INTERNATIONAL TELECOMMUNICATION UNION

Telecommunications Development Bureau (BDT)

REGIONAL OFFICE FOR AFRICA

Telecommunication/ICT Network Management and Development

1. ASSESSMENT OF THE ACTUAL SITUATION

CENTRAL AFRICA

STATUS

TWO CATEGORIES

1. WAR STRICKEN COUNTRIES

Democratic Republic of Congo

Burundi

Rwanda

Central African Republic
Congo

Chad (Recently more stable.)

Continued

2. STABLE DEVELOPING COUNTRIES

Cameroun

Equatorial Guinea

Sao Tome & Principle

Gabon

STRENGTHS

- **Special attention by other international aid is being given to war torn countries to develop the telecommunication network.**
- **ITU special assistance.**

WEAKNESSES

- **In war stricken countries, Infrastructure development has been retarded due to war.**
- **Inadequate local financial resources for development.**
- **Policy of immediate maximum profits by certain operators.**
- **Poverty.**

EASTERN AND SOUTHERN AFRICA

STATUS

Each country is at a different level of development. However, the sub-region may be grouped in three categories

1. **South Africa and Mauritius**
   - **High teledensity.**
   - **High area coverage of fixed and mobile networks.**
   - **On migration path to 3G and IP Telephone.**
   - **Fair ICT penetration**

2. **Remaining SADC region states including Kenya and Uganda.**
   - **Teledensity of between 0.8 and 1 per 100 people**
   - **High population covered by mobile networks**
   - **Network elements are being digitalized.**
   - **Low ICT penetration**

Continued

3. **Ethiopia and Eritrea**

- **Teledensity of less than 0.5 per 100 people**
- **Low population covered by mobile networks**
- **Very low ICT penetration**
- **Network Elements are being digitalized.**

STRENGTHS

- **Member States in the Regional Economic Integration groupings are working together in projects like the RSII (SADC) and COMTEL (COMESA).**

- **The Role of SATTC in telecommunication sector**

- **ITU assistance**

Continued

WEAKNESSES

1. **Management shortcomings**
2. **Insufficient well-trained and experienced human resources in new technologies and services.**
3. **Inadequate financial resources for development.**
4. **Lack of African telecommunication manufacturing industry.**
5. **Policy of immediate maximum profits pursued by certain operators especially in mobile networks.**
6. **Poverty.**

WEST AFRICA

STATUS

- **Low teledensity**
- **Insufficient uniformity in the networks**
- **Low ICT and Internet penetration**
- **Insufficient technical interconnect capacity**

STRENGTHS

- **Establishment of CMTL SA**
- **ITU assistance**
- **Regional Economic Integration grouping approach**

Continued

WEAKNESSES

- **Management shortcomings**
- **Insufficient well-trained and experienced human resources in new technologies and services.**
- **Inadequate financial resources for development.**
- **Lack of African telecommunication manufacturing industry.**
- **Policy of immediate maximum profits pursued by certain operators especially in mobile networks.**
- **Poverty.**

GENERAL TECHNICAL WEAKNESSES

1. NETWORK MANAGEMENT

- **Insufficient practice of technical management procedures.**
- **Unavailability of network operations and administrations data.**
- **Co-existence of analogue and digital equipment.**
- **Network Interface difficulties and propagation problems.**
- **Unsatisfactory Network Operation, Interoperability and Quality of Service standards.**
- **Difficulties in obtaining Network management data from operators and Regulators.**
- **Unavailability of Network performance history.**
- **Obsolescence and difficulties with supply of spare parts (production lines having closed down).**

Continued

2. NETWORK DEVELOPMENT

- Insufficient network planning of interconnection capacity.
- Insufficient, if not none, network development in rural, remote and isolated areas.
- Unavailability of IP Telephony penetration.
- Insufficient planning of platforms for new technologies and services.
- Insufficient local funds for network development.
- Insufficient implementation of internationally accepted standards of signaling and inter-state harmonization of signaling.
- Low data speed (9.6Kbps) in mobile networks.
- Very low teledensity.
- High costs of Internet access penetration.

2. LAID DOWN ACTIVITIES AS PROGRAMS

a) NETWORK MANAGEMENT
   - Network Operation, Interoperability and Quality of Service standards.
   - Network Management and Maintenance.

b) NETWORK DEVELOPMENT
   - Network Planning.
   - Network Implementation.
   - Network Development (as in upgrading and expansion to cover urban, rural and remote areas).

In the following fields
   - Spectrum management and Radio monitoring.
   - Broadcasting.
   - Mobile terrestrial communications.
   - IP and innovative applications.

