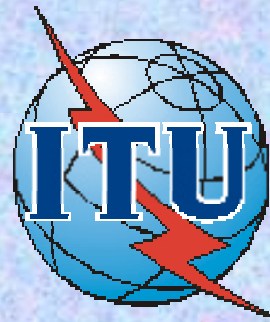


**INTERNATIONAL TELECOMMUNICATION  
UNION**

*Telecommunications Development Bureau  
(BDT)*

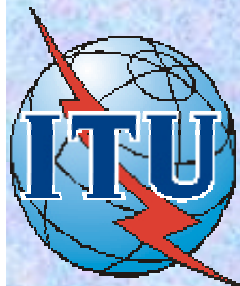
**REGIONAL OFFICE FOR AFRICA**



**NETWORK PLANNING  
STRATEGIES**

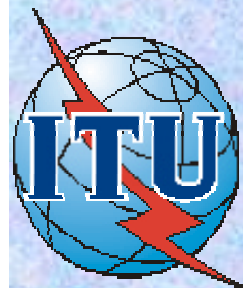
# TOPICS

- Trends and evolution of telecommunication technologies and services
- Trends and evolution of telecommunication networks
- Actual situation
- Challenges ahead
- Protecting existing investment during migration. (proposal)



# TECHNOLOGIES AND SERVICES

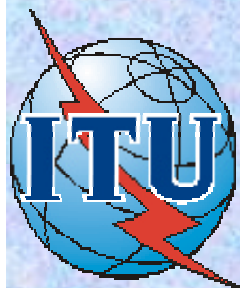
- Voice
- Voice, telex, telefax
- Media
- Video
- E-mail
- Pre-paid
- Data and the internet
- E-everything (education, health, commerce, governance, etc.)



Voice/mail, e-mail, multimedia, video, conferencing etc.

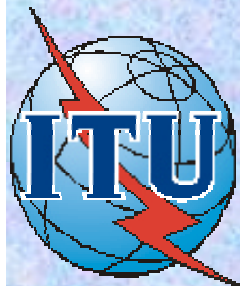
# TELECOMMUNICATION NETWORKS

- Electromechanical
- Fixed Circuit switched analogue
- Fixed Circuit switched digital
- Wireless/mobile circuit switched analogue
- Wireless/mobile circuit switched digital
- Fixed Packet switched
- Wireless/mobile Packet switched
- IP/Optical



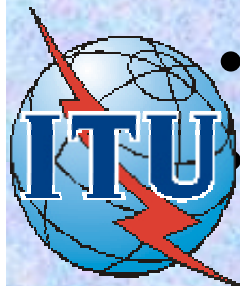
## ACTUAL SITUATION

- Insufficient technical interconnection capacity.
- Insufficient platforms for new technologies and services
- Limited infrastructure, if not none in rural areas.
- Very low tele-density.
- Low population covered by mobile/cellular networks.
- Low area covered by mobile/cellular networks
- Insufficient usage of communication facility for safety missions.
- Insufficient utilization of Computerized Subscriber Management Systems and Management Information Systems.



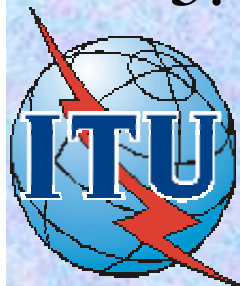
## ACTUAL SITUATION - Continued

- Under utilization of fixed/land mobile wireless technologies.
- Separate networks for voice, data, video and media.
- Insufficient usage of and implementation of International standard signalling system in the digitalized networks.
- Low Internet access penetration
- Low data speed (9.6Kbps) in mobile/cellular networks.
- Analogue transmission and switching networks.  
High development costs.



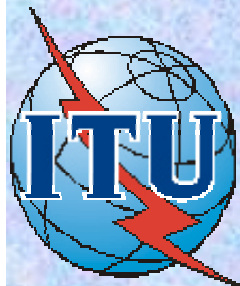
# CHALLENGES AHEAD

1. Implementation of internationally accepted standards for signaling.
2. Development of end to end digital transmission networks.
3. Planning and development of sufficient platforms for new technologies and services
4. Planning and implementation of migration steps for the converging transportation of voice, data video and media
5. Enabling of conducive environment for network expansion/development in rural areas.



