

Rural Telecommunications

(2) Historical Aspects

– Missing Link -

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Reading Assignment

Report of the Independent Commission for
Worldwide Telecommunications Development
“The Missing Link,” December 1984.

- <http://www.itu.int/osg/spu/sfo/missinglink/index.html>
- Read page 1-70 of the above document.
Consider the answer to the following questions
while reading:
 1. What are the roles of telecommunications? After 28 years, what are new and obsolete roles?
 2. Itemize the issues about the telecommunications development.
 3. List the available technologies to solve the problems. After 28 years, what are the significant changes?

What is “Missing Link”?

- Report of the Independent Commission for Worldwide Telecommunications under ITU (International Telecommunication Union) in 1984.
 - ITU is the oldest organization in UN.
 - In charge of telecommunication standard and regulations.
 - ITU-T (telecommunications - wired),
ITU-R (radiocommunications),
ITU-D (communications development)



Two types of standards: de-facto and dejure³

What is “Missing Link”?

- Call for decisions at the highest political level.
 - Developing countries can set target, e.g. percentage of their GDP to invest in telecommunications
 - Extension of telecommunication services to rural and remote areas.
 - Sharing of experiences.

Role of Telecommunications

(Question 1)

- Existence of an efficient telecommunications system confers direct and indirect benefits.
 - Emergencies and health services
 - Public administration, commerce and other economic activities
 - Reduction of need to travel, and better use of existing transport facilities

Emergencies and Health Services

- 5% of calls from rural and remote
 - India, Costa Rica, Egypt, Papua New Guinea
- Communicable disease
 - Cholera, dengue fever, ...
- Natural disaster
 - Typhoon, earthquake, ...
- Medical services
 - Delivery of drugs
 - Flying doctors

Public Administration, Commerce and Other Economic Activities

- Tenders saving cost over standing order
- Market price of products in the city
- Economic activities – examples in Kenya
 - “Loss w/o telecom = 110 x cost of telecom”
 - Hotel and travel agency
 - Biscuit maker
 - Freight shipper
 - Vegetables and flowers exporter
- Attraction of commercial and business enterprises

Current topics related to disaster: Traffic Congestion and Off-Loading

- BS are lost due to disaster
 - Replacement by balloon
 - Mobile BS
- Messaging service better than voice
 - Real-time communication (circuit switching) needs much more infrastructure
- Off-loading
 - Find alternative means for traffic
 - Mobile to wireless/optical LAN
 - Wi-Fi hotspot
 - Femto-cell

Reduction of Need to Travel

- Over the travel, long distance call can save
 - Money
 - Time

Telecommunications in Development

- Other factors and infrastructures
 - Good administrations
(to be also achieved with telecom)
 - Transportation

Situation in 1984

- Major services
 - Telephone
 - Telex
 - Data service
- Personal computers
 - Still very rare and expensive
 - Mainly for hobbyist
- Size of services
 - 600 million telephones
 - US\$250 billion revenues / year

