



**ITU Regional Seminar on Broadband Wireless Access
(BWA) for rural and remote areas for Africa,
Yaounde (Cameroon), 18-21 September 2006**

**The Applications of Satellite BWA Technology for
Rural and Remote Areas in Africa**

By
Dr. Jones A. KILLIMBE
Director General/CEO

August 2006

1



Challenges facing rural and remote areas in Africa

- ❖ Many operators in Africa face the challenge of rolling out services in rural and remote areas which constitute over 70% of the total population of about 842 million people ;
- ❖ Appropriate basic telecommunications infrastructure such as satellite technology can meet operators' needs to deliver high-quality, low-and medium-capacity connections to remote areas quickly and more cost-effectively than traditional methods;
- ❖ Also the modern internet paradigm calls for wider bandwidth in urban and rural areas so that information exchange can also include complex files (drawings, graphics, audio-visual materials, music for tele-medicine and tele-education rather than the basic text and still photographs which slow dialup connections can handle (e-mail, word processing, photographs);
- ❖ Until such an infrastructure is in place continent-wide, the innovations in ICTs will not really benefit African people and can only contribute to widen the Digital Divide within African countries and between Africa and the rest of the world;
- ❖ **Connecting Africa to Africa and within African countries themselves in a cost-effective way is, therefore, a major challenge!**

2



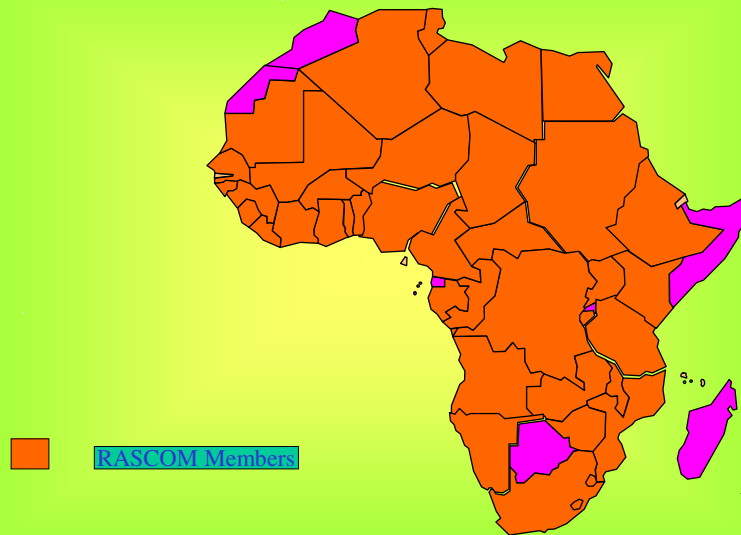
Objectives of the RASCOM System

- ❖ To provide a wide range of telecommunications services to all areas in Africa at affordable costs;
- ❖ To establish direct links between all African countries without an exception in order to save the hundreds of Millions of United states' dollars that Africa pays every year on transit traffic that leaves Africa to Africa through foreign operators for Telecommunication services and Radio and Television programmes;
- ❖ To improve interurban and rural communications within each African country;
- ❖ To provide facilities for Radio and Television broadcasting in each African country as well as exchange of Radio and Television programs between African countries leading to complete integration of the continent ;
- ❖ Sustain the deployment of Wireless services in Africa by covering the last mile.

3



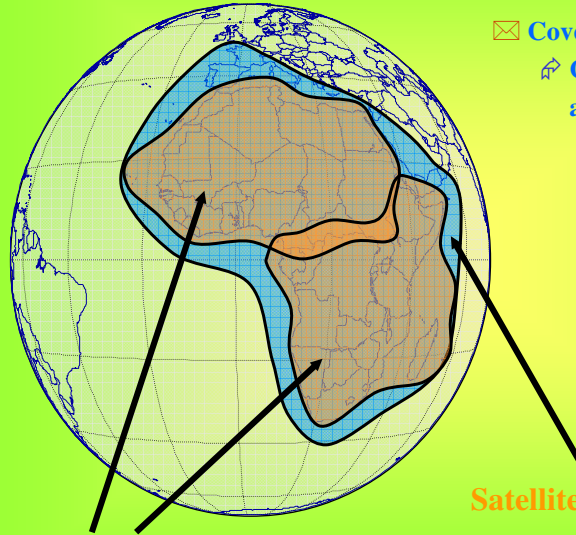
MEMBERSHIP OF RASCOM



4



ABOUT THE SYSTEM...