## CHALLENGES AHEAD (Continued)

6. Implement fixed/mobile wireless and Satellite technology in rural telecommunication development.
7. Involvement of participation of Universities, Engineering Institutions, Science and Technology, professional Associations in rural telecommunication development and in telecommunication industry development.

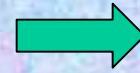




## CHALLENGES

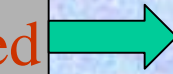
## POSSIBLE SOLUTIONS

Unification of today's disparate networks



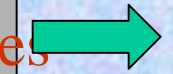
Complete End-to-End Communications Solutions, Common Core Architecture for Voice/Data, Fixed/Mobile, Wireline/Wireless 2G/2G+/3G. Open, secure Internet Access.

Reduction of churn, attraction of new subscribers, increased usage



Common Services Across Subscriber Access Devices. Full Multi-Media Service Support and Customized Subscriber Portfolio

Rapid Creation of New Revenue-Generating Services and Market Segments

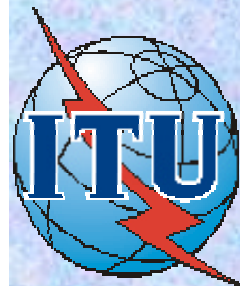


Open Application Programming Interfaces Distributed Architectural Reduces Software Cycle Time. Architectural Flexibility.

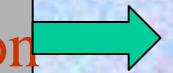
Control Operator Cost



Highly Available, Scalable Peer-to-Peer Networks IP on Common Platform Open Standards Allow Vendor Independence



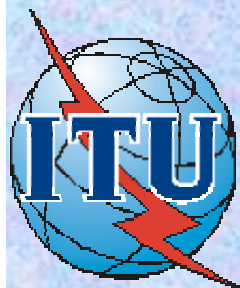
Smooth Migration To Next Generation Architecture



Integration of Circuit and Packet for Existing Investment Protection Customized Solutions for Operator-Determined Approach

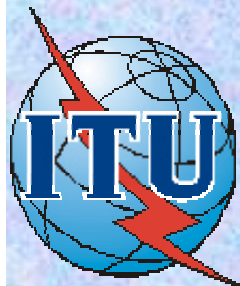
## Protecting existing investment during migration. (proposal)

- Proposed migration steps for networks in PSTN and Mobile/Cellular.
  - Ensure availability of basic infrastructure of PSTN and mobile/cellular.
  - In the PSTN digitize the Switching system between all nodes and plan for interconnection capacity.
  - In the PSTN digitize the transmission system between all elements.



## Protecting existing investment during migration. (proposal cont'd)

- Implement the International standard signaling system in the digitized network.
- Implement ISDN and IPTC platforms in PSTN and GPRS in mobile/cellular networks.
- implement and establish IP in the telecommunication network.



# PROPOSED MIGRATION STEPS IN THE PSTN & CELLULAR/MOBILE NETWORKS – FLOW CHART

STEP 1

Are the basic PSTN Infrastructure and Cellular Networks available?

NO

Suggest implementation of cellular networks

YES

STEP 2

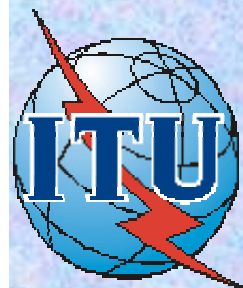
Is the Switching Network digitized and planned for Interconnection capacity?