3. MEASURABLE OBJECTIVES

In the fields and within activities mentioned;

1. **Creation of tools.**
2. **Creation of training material and guidelines.**
3. **Assistance to members.**
4. **Information sharing.**
5. **Handling of special needs.**
6. **Coordination within ITU.**
7. **Partnership.**

Matrix of measurable Objectives in the fields and within activities .

	FIELDS & ACTIVITIES	Spectrum Management and Radio Monotoring	Broadcasting	Mobile terrestrial communication	IP and Innovative applications
1	Network Planning	1, 2, 3, 6	1, 2, 3, 6	1, 2, 3, 6	1, 2, 3, 6
2	Network Implementation	3, 5, 7	3, 5, 7	3, 5, 7	3, 5, 7
3	Network Operation, Interoperability and Quality of Service standards.	1, 2, 3, 4 6	1, 2, 3, 4 6	1, 2, 3, 4 6	1, 2, 3, 4 6
4	Network Development	2, 3, 4, 5, 6, 7	2, 3, 4, 5, 6, 7	2, 3, 4, 5, 6, 7	2, 3, 4, 5, 6, 7
5	Network Management	2, 3, 4, 6	2, 3, 4, 6	2, 3, 4, 6	2, 3, 4, 6
6	Network Maintenance	1, 2, 3, 4, 6	1, 2, 3, 4, 6	1, 2, 3, 4, 6	1, 2, 3, 4, 6
	MEASURABLE OBJECTIVES				
	In the fields and within activities mentioned;				
1	**Creation of tools.**				
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6	**Coordination within ITU.**				
7	**Partnership**				

4. YEARLY UPDATED OPERATIONAL PLAN FOR FOUR YEARS

For Each activity/program, within the fields and measurable objectives, analysis of;

- Annual Objectives
- Performance indicators
- Actions

has been considered for the following years.

Year 1

Year 2

Year 3

Year 4

ACTIVITY PLAN

	FIELDS & ACTIVITIES	Spectrum Management and Radio Monotoring	Broadcasting	Mobile terrestrial communication	IP and Innovative applications
1	Network Planning	Year 1	Year 1	Year 1	Year 1
2	Network Implementation	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3
3	Network Operation, Interoperability and Quality of Service standards.	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3	Year 1 & Year 2 & Year 3
4	Network Development	Year 1, Year 2, Year 3 & Year 4	Year 1, Year 2, Year 3 & Year 4	Year 1, Year 2, Year 3 & Year 4	Year 1, Year 2, Year 3 & Year 4
5	Network Management	Year 1 & Year 2	Year 1 & Year 2	Year 1 & Year 2	Year 1 & Year 2
6	Network Maintenance	Year 1 & Year 2	Year 1 & Year 2	Year 1 & Year 2	Year 1 & Year 2

ICT's PRIORITY AREAS

- Provision of universal access and universal service (basic (voice) telecommunication service
- Energy (electricity)
- Technological skills
- Expansion and enhancement of affordable telecommunication services
- Increase of affordable terminal communication equipment.
- Increased Internet access penetration
- Development of other social and economic infrastructure such as financial, content, e-commerce culture etc.

IMT-2000 Key Drivers

- Wireless Internet mobile phone Adoption
- Rapid service creation
- New Revenue streams
- Bandwidth
- Capacity
- Lower cost base