☒ Coverage Topology

⇨ Combination of Ku-band and C-band coverage:

- The Ku-band coverage is divided into 2 regional spot beams
- A single Continental C-band beam covers all of Africa and associated islands, parts of Europe and the Middle East

Satellite Regional Coverage

Satellite Continental Coverage

5

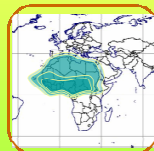
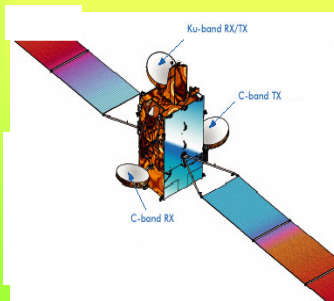


RASCOM Satellite Coverage

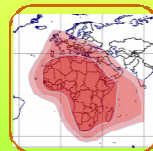
❖ Prime look angle over Africa (Orbital slot = 2.9° East)

❖ Satellite dedicated coverage and connectivity:

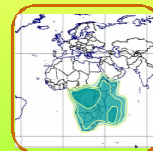
- ☐ 1 Global coverage in C-Band (Africa + Europe+ part of Middle East)
- ☐ 2 Ku band spots over Africa



Ku-band North Spot



C-band Global



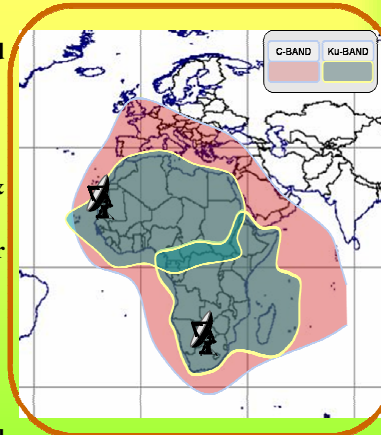
Ku-band South Spot

6



Integrated Communication Services & Band Lease Services

- ❖ **Integrated Communication system**
 - Optimum for telephony services
 - Connect terminals to terminals and terminal to their own PSTN .
 - Full independent country networks
- ❖ **Band Lease Service:**
 - Broadband Internet, digital Radio & Television;
 - Central HUB(s): one or two HUBs for Africa
 - One or 2 HUBs to connect to the Internet
 - TV broadcaster(s) to aggregate programs
- ❖ **Hubs**
 - ✓ Could use 2 hubs antennas in the Rascom Ku frequency bands
 - ✓ But One HUB antenna only if
 - ✓ HUB located in the beam overlap



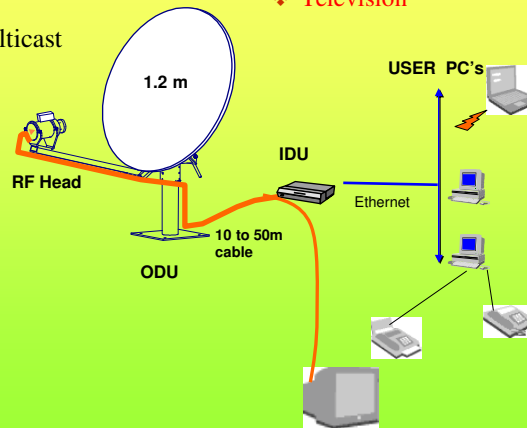
7



RASCOM Satellite Terminal

- ❖ Rascom-QAF satellite: Ku band transponders
- ❖ **Applications:**
 - Multimedia Broadcast & Multicast
 - Education & E-Learning
 - Shared Internet Access
 - Security & Disaster recovery
- ❖ **Standards**
 - DVB-RCS
 - Or Others (to be determined)
- ❖ **Easy, low cost installation**
 - Installation costs
 - Automated Process