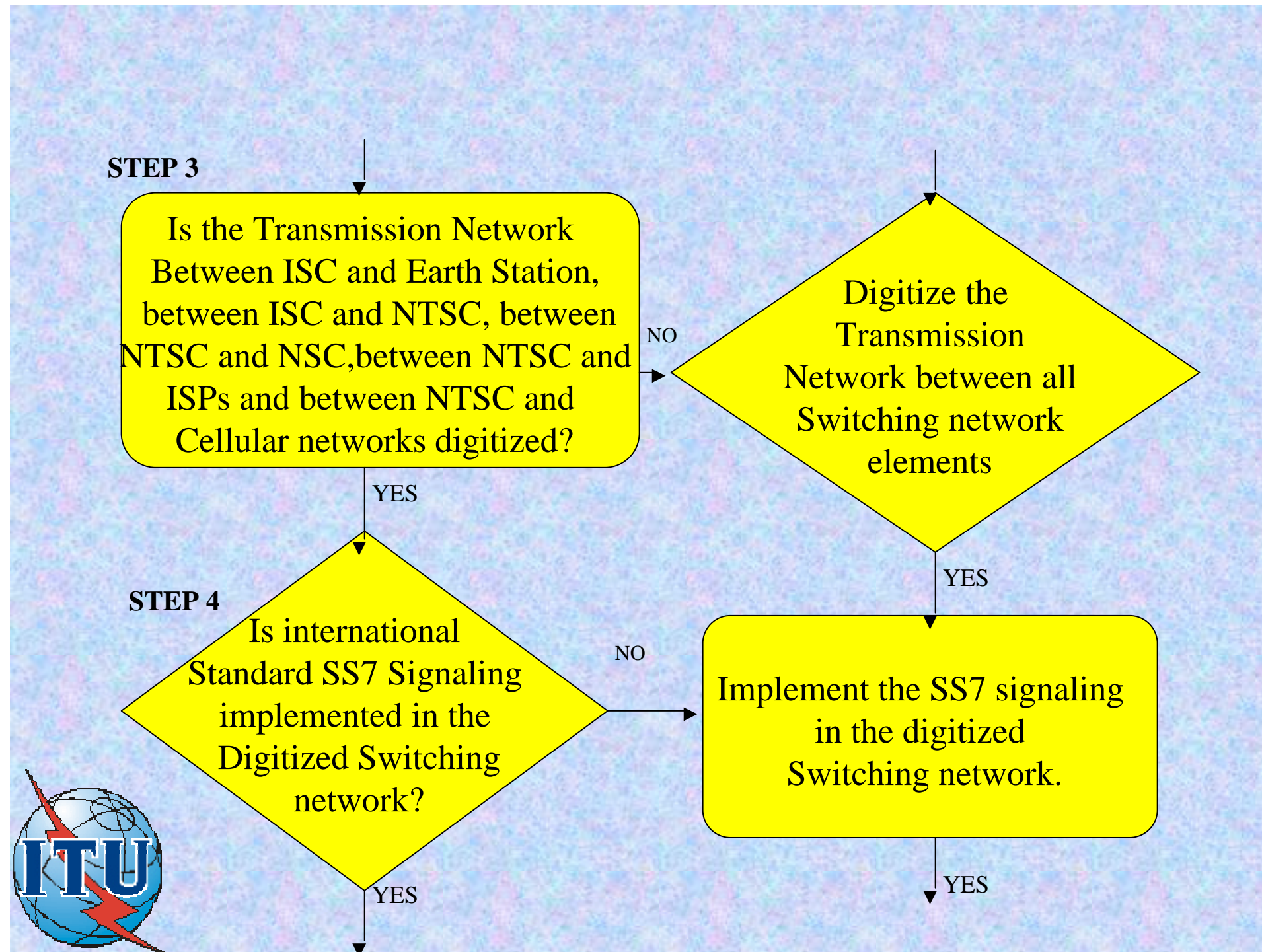
NO

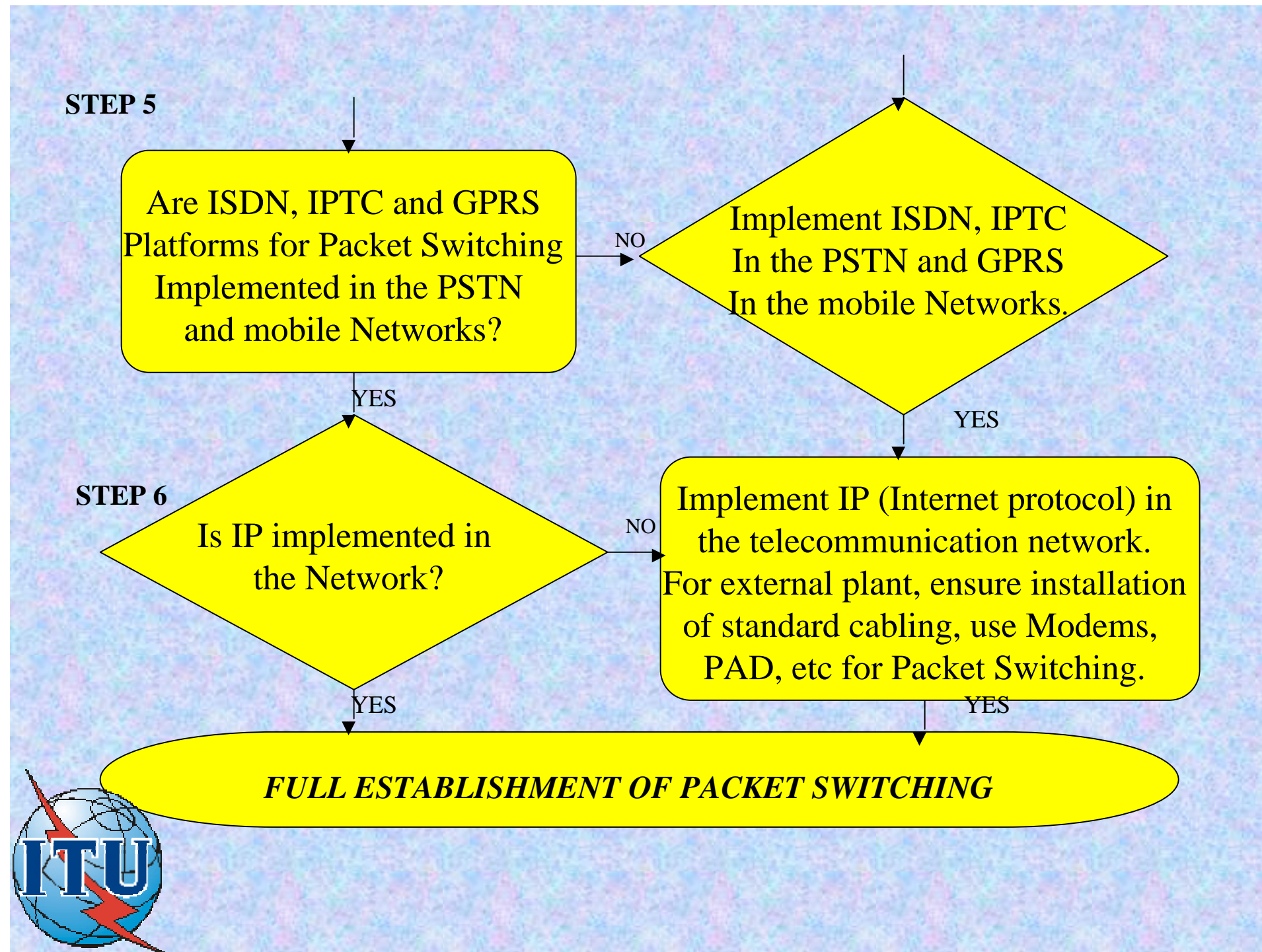
Digitize the Switching Network of all nodes and plan for Interconnection capacity.

YES

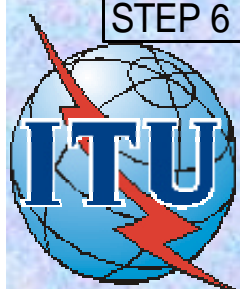
YES







ASSESSMENT						
COUNTRY LEVEL						
COUNTRY:						
	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6
NETWORK 1						
NETWORK 2						
NETWORK 3						
NETWORK 4						
NETWORK 5						
NETWORK 6						
PROPOSED MIGRATION TIME FRAME						
	YEAR 2002	YEAR 2003	YEAR 2004	YEAR 2005	YEAR 2006	
STEP 1						
STEP 2						
STEP 3						
STEP 4						
STEP 5						
STEP 6						



**THANK YOU VERY MUCH FOR  
YOUR ATTENTION**

**REGIONAL OFFICE FOR AFRICA  
NETWORK MANAGEMENT AND  
DEVELOPMENT**

Afranti-Nairobi, Kenya

October, 2002

