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Universal Access and Service for broadband :for Broadband- Situational analysis for Africa and best practices

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Introduction

- The World Summit on the Information Society (WSIS) and the Millennium Development Goals (MDGs) highlighted the role of ICTs as progressional and developmental means that should be given priority all over the world.

- That is why during the Connect Africa Summit held in Kigali (Rwanda) from 29th to 30th of October 2007, particular emphasis was placed on commitments from different stakeholders and resources mobilization for their (ICTs) implementation, and particularly the initiatives related to broadband infrastructure development under Connect Africa Goal 1 and Goal 2

- In recognition of WTDC Resolution 137 (Antalya, 2006), the broadband development gap situation was considered by the 4th World Telecommunication Policy Forum (Lisbon, 2009) where there was concern that though broadband and next generation networks (NGN) hold the promise for inclusion of developing countries in the information society (hence achievement of the MDGs), these countries, particularly in Africa, still lagged behind in broadband and NGN development.
- In respond to this challenge, ITU has conducted studies such as the ***Wireless broadband gaps*** and to suggest ways of addressing them including the development of a wireless broadband development toolkit to guide the development of wireless broadband deployment in sub-Sahara Africa; and the ongoing ITU projects for SSA, namely: ***Guidelines preparation of National Broadband Plans*** and ***Model National Broadband Plans for Africa*** (ongoing)

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- Due to their cross-cutting nature, ICTs (specifically e-applications and services) have been shown to positively contribute to efficiency in all sectors of human endeavor including in public service (e-governement), education, health, commerce(e-commerce) to name a few.

- Apart from other factors (infrastructure, content/ applications, human capacity) a study on wireless broadband access (ITU, 2013) study revealed policy, regulatory and legislative gaps that require action by relevant government agencies in sub-Sahara Africa (SSA).

Current Situation on Universal Access in Africa (SSA)

- Studies on Wireless Broadband gaps in Africa
- Assessment of Status of National Broadband Plans in Africa followed by development of Guidelines and Model Plan for broadband (ongoing) projects
- Regional and national broadband initiatives (policy/ regulatory harmonization in Africa, regional broadband infrastructure)
- National Broadband Strategy (South Africa, Botswana and Kenya)
- Rural connectivity initiatives e.g., Rural Communication Development Fund strategy in Uganda, establishment of Universal Service Access Council (USAC, in Kenya) to advise the regulator on the universal service access matters

- Regional Broadband Vision e.g., the SADC Digital Agenda 2027
- Standardization efforts and establishment of Conformance and interoperability test centres in African (ongoing) –assessment and validation completed in SADC and Maghreb; EACO (in progress) and ECOWAS to follow?)
- Evolution of broadband market and advent innovative business models based on emerging market structure e.g., passive vs. active network providers on open access basis – the open access networks (OAN) initiatives

USF and Digital Inclusion for All Study (ITU, 2013 September)

- USFs are seen today as means to ensure that the majority of the population has access to affordable high-speed broadband-based services
- Hence the importance of a sound and clear framework of policies and strategies governing the implementation and operation of USFs and the digital agenda of governments as a whole (cf: Guidelines and Model broadband plans for Africa [ongoing ITU assistance to Africa])
- Challenges that are often encountered in the operation and management of USFs, include:
  - clearly defining the overall USF strategy,
  - scope and objectives and
  - addressing weaknesses or shortcomings in the underlying legal and regulatory frameworks

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- Evidence from the present (2013, Sept report) analysis suggests that lack of economic viability of the basic fund design and the current restrictions in disbursing funds result in less than 40 per cent of USFs being enabled to fund broadband deployment.
- Full report on ***USF and digital inclusion for all*** is available at: http://www.itu.int/en/ITU-D/Regulatory-Market/Documents/USF_final-en.pdf

Low Domestic Broadband Penetration*

- The domestic Wireless Broadband penetration in Africa is also very limited (2012):
  - Only five countries had penetration more than 1% (Egypt, Mauritius, Morocco, Senegal and South Africa)
  - 65% domestic broadband is through ASDL
  - Wireless broadband is increasingly being deployed (CDMA 2000 1x is widely used)
  - On the international links, there is a huge broadband gap to be filled, as Africa as a whole has only about 7 Tbps of international bandwidth (2012). Thus the demand for international broadband link is still high for Africa.