Digital Communications

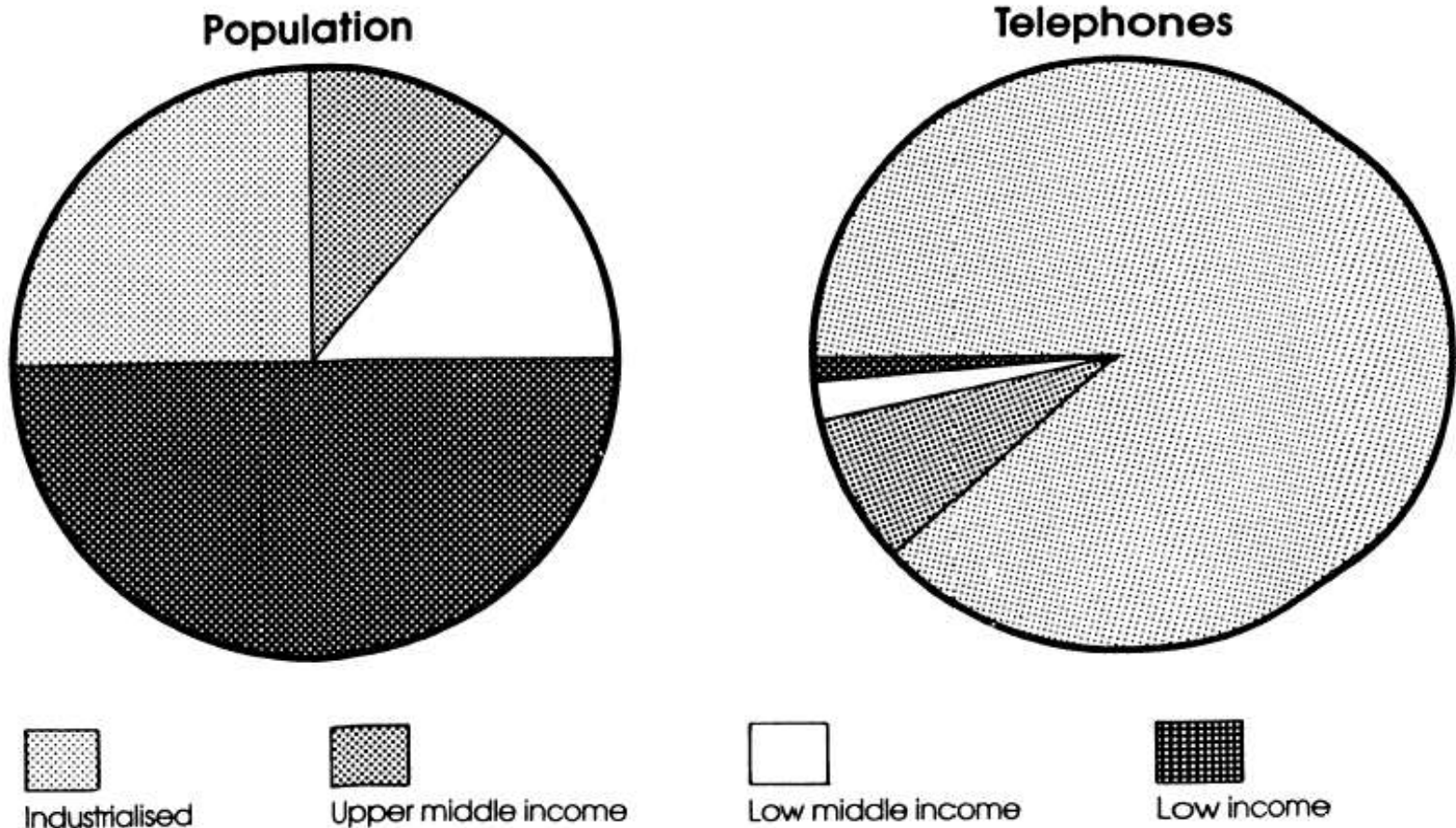
- Efficient use of spectrum
- Noise tolerant
- Error detection and correction
- Integration of several services together
- Simplification of hardware (incl. network)

What have changed during 28 years? (input from students)

Issues about Telecommunications Development (Question 2)

- Disparity of telecommunication services
- Availability and quality of service
- Funding
- Equipment supply