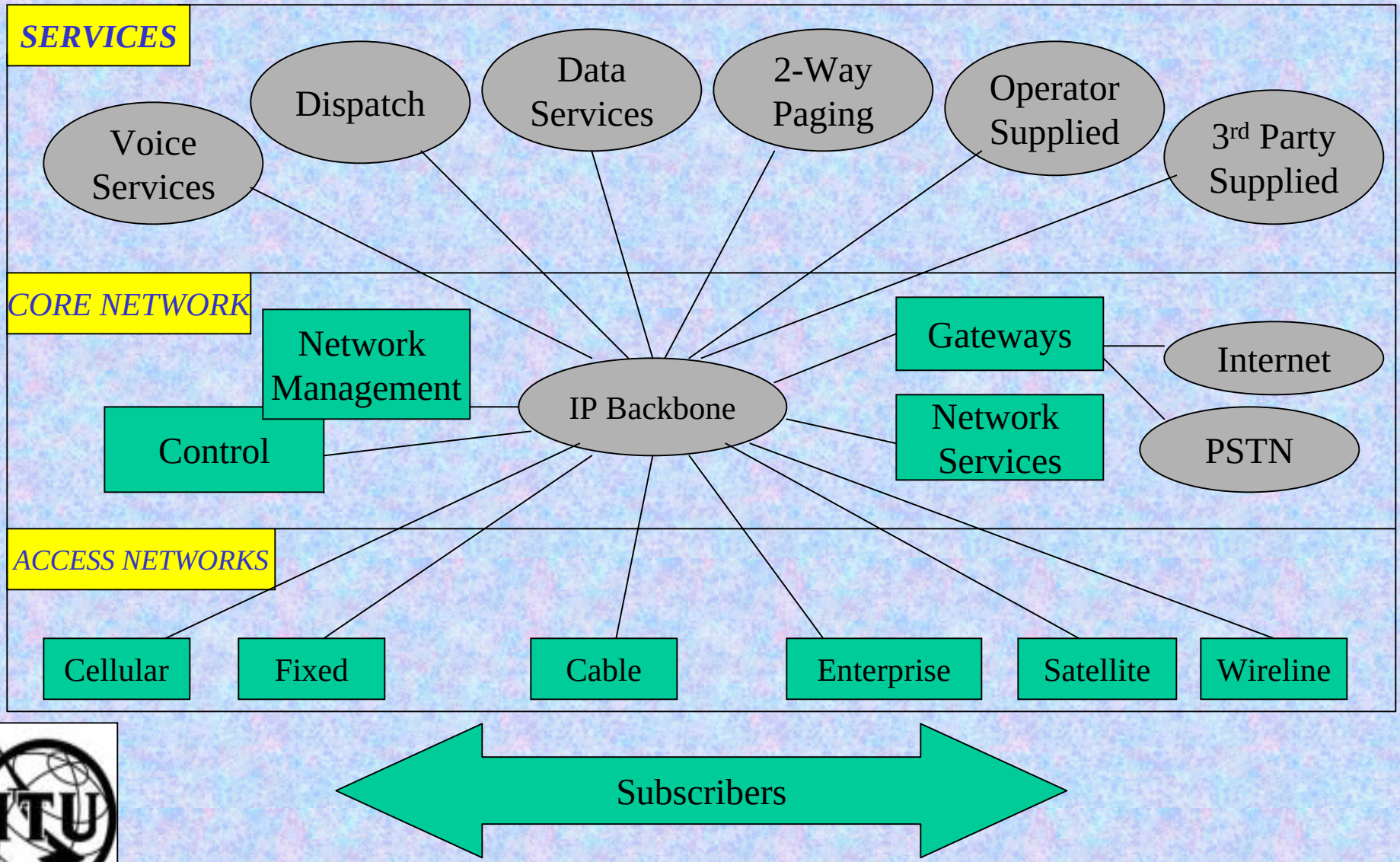
Cellular/mobile systems evolution

GENERATION	JAPAN	ASIA/PAC, & AMERICAS	EUROPE	KOREA	Maximum Data Rates per user
1G	NTT & JTACS	NAMPS, AMPS & TACS	NMT	NAMPS, AMPS & TACS	
2G	PDC (ENODE) &C	cdmaONE (ANSI-41), D-AMPS (ANSI-41) & IDEN	GSM (MAP)	cdmaONE (ANSI-41), D-AMPS (ANSI-41) &Iden	14.4Kbps
2.5G	IS-95 Rev.B (ANSI-41)	IS-95 Rev.B (ANSI -41), GPRS (ANSI-41) & Nextel On-Line	Phase II+ GPRS (MAP)	IS-95 Rev.B (ANSI -41), GPRS (ANSI-41) & Nextel On-Line	
3G	ARIB W-CDMA (INODE-"MAP+" & cdma2000 MC "ANSI-41+"	cdma2000 MC "ANSI-41+", IS-136 HS (EDGE) "ANSI-41+" & EDGE Variant	UMTS (W-CDMA) & EDGE	ARIB W-CDMA (INODE-"MAP+" & cdma2000 MC "ANSI-41+"	2MB/s and higher
Hamonized DS	Hamonized DS	Hamonized DS	Hamonized DS	Hamonized DS	

Operator Migration Paths

GENERATION	CDMA	TDMA (GSM)	DATA RATES
2G	IS95A TO IS95B	TDMA IS-136, GSM 900, GSM 1800 & PCS	14.4Kbps to 64 Kbps
2.5G	IS95A TO IXRTT	GSM 1800 &PCS 1900 TO GPRS	64Kbps to 144Kbps to 384Kbps
3G	IXRTT TO 1XPlus TO DS Narrow	TDMA IS-136 TO EDGE, GPRS TO EDGE & EDGE TO UMTS	384Kbps to 1.4Mbps to 2Mbps to 5Mbps

Conclusion:- IP Convergence for Broadband Data, Voice and Multimedia Networking



THANK YOU

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NETWORK MANAGEMENT AND DEVELOPMENT
FOR
AFRICA TEAM

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