- **Mobile broadband**. In the first quarter of 2014, average mobile connection speeds ranged from 1.0 Mbps in Argentina to 14.7 Mbps in South Korea. South Africa had the highest mobile broadband adoption rate in Africa at 4.8%.

- However, the country's average mobile connectivity speed of 1.7Mbps was one of the lowest in the world and the lowest in Africa (among listed countries).

Mobile Broadband (Q1' 2014)

Country/Region	Q1'14 Avg. Mbps	Q1'14 Peak Mbps	% Above 4 Mbps
AFRICA			
Egypt	2.0	11.6	2.5%
Morocco	1.8	14.6	1.1%
South Africa	1.7	6.0	4.8%

- South Africa is 53rd with 1.7 % of population having > 10Mbps and 80th globally with 8.2% of the population with > 4Mbps.
- These figures are very low, worse still no SSA country features in these top statistics

ITU Playing Important a Role by/in:

- Supporting efforts by LDCs and DCs in elaborating universal access and service strategy and migration of ICT systems to broadband NGN;
- Human capacity building on both supply and demand side of broadband;
- Standardization in the ICT sector and establishment of conformance and interoperability test centres in SADC, the Magreb, EAC and ECOWAS -→ should lead to more affordable access;

- Facilitation of forums (like this one) for all stakeholders to engage in discourse aimed at realizing the desired results with regard to Universal Access/ Service in Africa
- Conducting studies in collaboration with regional experts to develop broadband service/ access (Guidelines and Model Plans)

Findings of Broadband Survey in Africa

- **Status of National Broadband policy, strategy and plans projects**
  - countries need assistance in policy formulation, regulation, legislation, and services/ market development for broadband.
- **Status of Development of national broadband policy, strategy, plans and projects**
  - broadband policy, strategy and plans need to be developed in majority of countries and flagship projected formulated and implemented to extend the coverage of broadband to more citizens in African countries
  - Most African countries have a national ICT policy though some are old and need revision (Swaziland indicated that they did not have a national ICT policy).

- **Legislation, Regulation, Market segmentation and Management of Broadband**
  - While some countries (such as Kenya and Angola) have made more progress in broadband legislation (mainly by enacting the ICT/ communications Acts/Laws) the others (such as Namibia, Lesotho, Swaziland and Malawi) are either in the process of developing these instruments (e.g., Lesotho and Malawi) or have not yet started the process (e.g., Namibia and Swaziland).

- **National Broadband Projects**
  - Kenya and Malawi reported the projects that are being implemented. The other countries may be having projects which were not reported. Therefore more flagship broadband projects are needed within the RECs and between RECs in SSA

Barriers to Universalising Broadband

- In the SADC Universalizing broadband workshop held in Lilongwe, Malawi (2014 August), it was noted that bottlenecks to Universal Broadband lead to suppressed demand (Linzie, 2014).
  - absence of policy direction on broadband hence absence of national broadband plans (NBPs)
  - lack of open access to broadband infrastructure leading to High Transit Charges/costs which make the broadband unaffordable to the population
  - lack of content to ensure efficient use of existing broadband networks and achieve lower prices per unit
  - lack of adequate or available funding for network development:
  - absence of regular data gathering to provide monitoring and evaluation of the progress in the development and deployment of broadband across the region
  - Standardization of infrastructure which includes conformance and interoperability

Some Opportunities for Universal Broadband Access and Service

- Improve affordability by e.g., sharing of infrastructure such as high points, implementing C&I test centres
- Increase coverage including using broadband wireless access
- Promotion and creation of awareness of benefits to enable the communities use and protect broadband infrastructure against vandalism
- Development of relevant content and user applications

- Under the banner of *enabling environment,* predictable and forward-looking policy, regulation, legislation and institutional framework is critical for the development of broadband and ICT in general. *Strides are being made on this front but more needs to be done.*
- Further, innovative business and financing /funding models are imperative to ensure the wide diffusion of affordable broadband ICTs to all citizens (universal access and service); a number of PPPs are being implemented

Best Practice for Universal Broadband Access and Service

- **Policy and Regulation**
  - To encourage licensees to deploy infrastructure, especially in areas previously not served by broadband networks through innovative approaches.
  - Adopt and **classify broadband as a basic service** required to be accessible to all citizens
  - Facilitating access to existing communication infrastructure used for other activities (for example, railway signaling, fibre over electricity lines or pipeline monitoring) which can be made available to licensed telecommunication operators.
  - Continuously operationalize Universal Access strategies (including USF) to enable service to less economically viable parts of the population

