise software and women’s access to ICT
- **Connectivity is assessed** in terms of its economic and social usefulness, taking into account different countries’ needs

they offered a much better way to measure connectivity than other indices," says the man behind the scorecard, Professor Leonard Waverman, Fellow of the London Business School and Professor and Dean at the Haskayne School of Business at the University of Calgary.

Such has been the response from governments, regulators, non-government organizations (NGO), businesses and the media that

the scope of the research has been expanded substantially, particularly in

the number of emerging markets analyzed. The recently released Connectivity Scorecard 2009 gives ratings for 50 countries in total, adding 16 emerging markets to the list of resource and efficiency-driven economies. Some of the data sources used to rate countries have also been changed to improve score accuracies.

Unlike other indices, the Connectivity Scorecard looks beyond just the installed ICT infrastructure and considers its use by measuring the population's skills such as literacy, the use of enterprise software and women's access to ICT. Connectivity is assessed in terms of its economic and social usefulness, taking into account different countries' needs.

The Connectivity Scorecard's methodology is widely appreciated and the scorecard analysts are increasingly gaining access to data from individual countries, as well as organizations ranging from the United Nations to the European Union.

"The whole thing has just opened up," comments Professor Ilkka Lakaniemi of Nokia Siemens Networks, which commissioned the scorecard. "Either directly or

through other routes such as the European Commission, we are actively engaged with various emerging market governments and policy-makers, helping them to develop national ICT plans and address the investment issues they face."

Identifying investment priorities

Lakaniemi goes on to say that most governments recognize the benefits of this kind of

joined up planning. They also value their own country's rating on the Connectivity Scorecard,

even when it is low, because it helps to identify priorities for improving the usefulness of their connectivity.



Professor Leonard Waverman, the man behind Connectivity Scorecard 2009

A key area for improvement for many countries is the poor business sector performance revealed by the scorecard. "We surveyed IT managers to gauge their satisfaction with fixed and mobile infrastructures and services. To our surprise, most were quite satisfied with the state of affairs they found. Businesses do not grasp that even existing technologies can be used much better.

For example, some mobile banking services and electronic transaction services are better developed in African countries than in the US or Canada. Operators can assist firms by providing best-in-class training in usage," says Waverman.

The scorecard's influence is spreading fast. Both Waverman and Lakaniemi are being invited to consultations with governments and regulators with increasing frequency. They are also in demand to make keynote speeches and other key appearances at top-level industry conferences, including this year's European Union's Future of the Internet Conference in Prague and the ITU's World Telecommunication Policy Forum in Lisbon.

How well do countries perform?

The 2009 scorecard now includes 25 resource and efficiency-driven economies, up from the nine surveyed for the 2008 report. Malaysia maintains its top slot with a rating of 7.07, with Nigeria's 1.30 keeping it glued to the bottom of the table.

It is important to point out here that the rankings for the innovation-driven economies and the resource and efficiency-driven economies use different measures. "It would be wrong to interpret Malaysia's 7.07 score as putting it above the Netherlands. In fact, Malaysia would be below Poland if its performance was measured using the efficiency-driven country criteria," Waverman explains.

New entrants for 2009 include Turkey, which did remarkably well, says Lakaniemi. "With a score not that far short of Malaysia's, Turkey is improving fast and within a few years will probably approach the lowest ranking innovation-driven economies."

Several African countries have also been rated. Botswana did well, coming just above mid-table, due to its concentrated population, long-term economic and political stability, a high e-government ranking and the influence of a national ICT plan.

"The scorecard helps identify priorities for improving the benefits of connectivity"

Kenya has a low rating, held back by its poor human development performance. Regulation of the telecommunications sector has also slowed development of the broadband services required to create a more sophisticated business infrastructure. Despite this, Lakaniemi believes that Kenya's growing consumer infrastructure along with service innovation will put it, along with Egypt and Tunisia, on a rapid upward trend. Meanwhile, South Africa's rating has jumped significantly, because of the availability of new data.

Latin America in general does well with Chile, Mexico, Argentina, Brazil and Colombia

all appearing in the top ten. Chile's score is thanks to its good broadband, fixed-line and mobile penetration, although it does not score as highly as one might expect on mobile penetration. Lower down, Colombia does less well because of relatively poor business infrastructure and usage, with the exception of the availability of international bandwidth and enrollment in secondary schools.

Asia Pacific is well represented with countries in both scorecard divisions. Most of the region's emerging economies sit in the lower half of the resource and efficiency-driven table. Bangladesh and Pakistan sit

just above Nigeria at the bottom of the table, all three being held back primarily by poor business sector performance. Higher up the table comes Thailand, poised just outside the top ten. Despite good consumer connectivity, especially mobile penetration, once again it is the business sector performance that does badly.

Already, the scorecard team is getting feedback on the 2009 results. "Representatives from South Africa, Russia, Egypt and the Philippines, as well as others, have all approached us to activate discussions. Often the catalyst for the move has been a local operator picking up on the results and presenting it to officials," says Lakaniemi.

What impact on the credit crunch?

There are currently no formal plans to further extend the number of countries being monitored by the scorecard for 2010, although there is demand to do so. Maintaining the same parameters year to year will enable more accurate comparisons of countries' performances to identify trends. It is always hard to predict, but when pressed, Lakaniemi says that he expects the ongoing global economic downturn to throw up some surprising results, especially for the innovation economies. "The situation has changed rapidly, and in 2010 and 2011 when today's economic statistics filter through, we are bound to see crucial changes. However, we will continue to see the strong positive correlation between ICT investments and economic wellbeing." ■

To see how well your country does, visit www.connectivityscorecard.org

Connectivity Scorecard 2009 results

Innovation-driven economies

	Connectivity score
United States	7.71
Sweden	7.47
Denmark	7.18
Netherlands	6.75
Norway	6.51
United Kingdom	6.44
Canada	6.15
Australia	6.14
Singapore	5.99
Japan	5.87
Finland	5.82
Ireland	5.70
Germany	5.37
Hong Kong SAR	5.33
France	5.22
New Zealand	4.85
Belgium	4.65
Korea	4.17
Italy	3.99
Czech Republic	3.71
Spain	3.49
Portugal	3.02
Hungary	2.72
Greece	2.62
Poland	2.49

Resource & efficiency-driven economies

	Connectivity score
Malaysia	7.07
Turkey	6.71
Chile	6.59
South Africa	5.76
Mexico	5.39
Russia	5.37
Argentina	5.14
Brazil	5.12
Colombia	4.08
Botswana	3.98
Thailand	3.75
Iran	3.62
Ukraine	3.60
Tunisia	3.50
China	3.19
Philippines	3.17
Egypt	3.02
Sri Lanka	2.87
Vietnam	2.75
India	1.88
Indonesia	1.87
Kenya	1.75
Bangladesh	1.60
Pakistan	1.54
Nigeria	1.30



Podcast available.
Get in-depth coverage on
affordability and new research.