Disparity in Extent of Telecommunication Services

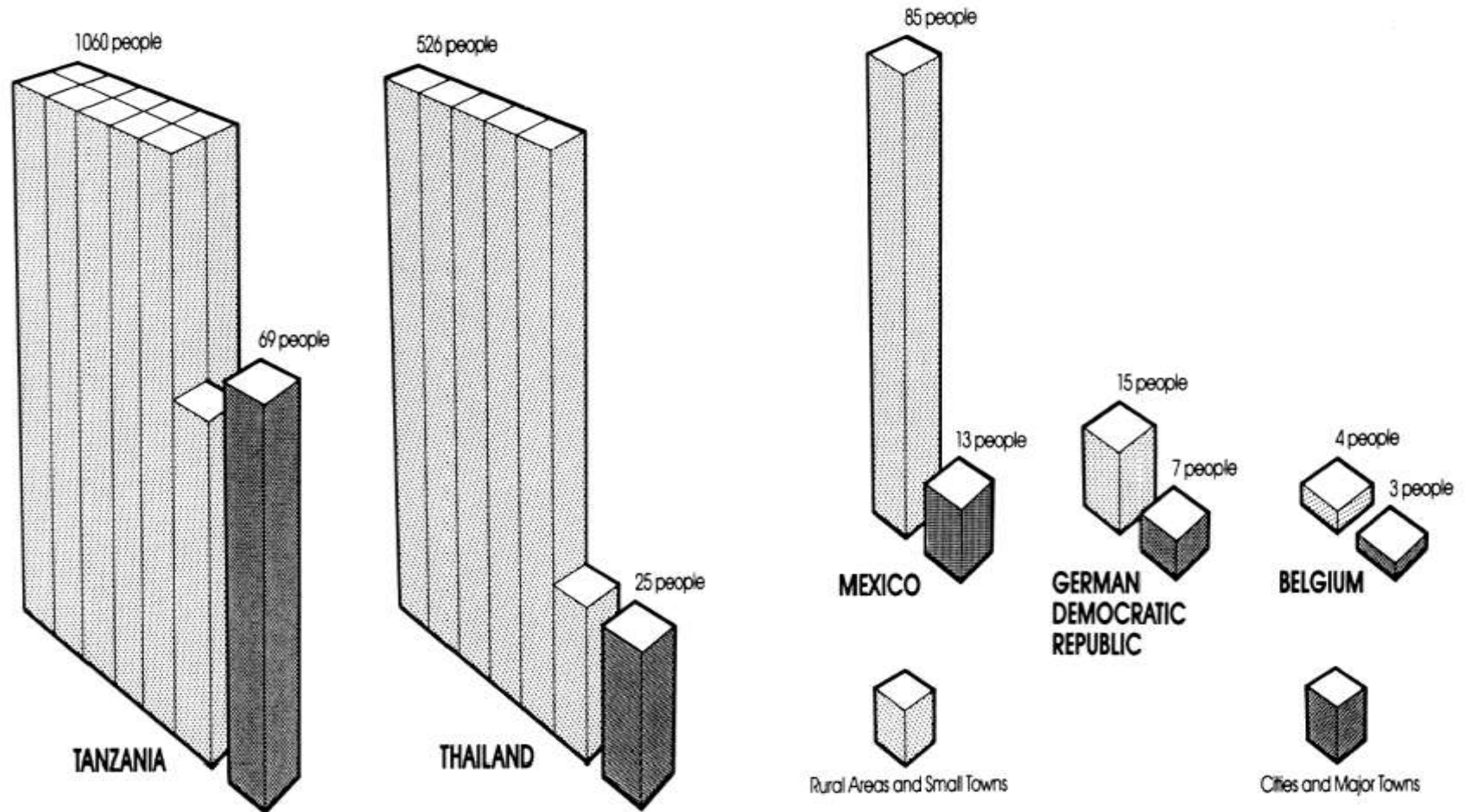


2/3 of world population had no telephone access.

Extent of Service in Developing Countries

- Telephone service far from universal
- Only in larger towns and business centers
- Great tracts of territory with no telecom

People per Telephone in 1982



Availability and Quality of Service

- Long waiting list – 3 years not uncommon
 - Shortage of equipments and cables
- Poor service – limited time, call drop
 - Shortage of equipments
 - Inadequate maintenance
 - Shortage of trained staffs

Funding

- Too small investment to meet demands
- No manufacturing industries
 - Import cost
- Low priority
 - Compared to agriculture, health, education, roads,...

Funding

- Strategy of world telecommunication firms
 - Export markets
 - Arrangement of funding
- Important considerations
 - Credits or loans = indebtedness
 - Equipments chosen related to financing, not suitability or other merits
 - Different types of equipments = difficulty of maintenance

Equipment Supply

- Products on the market
 - Designed for advanced countries
 - Temperate climates
 - High population density
 - Good maintenance of equipments and networks
 - Deployment into developing countries
 - High temperature
 - High humidity
 - No trained staffs

Equipment Supply

- Manufacturer driven
 - Stop making older system
 - Enforce developing countries to exchange systems
- Smaller and poorer countries
 - Limited quantities
 - = high cost for transport and support

Problems of Remote Areas

- No form of telecommunication services outside the town
 - Limited service time
 - Large distance
 - Difficulty of terrain
 - Sparseness of population
- => Less interest in business
- } High cost

International Cooperation

- International Telecommunication Union (ITU)
 - Technical cooperation
- United Nations Development Programme (UNDP)
 - US\$ 21.6m in 1982
- International Bank for Reconstruction and Development (World Bank)
- United Nations Educational, Scientific and Cultural Organization (UNESCO)



Global Communication Service

- Satellite operators
 - INTELSAT
 - INTERSPUTNIK – Soviet Union based
 - INMARSAT - Maritime



What have changed during 28 years?

- Disparity of telecommunication services
 - Gap still exists, but getting smaller.
 - Reduction of cost; semiconductors, Internet, mobile phone
 - Different development model of telecommunications: wireless connection needs less infrastructure investment
- Availability and quality of service
 - Improved
- Funding
- Equipment supply
 - Major global suppliers e.g. Huawei, Samsung, Nokia, Motorola, Sony Ericsson, LG, Siemens, focus more on the developing market: They now provide the products more suitable for the use in developing areas

What have changed during 28 years? (input from students)

Reading Assignment

Measuring the Information Society 2012, October 2012.

- http://www.itu.int/ITU-D/ict/publications/idi/material/2012/MIS2012_without_Annex_4.pdf
- Read page 1-37 (up to Section 2.3). Consider the answers to the following questions while reading:
 1. What are the recent trend of ICT developments?
 2. What are the elements of IDI and why are they considered?
 3. What kind of disparities can you find?