


UNITED REPUBLIC OF TANZANIA
Tanzania Communications Regulatory Authority - TCRA



**REGULATORY PROCESS TO FACILITATE WIRELESS ACCESS IN RURAL AND
REMOTE AREAS OF TANZANIA**

A decorative horizontal band with a textured, grayscale background of what appears to be a natural landscape or abstract pattern.

**Presented at the Regional Seminar on Broadband Wireless Access (BWA)
for rural and remote areas for Africa:**

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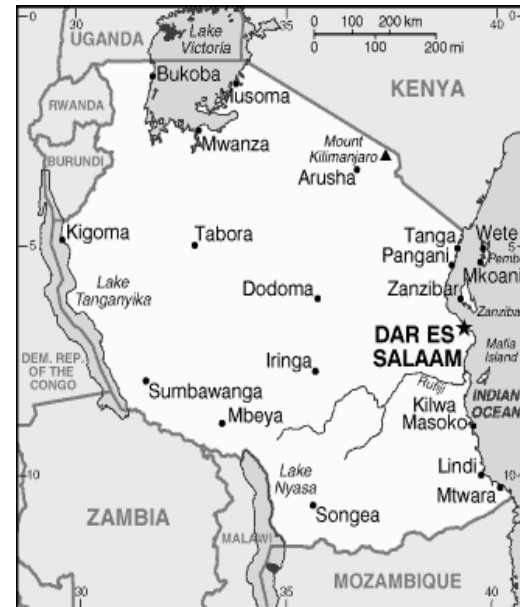
The AGENDA

- Introduction
 - Tanzania in brief
 - Regulatory framework in Tanzania
- Broadband and Rural areas defined
- Regulatory Processes and Outcomes for BWA
 - Licensing
 - Spectrum
- The Challenges in Tanzania
- Regulatory Solutions to Challenges
- Further Readings

Introduction

■ Tanzania in brief

- area: -946,658 sq. km
- terrain: varied
- climate: varies from tropical to arid temperate
- population: 36mil with only 3 cities with over 1 million people
- language: Swahili and English
- per capital income: \$300



Introduction ... continued

- Regulatory framework
 - Ministry for Infrastructure development: Responsible for policy formulations. We have in place:
 - Telecom policy 1997
 - ICT Policy 2003
 - Tanzania Communications Regulatory Authority: Responsible for regulation of postal and electronic

Rural Areas defined

Rural area of developing country is characterized by:

- low population density
- isolation from developed urban centers
- without power supply facilities
- without or with poor communications means (telephone, roads etc) ie limited infrastructure
- habited with low income earning communities

The need for efficient communication to these communities need not be emphasized. However, taking into account the economic status of the people, cost of the communication services provided should be affordable.

Broadband Defined

- Broadband is a data transmission scheme where multiple transmissions share a communications path/Infrastructure; and
- **Infrastructure** may be defined as an integration of short or long haul links (of fibre cables or copper wires or microwave) with switching facilities (like routers, telephone exchanges, Internet Exchanges Points) to enable transportation and direction of ICT traffic between two end terminals in a cost effective way
- Broadband is associated with high capacity and always on connection to provide various services (video on demand, internet, e-services and tele-services etc)

Basic Regulatory Processes

Within the current licensing framework of the Tanzania Communications Regulatory Authority (TCRA), flexibility is placed on Service Providers and network operators to ensure that a minimum level of communication is available to all, independent of geographical location including rural and lightly populated areas.

To ensure these prime goals of the sector are achieved, TCRA :

- has adopted a technology neutral and service neutral licensing scheme.
- has aligned National Radio Frequency Spectrum Plan and Tables to efficiently accommodate multiple players in the Fixed Wireless Access and applications.
- Introduced licenses for small geographic coverage, districts and regions to allow space for small players

Outcome of the Regulatory Processes

As a result of Regulatory reform processes:

- Networks of appropriate technologies are being deployed rapidly (e.g. CDMA)
- Various New Services are being realised (e.g. Broadband)
- Services rollout in Rural and Remote areas are becoming easy by using Fixed Wireless means
- Users enjoy low tariffs for basic data