Knocking down the affordability barrier

Recent research reveals that the average cost of owning and using a mobile phone across emerging markets has dropped significantly since 2007. The potential to reach more and more users is growing daily.

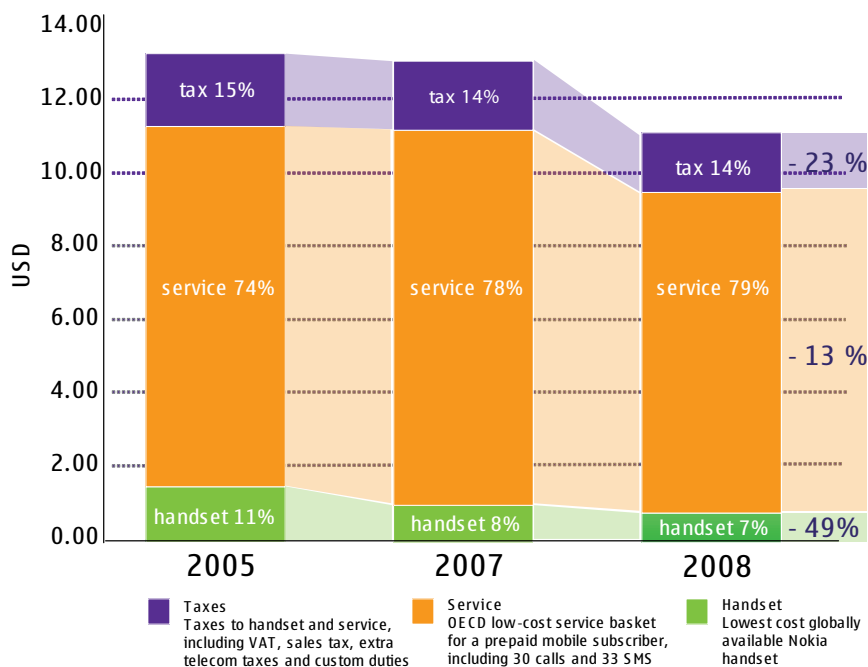
Every day, more than 1.8 million new mobile subscribers are created. African nations collectively enjoy the world's highest growth rate of mobile phone subscriptions, says the International Telecommunications Union (ITU) in its 2009 'Measuring the Information Society' report. While just 1 in 50 Africans had a mobile in 2000, now 28 percent have a cellular subscription, says the report.

India added 15.41 million mobile users in January 2009, which is the nation's biggest monthly growth, states the Telecom Regulatory Authority of India. Meanwhile, China's mobile subscriber population grew by nearly 94 million in 2008, according to statistics from China's Ministry of Industry and Information Technology (MIIT). →

Briefly Stated:

- **Total Cost of Ownership (TCO)** is defined as how much of a consumer's income is required to own and use a mobile phone
- **A TCO of 5 US dollars** or less per month would enable the majority of the world's lower-income consumers to join the mobile community
- **The average TCO** for the emerging market is 11 US dollars
- **Twelve countries** have managed to hit the 5 US dollars TCO target - up eight countries from the previous year

Average TCO for the lower-income consumer



A favorable regulatory environment, coupled with innovative operator strategies make for a lower TCO

Now let us look at the figures a different way. About 2.5 billion people earn less than 2 US dollars per day, excluding a huge proportion of the world's population from the benefits of owning a mobile phone.

Cost remains the main barrier to better lives through the mobile. Total Cost of Ownership (TCO) is defined as how much of

a consumer's income is required to connect them. Research shows that people earning 2 to 3 US dollars per day spend 70 percent of their money on food, household goods and clothing. Another 15 to 20 percent is spent on transport and entertainment, leaving 5 to 10 percent of disposable income for mobility. Therefore, a TCO of 5 US

dollars or less per month would enable the majority of the world's lower-income consumers to join the mobile community.

Affordability is improving rapidly

Remarkable progress in making mobile communications more affordable was achieved in 2008. According to Nokia research, the emerging market average TCO across 77 studied countries is 10.88 US dollars, down from 13.16 US dollars in 2007. This is a huge advance compared to the meager drop in TCO of just one percent from 2005 to 2007. TCO shrank by 19 percent between 2005 and 2008.

How have these reductions been achieved? The largest component of TCO is the service fee, which accounts for 79 percent of the total, and this fell by 13 percent

from 2005 to 2008. An even greater fall of 49 percent was seen in the handset cost, which accounts for 7 percent of TCO. The third component is taxes, which make up 14 percent of TCO.

Asia Pacific leads the way

In 2007, only four countries, Bangladesh, India, Pakistan and Sri Lanka, managed to hit the 5 US dollars TCO target. In 2008, 12 countries have achieved this goal.

Average figures disguise a huge disparity in the TCOs of different countries. Asia Pacific generally performs well, but in Africa and Latin America, a number of countries have some of the world's highest TCOs.

Why is it that a consumer in one country can afford a mobile phone, while someone in a different country, who is earning exactly the same income, finds ownership impossible? The answer lies in a favorable

regulatory environment coupled with innovative operator strategies. Moderate taxes make mobile communications affordable, boosting subscriber numbers, while the use of new technology and novel business models helps operators to make the most of the affordability opportunity.

Recent tax rises are damaging affordability

The evidence shows that mobile use promotes economic growth. In a typical developing country, an increase of 10 mobile phones per 100 people boosts GDP growth by 0.6 percentage points.*1 Nokia research also reveals the strong correlation between TCO to GDP per capita ratio and mobile penetration, confirming that high TCO relative to GDP per capita results in low mobile penetration.