- Facilitate access to government land, including railways, electrical grids and road networks
- Policy and regulatory reforms to attract investment such as has been the case in a number of countries in Africa, regulators have several ways to address the true access gap,
  - Licensing special rural operators to deploy broadband networks in defined locations
  - Selection of licensees through bidding for the minimum subsidy required to achieve specified targets.
- Ensuring equitable access for all - funding universal access through governement subsidies to operators who deploy wireless broadband to economically unviable areas

- **Infrastructure**
  - Adopt deployment of fibre infrastructure in townships, municipalities and cities
  - **Create wireless broadband alliances** to pool financial and other resources and to enhance negotiating power with network vendors.
  - **Incorporate broadband networks into new infrastructure developments** i.e. Governments can include network conduits in road projects or incorporate cable arrays in new electrical grids (or even fibre infrastructure alongside new roads).
  - **Requiring operators to deploy broadband access networks**
    - The operator responsible for the provision of universal broadband access in any given area would receive financial incentives or payments for each new broadband line installed

- **Funding broadband development**
  - ***Funding local community initiatives to provide broadband access.***
    - This normally take a top-down approach
    - But a bottom-up approach could also be used, allowing communities themselves to apply for funds to deploy their own broadband networks.
    - This can help ensure local community involvement in, and demand for, broadband access

- **Giving direct and indirect financial support in return for the deployment of broadband network.**
  - Governments can provide tax exemptions to operators that roll out infrastructure in rural areas.
  - governments could offer full or partial subsidies, or loans at preferential rates.

- **Government direct intervention in development of broadband**
  - such as the Kenyan National Optical Fibre Broadband Infrastructure, NOFBI
- **Regional broadband projects by Regional Economic Community**.
  - The harmonization of ICT policies, economic integration and coordination of regional multi-sectoral projects should be accelerated to pave way for investments in broadband infrastructure across the RECs in the sub-Saharan Africa (e.g., as is the case with EAC-BIN, EABS, SRII among others)
- **Multi-Sectoral approach to broadband**
  - In order to optimize the benefits to society, broadband should be coordinated on a countrywide basis, promoting facilities-based competition and with policies encouraging service providers to offer access on fair market terms

- **Industry :** SSA countries should
  - promote **content creation** and **user applications** development for broadband and educate the consumers
  - **Make markets work more efficiently** - through effective policy, regulation and legislation;
  - **Facilitate demand** - consumer awareness programmes need to be intensified to allow consumers effectively use the ICT services delivered over wireless access network for economically productive purposes.

- **Human capacity**
  - developing human capacity is absolutely vital to ensure that individuals have the skills to make the most out of new technologies.
  - This means education, it means media literacy, it means ensuring that all marginalized groups are included
  - There is an increasing urgent need to make this happen.

- **Government engagement**
  - Decisions on broadband development (including policy adoption, regulation and legislation) are essentially political in nature requiring the effective participation of political players in respective sub-Sahara Africa countries.
  - Thus, capacity building among law makers, and government bureaucrats is critical to enable them approve initiatives (including funding, policies, legislation etc) in support of broadband (including WBA) deployment
  - …because there is significant inadequate capacity in government to comprehend the power of the ICTs to enable faster decisions in moving the ICT agenda forward.

Future Outlook

- Guideline for National Broadband Plans and Model National Broadband Plan for all Africa countries
- Harmonization of policies, regulation and legislation to make investment and operation of broadband universal access networks and service delivery seamless in Regional Economic Communities(EAC, SADC, ECOWAS etc) across Africa
- Human capacity development
- Content and applications creation
- Promotion of broadband and creation of awareness of benefits of broadband

- Partnership including in software development and financing (including through PPP)
- Innovative funding and business models including open access network
- Enforcement of standards e.g., through the implementation of C&I centres collaborations in software development
- Improving affordability e.g., through infrastructure sharing
- Digital dividend operationalization (e.g., Tanzania has migrated to digital broadcasting) to release spectrum for use for wireless broadband deployment
- Effective Universal Service funds strategy (for the current status, see the report *Universal Service fund and Digital inclusion for all at*

http://www.itu.int/en/ITU-D/Regulatory-Market/Documents/USF_final-en.pdf

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