- ❖ Data/ Internet
- ❖ VoIP telephony
- ❖ Television



8



Status of the Implementation of the RASCOM Satellite System

- ❖ Construction of the RASCOM dedicated satellite system for Africa completed;
- ❖ Founding partners (GPTC of Libya, Alcatel & RASCOM) are mobilising funds now for the launch and insurance services;
- ❖ Launch in 2007 and goes commercially operational thereafter;
- ❖ The RASCOM dedicated satellite system for Africa is part of the definitive solution to the lack of connectivity in Africa;

9



BWA Satellite applications for rural and remote areas in Africa

- ❖ With the emergence of mobile telephony as the most highly demanded service globally, mobile has almost totally supplanted fixed as the service of choice, reaching deep rural and remote areas in Africa and becoming the primary means of providing universal access to voice services;
- ❖ Internet service and ICTs have also been integrated as components of Universal access services;
- ❖ Even basic 2G digital service enable communities in Africa to converse and exchange short message service (SMS) communications at sometimes several kilometres offshore in the case of fishermen and women who use cellular phones as well as in oil, gas and agricultural industries located in remote and rural areas etc;
- ❖ Digital Video Broadcasting-handheld (DVB-H) is one of the latest applications targeting handheld, battery-powered devices such as mobile phones, PDAs
- ❖ The RASCOM satellite system will provide a backhaul to the mobile industry in Africa.

10



VSATs applications as Communication solutions using the RASCOM satellite system for Africa

- ❖ Satellite technologies in general and VSATs in particular have provided tools that enable private competitive carriers to get into business in any market in general and Africa in particular to provide services in an incremental manner;
- ❖ Operators will continue to use VSATs as part of hybrid networks integrated into broad networking solutions that include DSL, Wireless Local Loops, (WLL) WiFi and even WiMAX;
- ❖ VSATs are used as effective backup solutions for banks to provide an automatic connectivity in case a bank's terrestrial network connectivity is lost, in oil, gas and mining industries spread in rural and remote areas in Africa;
- ❖ Lastly it serves as an efficient last-mile solution for other technologies to bring communication services to all citizens in the region regardless of their remote locations;
- ❖ The RASCOM satellite system provides space segments for VSATs utilisation in a non-static manner, thereby serving the operators chunk-costs spent on existing space segments;

11



No Emergent Technologies is a panacea for rural and remote areas in Africa

- ❖ Among emergent technologies coming into service, the main thrust remains satellite with applications of a wide range of satellite communications such as Broadband Internet (WiFi, WiMAX and Broadband Global Area Network (BGAN) and in the mobile industry High Speed Downlink Packet Access and (HSDPA/HSUPA) High Speed Uplink Packet Access;
- ❖ RASCOM is a new generation satellite system with broadband satellite routers designed to offer higher speeds on both up and downstream connections;
- ❖ Even basic 2G digital service enables communities in Africa to converse and exchange Short Message Service (SMS) communications at sometimes several miles offshore in the case of fishermen and women who use cellular phones or miners in gas and oil fields;
- ❖ Broadband internet is not yet ubiquitous even in North America, Europe and Asia;
- ❖ Varieties include Integrated Services Digital Network (ISDN) Asymmetric Digital Subscriber Loop (ADSL)

12



Conclusion

- ❖ The application of satellite BroadBand Wireless Access (BWA) technology for rural and remote areas in Africa shall bridge the Digital Divide, increase productivity and enhance an overall development of Africa;
- ❖ African countries are putting in place Policy and Regulatory frameworks to sustain the implementation of these technologies and Private investors need to take advantage of the conducive environments;
- ❖ On a continental basis, the RASCOM system shall provide both voice and broadband data simultaneously using its Rural Multimedia Terminal;
- ❖ RASCOM is a complementary satellite communications solution to all existing and/or planned telecommunications systems in Africa for BroadBand Wireless Access in rural and remote areas in Africa;

13



THANK YOU



Our contact: www.rascom.org