Despite these facts, some countries are

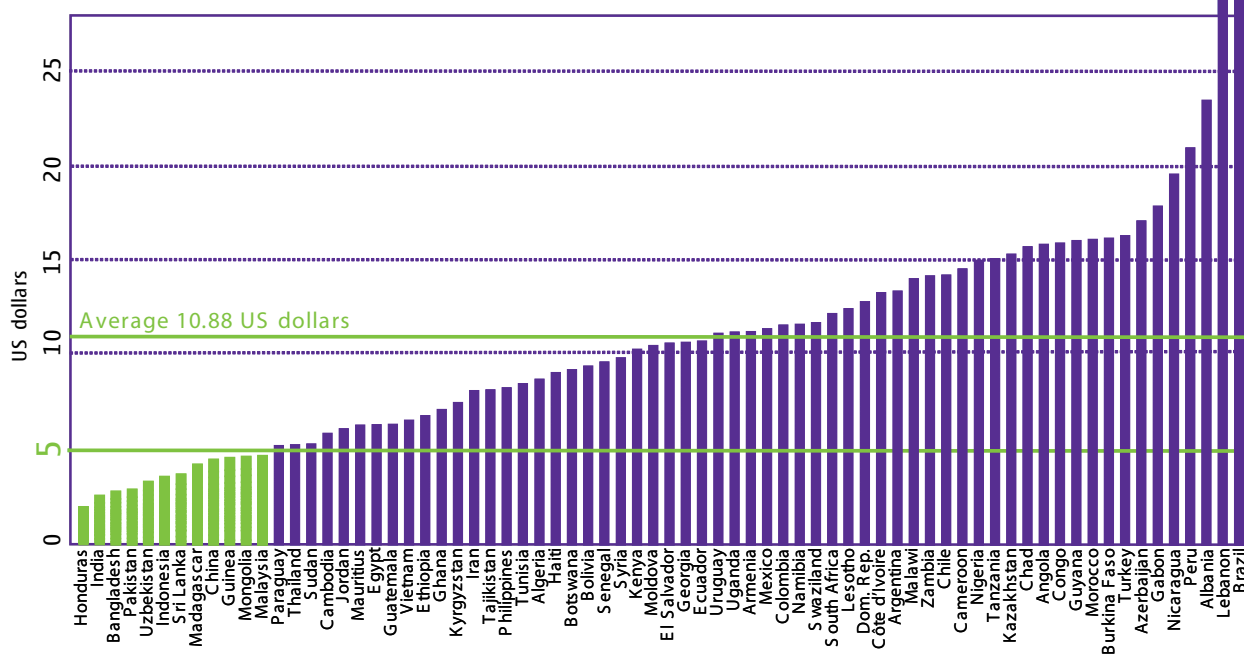
increasing taxes for mobile users. Pakistan recently decreed sharp tax increases, including a five percent rise in telecommunications services tax, duties on handset imports and the continuation of an activation tax per SIM-card.

Kenya and Senegal are also reportedly increasing airtime taxes. In Senegal, a new two percent telecommunications services tax came into force in February, while in Kenya, a one percent tax increase was implemented early 2009, with a further 10 percent excise tax planned.

It remains to be seen what the impact of such tax hikes will be in these countries. It is likely that they will ultimately be seen to be counter-productive, stifling development at a time when economic growth is desperately needed around the world. ■

*1 Vodafone Policy Paper: the impact of telecom on economic growth in developing countries.

Monthly TCO by country



Source: Nokia Research 2009

In January alone, fifteen million new telecom connections were made. Eighty-six percent of the 429 million people at the Bottom of the Pyramid (BOP) in India, the poorest of the poor, are now making or receiving calls. Almost half own their own mobile phone and although the other half still rely on friends, family and public phones for calls, most can now access a phone in minutes – whereas two years ago, it would have taken 30 minutes or more for 13 percent of rural Indians. By 2014, only a few Indian households will lack a phone.

These are just some of the top-line findings emerging from the newly released study looking at 'Teleuse at the BOP' in India, Bangladesh, Pakistan, Thailand, the Philippines and Sri Lanka. The study conducted by LIRNEasia also reveals that since the last study in 2006, ownership of mobiles among the BOP in both rural and urban India has leapt to 40 percent from 9 percent.

Mobiles are now the most used form of communication, pushing pub-

lic phones into second place. The BOP access to the mobile has been achieved in record time and is on course to continue; as in both rural and urban India, over 90 percent of those who plan to buy a phone declared the intention of getting a mobile. The main reason given for not owning a phone was affordability and the lack of a need. Conversely, the most sought after features by the BOP in a mobile phone are a color screen and a flashlight by rural villagers; with the addition of a camera and radio function by urban dwellers.

That all important first time

The rapid evolution of the mobile into a multi-purpose communications and knowledge tool combined with its fast adoption by the BOP, means they and the majority of people in the developing world are likely to have their first Internet experience via a mobile. To ensure they get access to the social, educational and economic benefits the connected world enjoy, government and industry in South Asia need to understand potential barriers to usage and to identify what will motivate use of 'non-voice' applications among the BOP.

So while LIRNEasia's previous studies focused on all types of telephone usage among the BOP, the new research also looked at if and how mobile phones are being used for non-voice,

or Mobile2.0 applications. It found that at the BOP, there is only a little take-up or awareness of these services which include payments, text voting, market information, health information and e-government services. Some premium SMS services such as agricultural, weather and health-related information are used, but sharing of files, downloading of music or even playing non-interactive games is low. They are also behind in using electronic top-ups in India, but this is seen as a 'trustworthy' activity which could make it a 'door opener' for more than voice services.

Dr. Rohan Samarajiva, chair and CEO of LIRNEasia comments: "Although usage is relatively low, these are the 'doors' through which people enter these services. There is huge potential for more than voice services. We now need to make sure appropriate services are available and promote them; for example 25 percent of people on pre-paid cards already use the phone to check their balance. It's a real chicken and egg situation. Thankfully operators and vendors such as Nokia are already looking at providing information services for the BOP. We must start marketing the phone as a universal gateway to knowledge.... not just as a way of talking to people."

The mobile aids income generation

The largest perceived benefit of a mobile phone in the Indian BOP is in emergency

Rapid mobile growth among India's poor

Just five years ago, the Indian telecom industry's massive momentum barely included the poor. Today, the picture is very different.

communication and relationship maintenance and although positive, most currently perceive only a small benefit on economic factors.

"What are needed are good role models and stories of how people from the BOP are using their mobiles to gain advantages in earning a living as well as keeping in contact with family and friends," says Samarajiva. "I was intrigued that Bangladeshi and Indian women despite coming from very conservative societies understand how the mobile phone can save them money and time. This underlines that we need to demonstrate how the phone can put money in people's pockets rather than taking it away. We must stop thinking of the mobile as a consumption item and show it as a valuable aid to income generation."

A strongly perceived benefit for the BOP teleuser was ability to save money on travel. "The telecom/transport tradeoff with people substituting travel with use of the phone has been internalized and understood by the BOP," explains Samarajiva. "People across South Asia told us how the phone saves them time and money they would

have spent traveling into or around the city just to talk to someone. At a micro level, BOP quality of life is being improved as they avoid often difficult and unnecessary travel, time and cost. Also there is a fascinating side benefit in carbon emissions savings and the potential for positive environmental benefits."

Three quarters of teleusers in India stated that they use the phone for business, financial or work-related purposes which contributed to their economic wellbeing. In Bangladesh, this is even higher with almost 90 percent using it for business-related purposes and three quarters of them using it for that purpose daily.

"This finding jumped out at me because these are extremely poor people and yet they invest in using a phone. In my view, South Asian BOP teleusers are beginning to realize the benefits of the mobile balances out the costs and they no longer see it as a drain on finances," comments Samarajiva.