BWA technologies

Broadband wireless access can be deployed with

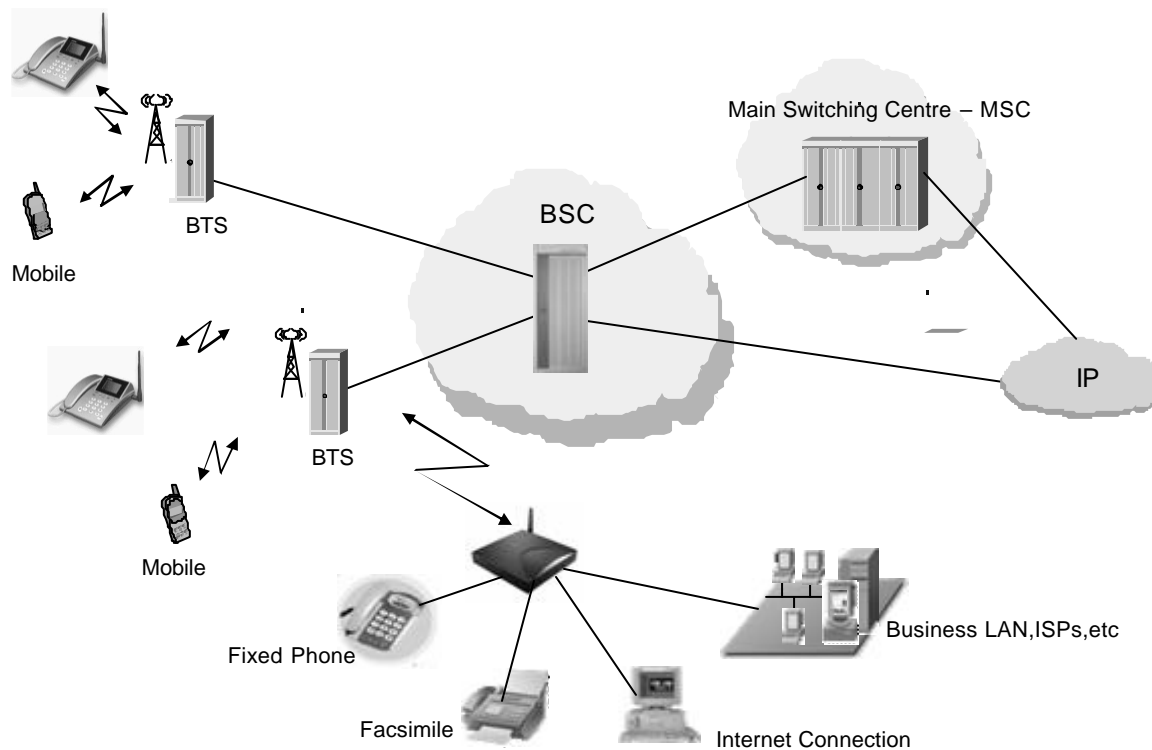
- 3G mobile technologies (CDMA variants) are being deployed by some operators in Tanzania
- WiFi- are deployed by several operators in cities and towns but not suitable for rural areas due to distance limitations of the technology
- WiMax-promises to be the replacement of WiFi by providing higher coverage and capacity

In Tanzania, Broadband services are also been offered via copper wires (ADSL technology)

CDMA2000 WIRELESS ACCESS NETWORK DEPLOYED IN TANZANIA



CDMA2000 Network Diagram



Solution Benefits

- ▶ Easy to deploy and cost effective Broadband Wireless Access Solution
- ▶ Wider coverage - lower frequency (450, 800MHz)
- ▶ Integrated voice and data services
- ▶ Less fraudulent system - no line tapping
- ▶ Less maintenance costs
- ▶ Scalable, flexible - Invest as you grow
- ▶ Standard technology with clear roadmap to 3G Network

Competitive Advantages

- ▶ Value added services: SMS, VMS, MMS, etc.
- ▶ Integrated data services – narrowband 153kbps, broadband 2M
- ▶ User Group Services – VPN, CENTREX (virtual PABX, group calling)
- ▶ Limited and Full Mobility supported
- ▶ Desktop or Portable handset available
- ▶ Payphone/Tele-Centres are supported

CDMA Economic Advantages to Rural Areas

- ▶ Wider coverage – lower frequency (450MHz)
- ▶ Cost effective access network solution
- ▶ Mobility
- ▶ Support ICT (Enabler)

CDMA Services to Rural Areas

- ▶ Public Phones/Telecentres
- ▶ G3 Fax
- ▶ Short Messages (SMS)
- ▶ Multimedia Services (MMS)
- ▶ Video Conferencing (Telemedicine, Tele-education, etc)
- ▶ Internet access
- ▶ E-Banking

The Challenges :

- Rural access challenge
 - Security of infrastructure in rural areas
 - Access: some areas are not easily accessible for maintenance and installations
 - Power: lack of electricity in rural areas
 - Power for network infrastructure
 - Power for terminal equipments
 - Spectrum issues
 - Spectrum: availability
 - Spectrum: compatible for cheap equipment
 - Spectrum: which is licensed and yet affordable for rural deployment
 - Economics: low subscriber density, high infrastructure costs makes the system uneconomical

The Challenges :

- Lack of Efficient ICT Infrastructure
 - The national backbone do not cover the entire country
 - Most of the available ones are of low capacities
 - The 'Missing link' between Mtunzini and Djibouti
 - Cause inefficient global connectivity
 - Dependency on Earth station satellites deny affordability
- High cost of CDMA and Computer terminals
- Scarce Frequency resources (450 MHz & 800 MHz)
- Frequent vandalism and theft acts
 - Mainly on cables and laptops

Regulatory Approaches to the Challenges

In order to address the affordability issue and promote accessibility:

- The Authority has facilitated the installation of one IXP, and four more are planned for this year
 - All ISPs are required to interconnect to the IXP(s)
 - Is advocating for local content development and hosting
- All stakeholders actively participate in regional initiatives for infrastructure development
- Review on the National Radio Frequency Spectrum Plan and procurement of state-of-the-art monitoring equipment and tools

Regulatory Approaches to the Challenges (cont)

In order to address the affordability issue and promote accessibility:

- TCRA encourages and supports infrastructure sharing
- Low license fees for rural licensees
- Is still developing other methods to make deployment of rural services cheap and affordable to match the economies of scale of deployment in cities to foster competition for rural ICT services

Further Reading

To know more about:

- TCRA
- Licensing procedures and Regulations
- Sector players and Market Information in Tanzania

Please visit the TCRA's website:

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Thank You for your Time.