Enhancing quality of life

The study shows the potential impacts the mobile could have on quality of life for the

BOP as well as the country's own economies are huge. Nearly half the BOP now have easy access to a phone or own their own mobile but there is more to be done and according to Samarajiva – to serve the BOP efficiently and successfully will require government support, education and innovations in technology, business models and policy.

He concludes, "People are doing hard things and their efforts are producing fruit. Governments are making policies, retailers and shopkeepers are giving connections, vendors like Nokia are making cheaper phones available and significant achievements are being made. To date, industry has been driving the process but now we need government action to reduce taxes and levies. This will increase BOP connectivity and prosperity, benefit the economy of the country and postpone the early onset of a slowdown." ■

The complete LIRNEasia study will be published late May 2009. To preview key results, visit <http://lirneasia.net/2009/04/inclusive-growth-teleusebop3/>



Facilitating a market-driven telecom industry

Under Ndukwe's tenure, NCC has witnessed tremendous growth and transformation, earning international reputation as a high performing, transparent and open agency. Since 2001, the growth recorded in mobile communications has been outstanding and by the end of last year (2008), there were approximately 64 million mobile subscribers in Nigeria. This translates to a 56 percent annual growth accumulation; with penetration of over 40 percent, up from an astonishing 0.4 percent just seven years ago.

What do you see as the key success factors behind the growth of mobile communications in Nigeria?

Two things are critical to the success recorded in the sector: a forward looking sector policy and a good, stable and predictable regulatory regime. To attract investment needed to expand services nationwide, it was imperative to come up with a com-

Dr. Ernst Ndukwe, Executive Vice Chairman and Chief Executive Officer of the Nigerian Communications Commission (NCC), the telecommunications regulatory agency, discusses the state of mobile communications in Nigeria.

munications policy which allowed for full liberalization of the industry. When NCC decided to open up various segments of the telecom market, including mobile services to competition- BINGO - we immediately saw an explosion of users who had been short on services take up lines.

NCC has had a big role in market liberalization and network growth. What would you list as the latest achievements of the agency; as well as state any future plans?

NCC is proud of the open and transparent licensing process within Nigeria. I believe that this has allowed for the crucial investor confidence. Today, Nigeria remains very at-

tractive to various international operators, equipment suppliers and the like.

A future area of development will be in the area of data services, broadband and Internet. As a regulatory body, this will be the biggest project we have - offering incentives to service providers to build broadband networks and to subscribers to take up broadband and Internet services.

Nigeria is a very wireless intensive country. In fact, 99 percent of users are on wireless networks. Therefore, our efforts go into encouraging broadband deployment and necessary services through a wireless platform. Mobility is therefore key for Nigeria. A developed wireless infrastructure will

See for yourself: Enabling a better future in Kenya and Ethiopia

enable us to reach rural and remote parts of the country faster and much more easily.

If we look at study results on Total Cost of Ownership* ¹, we find that the cost to own and use a mobile phone in Nigeria is around 15 US dollars monthly; whereas the African average is less than 12 US dollars. Why do you think Nigeria ranks a bit higher?

It is important that all effort be directed towards Nigeria enjoying the best rates possible in the continent. Government is therefore putting a lot of effort into encouraging lower prices. For example, taxation for mobile services in Nigeria is minimal, unlike in many other countries where they tax for every call made.

On the service element of the monthly cost, we have to look at the fact that Nigeria is a very large country and the sector was only opened up to full liberalization and competition only seven years ago. The operators are still doing catch up in terms of infrastructure deployment to meet the huge market demands. Some infrastructure elements are simply not enough to allow for a more aggressive type of pricing. We also have to balance issues of service quality with call rate issues. However, I am happy to say that there are a number of actions being taken on this matter by the Commission. We have recently started reviewing the interconnect rates between operators. I believe that when this is done, we will see interconnect rates come down. This will also encourage a revision in retail pricing in order to make the phone service much more affordable to more people.

SMS-based information services such as the Nokia launched Nokia Life Tools in India are proven to be rather successful. Do you see SMS-based information services valuable for Nigeria and are there any initiatives from the NCC side to foster the information services?

Definitely. One step we recently took in this front was to encourage SMS usage by reducing the interconnect rate for SMS between operators by 50 percent. We are currently conducting a further study on SMS interconnect rates which from all indications will

reduce it even further. We are confident that if the price of SMS comes down to an acceptable level, more and more people will adopt SMS as an alternative means of communicating and use it more.

In Nigeria, many SMS-based services are in use already today! For example, for money transfers and for banking transactions where people receive via SMS information about payments affecting their bank accounts.

Going back to the Internet topic. Currently Internet penetration in Nigeria is around 10 percent. What kind of opportunities do you see for Nigeria and in which timeframe? When do you think more people will have access to Internet?

That is one of the biggest challenges for us. But as I mentioned earlier, NCC is running an initiative to encourage Internet usage and incentivize operators to provide these services at fair rates.

We are therefore looking at the possibility of subsidizing terminal equipment, such as mobile smart phones and other devices, for lower-income people to encourage Internet use. With this incentive, we hope to have much more people signing up to use the Internet – once people use it, they realize the value and they keep doing it. I predict Internet penetration will grow between 30 percent and 40 percent in the next 3 to 4 years in Nigeria. We are in fact aiming for even higher figures for the future.

We are living in the middle of an economic crisis, and we regularly hear news about its impact. Has there been, in your view, such an impact on Nigeria and especially in regards to the telecommunications industry?

NCC recently organized a forum to look at the impact of the global economic crisis and the possible impact it might have on the telecommunications sector in Nigeria. We did not really see a slow down in the uptake of lines for subscribers up to the end of 2008. This may be attributed to the fact that the phone is one of the last indulgences Nigerians will drop in terms of priority. The indica-

tion for 2009 is that we may not witness the kind of growth rate recorded in 2008, but we think that the effect perhaps will not deter growth in the face of the demand gap that still exists. I suspect that the impact will be felt more by the smaller operators who are not able to compete in such an intensely competitive market like in Nigeria. But those who employ good corporate governance principles and watch costs closely will still be able to make enough profits to thrive and survive the times. At the end of the day, the demand for telecom services is still high, even with the economic meltdown.

So in Nigeria, yes, there might be some effect, but I don't think it will be significant enough to cause a major depression in the telecom industry. I suspect the industry will be able to weather the storm and move forward.

Last but not least, what is your vision for the Nigerian telecommunications sector in ten years time?

I think as long as the telecom industry continues to exist on the basis of a favorable regulatory environment and continue to attract investment from competitive operators, the industry will continue to develop and grow. I suspect in the next ten years, we will reach 100 percent penetration, if not more. We will have more phones in Nigeria than we have human beings! I also see a major growth in broadband infrastructure and a much higher penetration of Internet than we have today, perhaps beyond 60-70 percent. Nigeria is quite a sophisticated environment where people are entrepreneurial and look for the best ways to meet business challenges and other obligations using technology. In ten years time, we will see a very vibrant telecom industry that also helps the economy of the nation as well as the other sectors of the economy.

Thank you Dr. Ndukwe for taking the time to speak with Expanding Horizons.

To read more about the objectives of NCC, please visit: www.ncc.gov.ng

*1 For more about Total Cost of Ownership (TCO), refer to page 8 in this issue of Expanding Horizons



Meet Lakshmi, a widow living in rural India with two young daughters to support. Despite bad early experiences, her life is getting better. Her mobile phone, bought recently through microfinancing, makes it easier to run her business and look after her children.

An Indian widow's tale

Life for Lakshmi has been hard. Married early, her husband died nine years ago and she found herself a widow with two school-age daughters to support. She decided to move back to her home village of Yousufpet, Andhra Pradesh, India, where her mother still lived.

Lakshmi earns a living by running a small general provisions store at her home and selling saris. She also rents out CDs and provides a coin-operated public phone box. Her customers come from nearby villages, a local town and even from Hyderabad several kilometers away.

Running her business and looking after the home and her daughters is a daily struggle. Lakshmi gets up at 4am to do the household chores before tending to her business, which can involve traveling two to three times per week.

Things are getting better

But things in Yousufpet are improving. Roads are being paved and the village's water supply problems have been solved by a new water tower. Lakshmi herself receives

a small widow's pension from the government.

Another change in Lakshmi's life has been the purchase of her first mobile phone. Bought with the help of a microfinance scheme that provides low cost loans to people on small incomes, the phone helps Lakshmi to juggle her many business and personal commitments.

Before she got the mobile phone, the coin-operated phone at her shop was her only means of communication. She used it to call her mother in the same village and her sister in a nearby town. It was also used to inform customers when their sari orders were ready.

Mobility makes life easier

Despite being convenient and a source of income, the fixed line also had drawbacks for Lakshmi. Its lack of portability meant she was out of touch with her customers and daughters while on her frequent business trips. As well as leading to a possible loss of orders, this was also a personal worry for Lakshmi as she could not be contacted by

her daughters in an emergency. Even when at home, she could miss orders when customers were using the pay phone.

"There is also the lack of privacy while talking on the public phone," says Lakshmi. "With customers in the shop, it is difficult to talk about personal matters."

After talking to her mother, she decided to take up an offer of a Nokia 1650, provided on an easy pay weekly scheme by microfinance provider SKS.

"Getting my own phone was very exciting," says Lakshmi. "And I was very happy when I made my first call to my sister in Hyderabad. I also felt confident that I could use the phone."

Flexible communications

Getting the mobile phone has given Lakshmi more flexibility in her communications. She now uses both the mobile and fixed phone, but in different ways.

Where the mobile phone really comes into its own is on her business travels, for stock taking and receiving orders. It means she is never out of reach of her customers. "I was visiting my sister in Hyderabad and got a call from one of my customers," says Lakshmi. "I quickly returned home and delivered the sari she wanted."

By giving her the chance to improve her income, the mobile phone is helping Lakshmi achieve her ambitions of improving her home and building a better life for her daughters. As such, it has become an essential part of her life. "The mobile is like my mother," she says. "Inseparable, dependable and always with me." ■

Microfinance brings personal communications to villagers

Lakshmi bought her Nokia phone through SKS Microfinance. Through a pilot program, SKS customers are offered loans repayable on a weekly basis, making phone ownership much more affordable. It also helps people get a Nokia handset and a prepaid subscription without leaving their village, as it is delivered to their doorstep.

Previously, purchasing a handset would involve traveling to the nearest town and paying the entire handset cost upfront in cash. For many, this amount would have been 30 to 50 percent of their monthly income, putting the purchase out of reach.

Individually their operations may be very small, but collectively their contribution is enormous – the microentrepreneurs of sub-Saharan African account for as much as a quarter of their respective country's economy and a majority of new jobs and employment.

African microentrepreneurs place trust in mobiles

Defined as running businesses of one to a handful of people, usually family members, many microentrepreneurs are engaged in vital agricultural activities such as selling food in roadside markets. Others make handicrafts; while some engage in every other conceivable activity that involves local products and services, from taxis to DVDs to hairdressing.

"African microentrepreneurs are hugely important to economic and social life in many countries. This informal sector is referred to as a self-organized grassroots economy – largely unregulated and outside tax regimes. An astonishing 90 percent of all jobs in Africa fall within this segment. Supporting such an economically sustainable class helps spur local economies, which ultimately leads to a positive economic and social transformation," comments Mr. Jussi Impiö, head of Nokia Research Africa (NoRA).

The mobile as a tool for business growth

Many small enterprises, Impiö adds are engaged mostly in subsistence earning and exist in isolated clusters. They often lack even basic business premises, especially in rural areas, and learning and growth opportunities are limited. It is easy for competitors to set up, and the operations of microentrepre-

neurs are vulnerable to outside forces such as very cheap imports. "Microentrepreneurs need tools to help them organize, diversify and grow more effectively and we are seeing increasing use of mobile phones for a range of applications, even though there are few services yet designed specifically for them."

African microentrepreneurs are a self-organized grassroots economy"

One key application Impiö points to is the rapid growth in mobile banking services that allow money transfers without needing a traditional bank account. "You don't need ID or a fixed address to be up and running with mobile money transfers, and it has become hugely popular. Kenyan telecoms operator Safaricom, for example, has rapidly become the biggest bank in East Africa." Another critical use for mobile phones is obtaining information. "People lack access to media such as newspapers and press freedom is limited in some countries. Mobiles offer a route to national and community information."

But for microentrepreneurs, the mobile phone has also become an indispensable tool for conducting day to day business. "You now see traders in many places in Africa using

mobile phones to help them work much more efficiently," says Impiö. "It has been a dramatic change – a few years ago it rapidly became a necessity for microentrepreneurs to have a phone to keep up with others who had one. Instant information about who needs what goods and when is now critical for remaining in business." While trading agricultural products is the biggest sector, a big growth area is related to mobiles themselves – such as taking batteries to charge handsets in areas without electricity, and loaning and selling phones and SIM cards."

The social dynamics of microentrepreneurship

A study of microentrepreneurs, carried out by Nokia Research Africa, reveals several in-depth examples of how mobiles are being used.*1 "One of the most interesting is Beatrice, a fruit and vegetable seller in Nakuru, a city in Kenya's Rift Valley," says Impiö. "As a retailer, she makes extensive use of her mobile to receive orders from customers such as local schools, to give delivery instructions to drivers, and to send texts to people who owe her money. Beatrice also uses other functions such as to do lists and the phone's calculator to check expenditure, and she can also make and receive payments via Safaricom's banking service."

But as Impiö adds, Beatrice is at the center of a complex business and social

*1 A day in the life of a microentrepreneur, Nokia Research Africa, November 2008



Mobile changes lives.
Take a personal look at how
future is made in Kenya and Ethiopia.

Microenterprises in Africa at a glance:

- **In Africa**, informal microenterprises contribute 78% to total non-agricultural employment and 93% of all new jobs
- **In urban areas**, informal microenterprises provide up to 70-80% of all existing jobs
- **Over 50% of small businesses** in Africa (both rural and urban) are run by women
- **Informal microenterprises** contribute more than 25% of GDP on average across Africa
- **Over 50% of informal** microenterprises are based in rural areas
- **Trading activities** (including street vending and ambulant trading) constitute more than half and up to 75% of informal microenterprises
- **Around two-thirds** of informal microenterprises are run by working proprietors (one-person businesses)

network that in Africa tends to be more about peer support rather than the more aggressive competition seen in markets in developed countries. "There is a lot of trust and support in carrying out transactions and helping others to find the right product and trading information about bargaining for goods with wholesalers, for example." In Beatrice's case, she also shares a stall with a partner, and her husband runs another stall selling soft drinks, and they help each other and other stallholders. There are also a lot of women – at least 50 percent in both urban and rural areas as microentrepreneurs who take care of trading, and they tend to run smaller operations that

focus more on economic security than their male counterparts. "Social networks are very important in the success of these microbusinesses," says Impiö.

Challenges in microentrepreneurship include increased competition arising from population growth. More and more players are entering markets and maintaining trust among larger groups as trading circles expand. "We see the mobile phone as a crucial enabler for helping to build rich social and business networking for, say, amalgamating bigger orders and bargaining for better prices from providers across often long supply chains, and for promotional market-

ing," says Impiö. "Microentrepreneurs could certainly benefit now from more advanced services, and there should be good opportunities for operators to provide low cost fixed monthly payment plans that include data access, as affordability is still a big issue in these communities."

There are some 300 million Africans living in absolute poverty without any mobile phone coverage, notes Impiö. "By providing mobile communications to these isolated rural communities, Africans would be able to access information such as healthcare, banking and market information in the hopes of enriching their lives." ■



From Argentina to Brazil, Chile to Uruguay, an alphabet of Latin American countries have seen the roll-out of advanced mobile broadband networks. Expanding Horizons talks to América Móvil about its own experiences in the region.

Latin America signs up to mobile broadband

While mobile subscribers in mature markets have long been able to benefit from the faster data access that 3G brings, the technology's deployment in emerging markets is much more recent. One of the first operators to take the plunge is América Móvil, which has been steadily launching mobile broadband services across 15 Latin American markets.

"The time is ripe to deploy mobile broadband in Latin America," explains Mr. Marco Quatorze, director of Value Added Services for América Móvil. "Revenues here are lower than in the mature markets of Europe, Japan and North America. So we need to work with proven but advanced technologies. We cannot afford to test technologies in this region. Secondly, Latin America has some of the world's biggest cities, demanding huge capacity. 3G is a more efficient way to increase capacity than GSM."

Quatorze's comments are backed by the evidence, with Informa Telecoms & Media claiming that Latin America and the Caribbean had 4.7 million High Speed Downlink Packet Access (HSDPA) connections at the end of 2008.*¹ A year earlier, there were only 65,000.

The most recent of América Móvil's 3G networks is in Mexico, launched in February 2008 by its Telcel subsidiary. The operator rolled out 3G in nine regions across the country and is expanding coverage to reach more than 350 cities. The network is built on HSDPA technology, providing downlink access speeds of up to 3.6 Mbit/s. América Móvil is already looking at upgrading to 7.2 Mbit/s and implementing High Speed Uplink Packet Access (HSUPA).

"We are seeing very good results," says Quatorze. "Fixed broadband penetration is limited in Latin America. 3G brings a new way to access Internet services. With the mobile, we are offering many people their first experience of personal Internet access, which is really important because the Inter-

net is a necessity in the 21st century, not a luxury."

América Móvil divides its mobile broadband offering into two streams: over handsets and via PCs.

The convenience of mobile

Quatorze reports that the sheer convenience of plug-in mobile broadband devices, so-called dongles, for PCs is a success. "It is so easy to install a PC dongle. Customers simply plug it in, avoiding the inconvenience of a technician visiting their house to install fixed access. This convenience means that

A number of consumers are replacing fixed Internet access with mobile broadband"

people will pay the 20 percent higher tariffs for mobile broadband compared to fixed broadband."

América Móvil's own research reveals significant numbers of consumers replacing their fixed Internet access in favor of mobile broadband, often because they cannot afford both – in Brazil the figure is around 5 percent of mobile broadband customers.

The success of PC dongles opens up many new revenue opportunities, says Quatorze. "In a few years we will be the most important Internet Service Provider (ISP) in Latin America," he predicts. "As well as connectivity, we will be offering value added services such as anti-virus and back up."

"We have a powerful advantage over pure ISPs and that is our strong billing relationship with our prepaid and post-paid customers. With only 20 percent of our customers having a bank account, we can partner up with many companies who will benefit from our billing and customer care relationship. One company that could previously bill only by credit card was able to multiply its

sales tenfold by partnering with us and using our billing capabilities."

Education is a priority

Customers using 3G handsets to access services are predominantly interested in Internet connectivity, with few showing an inclination to use other services such as video calls.

"With 3G, the customer experience is much better and we are seeing a steep rise in usage," says Quatorze.

Yet one of the key challenges is building an understanding among subscribers of how to get the most from mobile broadband

over handsets. "We need to reach the mass market. For example, we changed all our marketing material to refer to 'Internet on your phone', because people didn't understand the previous description of 'data services'.

To get the message out, we will use a combination of TV advertising, local channels, media relations and more – showing people the value of mobile Internet as our priority for the next 12 months."

As with most emerging markets, prepaid subscriptions dominate. América Móvil has established a pattern of launching 3G services first to its post-paid customers, followed about six months later with offers to prepaid subscribers. "Our prepaid tariffs allow people to buy one, two, seven or 30 days of unlimited access. This kind of model has not been available for personal Internet access before, only in Internet cafés and it is hugely successful. Today we see about a 50/50 split between prepaid and post-paid for mobile broadband. In one year we predict that 80 percent will be prepaid," says Quatorze.

Clearly, América Móvil's initiatives have helped to create rising interest in mobile broadband across Latin America. The success of this leading provider reveals much about the potential for personal Internet access in emerging markets. ■

*1 Source: <http://www.3gamericas.org/index.cfm?fuseaction=pressreleasedisplay&pressreleaseid=2159>



Putting the Internet into every Filipinos' hands

The story goes that when it was founded in the early 1990s, when fixed connections in the country were hard to come by, Smart's vision was to put a mobile in the hand of everybody in the Philippines.

Having successfully tackled the rural mobile demand, Smart is using 3G to expand into the data services market, so the vision has moved on. Mr. Bong Mojica, Head, Wireless Consumer Division at Smart explains: "Now, our task is to make the Internet experience available to every Filipino, even those with marginal economic demographics. This is now possible with mobile broadband."

Having rolled out its High Speed Downlink Packet Access (HSDPA) network during 2008, Smart launched its mobile broadband services in February 2009. "Introducing

With 35 million subscribers, the Philippines' leading mobile operator has launched mobile broadband services. The aim is to make the Internet available on-the-go at an acceptable price.

mobile broadband is an important step in ensuring the entire population has access to the Internet," says Mojica. "We are catering for two audiences, those who have adopted the Internet already and those who are new to the online world. We offer a wide array of handsets at various price levels, which is key to making the service ubiquitous."

Sell services, not technologies

Smart first introduced 3G services in 2006, but according to Mojica take up was slow:

"We tried to sell 3G as a new product and created a block in consumers' minds because they do not buy technologies, they buy services. We have to create a mindset for 3G to flourish so we stopped calling the technology 3G. Instead, we promote surfing and emailing on the phone to help consumers understand the wonders of what 3G can do."

What the early launch of 3G has done though is to give consumers the opportunity to practice entering the Internet world over mobile phones.



// **Filipinos are likely to use mobile phones for data services because they are huge users of SMS services"**

"Research shows that Filipinos are not afraid of the Internet. Social networking is very popular. Activities like uploading content, watching online videos and blogging are ingrained in the Filipino psyche. Many people go to Internet cafés. Web browsing is the entry point for mobile broadband, but we are offering a choice of services, from buying music and viewing rich media on the mobile, to enhanced messaging," Mojica says.

Despite the relative familiarity of many Filipinos with going online, education is an important element in Smart's strategy because its customers are unused to using mobile handsets to access the Internet. However, Mojica believes that Filipinos are likely to adapt to using mobile phones for

data services because they are huge users of SMS services. "When designing services we make them easy and intuitive to use, with a maximum two clicks to reach any destination, making it easier for new customers to use mobile Internet for the first time."

Local content is vital

Partnering with content providers is a further element in Smart's philosophy. We are spearheading the use of local content that is relevant to our customers," Mojica believes. "Local services also help to maintain affordability. In the West, the cost of bandwidth over international gateways is not really a consideration, but here it is important and can significantly affect the economics of running mobile broadband."

Clearly, mobile broadband plays an important part of Smart's overall strategy. As well as creating new revenue, mobile data services have already impacted Smart's churn rates. "Being first to launch in the country creates a lot of stickiness. It also lifts the overall image of our brand. This is vital because Smart is often identified with lower demographic subscribers. We want to retain this but also increase our presence among the higher demographic of the population," comments Mojica.

"It is hard to underestimate the financial impact of mobile data services and our recent performance in this area has upped the ante in other value added services. Getting into mobile broadband is an exciting new space for us," concludes Mojica. ■

Rural Brazilians test life with a mobile

Remote Brazilians were given a hands-on opportunity to try out mobile communications for themselves in late 2008. The results show the many varied ways in which connectivity makes life better.

Venturing into some of Brazil's poorest regions, a team of engineers has discovered how modern communications can transform rural dwellers' lives. 'Expedition Brazil Connected' trekked 5,000 km across remote countryside setting up mobile coverage in communities with very limited access to communications.

The expedition team traveled during September and October 2008, setting up a temporary network in each community and distributing 30 mobile phones to locals to use for a week.

Providing better healthcare

The team has many stories from the trip. They met local physician Mônica, who explained that healthcare suffers greatly from lack of communications. She said: "Physicians, patients, ambulance drivers and health agents communicate with each other through notes to make appointments or when we have to visit more distant regions. If people had mobiles, we could use our time more efficiently. We could also send reminder text messages to patients with high blood pressure and diabetes who often forget to take their medicine."

Mr. Ricardo Silva, regional head of Strategic Marketing, Nokia Siemens Networks says that the project has proven how mobiles can help people from all walks of life. "GDBia is a healthcare agent who visits households in the fight against the deadly Chagas disease spread by the barber insect. She often walks

long distances to people's houses only to find they are not in. A mobile phone would allow GDBia to schedule visits, saving her much time and effort."

Other accounts include a farmer who takes his produce 30 km without knowing if he will be able to sell it. With a mobile phone he could call to find the best market before traveling. And of children discovering the huge amount of information on the Internet that would help them in their school work.

The technology behind the trip

Silva was clearly amazed by how much connectivity can improve lives. "Sometimes it was heart-rending when the team packed up its equipment and left a community. Having seen the possibilities, people were asking when they could have their own phones,

desperate for the benefits they can bring," he says.

The team carried a small cellular package based on the Nokia Siemens Networks Village Connection solution, which offers affordable mobile voice and data coverage to rural areas. By eliminating traditional network hierarchies, the solution minimizes capital and operational costs, and introduces a new business model with local entrepreneurs running the village network.

"Our aim was to prove that it is possible to offer affordable voice and Internet connectivity to these communities, and to demonstrate a valid business case for operators. We revealed to all stakeholders how people can benefit from such initiatives," concludes Silva. ■

Expedition Brazil Connected is a joint initiative by local operator Oi, Nokia, Nokia Siemens Networks, Hughes and Intelsat.

Find out more about the tour at
www.expeditionbrazilconnected.com

About 70 percent of Indians live in rural areas, with more than half working in agriculture, contributing 20 percent of India's GDP. Yet the productivity of the agricultural sector is low at only 18 percent. Improving this performance is key to lifting the economic well-being of the populations of individual Indian states.

The latest study from the Vodafone Public Policy series looked into the economic impact of mobility in India, particularly for farmers using mobiles to access weather and market data, as well as educational information on new techniques and tools. The advantages encourage even small farmers to spend a significant proportion of their monthly income on mobile communications.

The study found that farmers considered weather, plant protection, seed information and market prices as the most important. In some regions, close to 90 percent of farmers put seed information as the highest priority. While farmers were interested in other information, such as cultivation best practices and crop choice, only a minority of the sample prioritized them.

Tantalizingly, the research revealed new ideas and applications for mobile phones that showed future potential. One example involved using camera phones to take photos of crop diseases or pest infestations and send them to experts immediately, enabling improved diagnosis and advice.

Yet hand in hand with the development of mobile infrastructure, there also needs to be a development program for facilities such as roads and refrigerated transport if farmers are to reap the full benefits of mobility. "An important take-away from this report is that simply making communications technology available is not enough. This research underlines the findings of the Connectivity Scorecard which measures useful connectivity," explains Professor Ilkka Lakaniemi of Nokia Siemens Networks.*1

Industry support for research

The Vodafone Public Policy series is published as part of the Vodafone socio-economic impact (SIM) research project. Founded by Vodafone in 2004, the project brings together academic, government and industry experts.



Photo: Alamy

Harvesting the benefits of mobility in India

January 2009 saw the publication of a report from the Vodafone Public Policy series which underlines the power of information to help improve the productivity and well-being of India's farmers.

Previous reports have been groundbreaking. In 2007 a study backed jointly by Vodafone, Nokia and Nokia Siemens Networks revealed the transformational impact of mobile transactions. The research highlighted the experience of M-PESA, a mobile-based payment service targeting the un-banked, pre-pay mobile subscribers in Kenya, which currently has more than five million registered users.

The panel's work is supported fully by Nokia and Nokia Siemens Networks with

Lakaniemi as one of its members. "As well as our own research, we are keen to back other studies and share information with different stakeholders," he explains. "Innovative forums like these are really important for supporting projects that academics may otherwise find hard to fund. They pool the expertise of industry players with academia and build a common and scientific base for research that benefits the entire industry." ■

Download the full Vodafone Public Policy report from <http://www.vodafone.com/start/responsibility.html>

*1 For more about the Connectivity Scorecard 2009, refer to page 4 in this issue of Expanding Horizons

Enjoying affordable energy

92% say the O-HUB has positively changed their lives

86% state that the O-HUB light is 'better & brighter' for study and work in the evenings

90% state the O-HUB water is safer and cleaner

93% state that the O-HUB mobile phone charging is superior quality

The Sun is the answer

The question of how you can recharge mobile phone batteries in places that lack electricity was solved last year by an innovative project undertaken in a small village, near Lake Victoria in Kenya.

Led by lighting system maker, OSRAM in cooperation with Nokia, the project created a solar energy hub which provides sustainable and affordable energy for lighting supply systems, clean drinking water, and mobile phone charging. The success of this initiative has led to the creation of three further hubs, one in Kenya and two more in Uganda which will start operations this spring.

Today, approximately 25 percent of the world's population, or 1.6 billion people, in underdeveloped regions have no access to electricity. Until this initiative by OSRAM, fishermen at Lake Victoria were fishing with help of kerosene lamps which took 70 percent of their income, caused pollution and damaged their environment. Car batteries, when available, were their main means of charging mobile phones.

"OSRAM wanted to turn light and electricity into an affordable commodity for people in these deprived regions. As one of the world's largest lighting manufacturers, OSRAM recognize that an intelligent and conscientious approach to the environment is not just the right thing to do, it is the only thing to do. Our new approach to providing off-grid electricity achieves profitable growth and demonstrates our worldwide commitment to social responsibility and

sustainability," states Mr. Rodd Eddy, senior director for OSRAM Global Sustainability.

Clean, affordable energy

The specially constructed solar stations, known as OSRAM O-HUBs are proving very popular and have quickly gained acceptance from the local communities. Without the pollution and damage to the environment that other fuel-based energy systems create, they are providing affordable energy to people in Kenya and Uganda. They allow them to recharge their mobile phone batteries and other electrical appliances like energy saving lamps at a low cost. Additionally they will get access to clean water from the integrated water treatment systems in the hubs.

Eddy explains: "Our solution-based alternative cuts lighting costs 30 percent compared to kerosene, gives access to clean drinking water and quality mobile phone charging – providing immediate positive environmental, financial and health benefits. Longer term it means local employment, better educational opportunities and an opportunity for poverty alleviation."

"Nokia is a crucial partner for us, as most of the development within developing countries and especially rural Africa has been fueled by the rapid growth and acceptance by the people of technology and



communication. Hence the question of how do you charge a mobile phone without grid supplied electricity becomes crucial. The experience and success of Nokia has given us access to knowledge we would not otherwise have had," concludes Eddy.

Bringing electricity to areas without power grids is not a new concept, but previous projects have not gone beyond thinking about an innovative new model. OSRAM's off-grid project at Lake Victoria was the first holistic electricity and lighting concept for developing and emerging regions. It is successful because it includes an infrastructure that overcomes income, maintenance and distribution constraints. Plans are now being developed to replicate and roll this out on a global scale. ■

To read more about this project, visit www.osram.com/offgrid

Is this lights out for global warming?

You may have noticed: on Saturday, March 28, the Sydney Opera House, the Eiffel Tower and London's Houses of Parliament went completely dark for an hour, as did hundreds of millions of homes across the world – as citizens, communities and governments cast their votes to reduce the world's carbon emissions.

Organizers of the Earth Hour event hope it will urge governments to work out a strong new UN deal to fight global warming by the end of 2009.

"We have been dreaming of a new climate deal for a long time," Mr. Kim Carstensen, one of the organizers from conservation group WWF, told news organization Reuters in Bonn, Germany; the city due to host UN climate talks in April. Another important summit on climate change will also take place in Copenhagen later this year.

"Now we are no longer so alone with our dream. We are sharing it with all these people switching off their lights."

World emissions of CO₂ have risen sharply since the 1970s. China now emits more CO₂ than the United States, followed by the EU, Russia and India.

In 2008 more than 50 million people in 370 cities around the world took part in Earth Hour. This year, numbers swelled to the hundreds of millions.

Other landmarks that switched off their lights during Earth Hour included St. Peter's Basilica in Rome, Egypt's Great Pyramids and the Acropolis in Athens.

The explosive growth of the event, from two million people from just one city, Sydney, in 2007 to 53 million in 371 cities in 35 countries in 2008, and on to this year's

On March 28th, hundreds of millions of lights across the world dimmed in a gesture to raise awareness of our need to cut energy consumption.

overwhelming participation, reflects a growing concern about climate change, in spite of the economic downturn grabbing all the headlines.

Standing under the Eiffel Tower as its lights dimmed, WWF Director General James Leape said: "Over the next eight months governments have to come together to crack the problem of climate change."

"Hundreds of millions of people all over the planet are setting the momentum to get the climate deal we need in Copenhagen in December."

UN Secretary-General Ban Ki-moon described this year's Earth Hour as "the largest demonstration of public concern about climate change ever attempted."

"Earth Hour is a way for the citizens of the world to send a clear message they want action on climate change," he said, looking forward to the UN Conference on Climate Change this December in Copenhagen, which is charged with coming up with a replacement for the Kyoto Protocol.

"People will be telling their representatives to seal a deal in Copenhagen," he said. "We need an ambitious agreement, an agreement that is fair and effective, an agreement based on sound science."

With Earth Hour 2009, hundreds of millions of people have voted for a more effective sequel to the Kyoto Protocol. But will their votes count? Find out later this year at the UN Conference on Climate Change in Copenhagen. ■

Photo: Earth Hour/Adrian Lee

Experience Earth Hour first hand.
(Click for Video).

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