

# Rural Communications

## (1) Guidance and Introduction

Jun-ichi TAKADA

Department of International Development Engineering  
Tokyo Institute of Technology

# Personnel

## Lecturers:

- Jun-ichi Takada
  - [takada@ide.titech.ac.jp](mailto:takada@ide.titech.ac.jp)
- Takahiro Aoyagi
  - [aoyagi@cradle.titech.ac.jp](mailto:aoyagi@cradle.titech.ac.jp)

## TA:

- Karma Wangchuk
  - [karmawangchu@ap.ide.titech.ac.jp](mailto:karmawangchu@ap.ide.titech.ac.jp)

# Background ~ situation 1980's

- Communication infrastructure
  - is indispensable for the development of the industry and economy. ~ identified in 1980's
- Imbalance of the distribution
  - very severe in rural and remote areas
  - intolerable for the long time
- Progress of communication systems
  - From voice to data
  - Convergence to IP network

# Syllabus

- Introduction
- Historical Aspects of Rural Communications - Missing Link -
- Current Aspects of Rural Communications
- Communication Technology
- Information Technology and Internetworking
- Free and Open Source Software
- Access Infrastructure 1 - Cellular Systems -
- Access Infrastructure 2 - Wireless Computer Network -
- Backbone Infrastructure - Optical link, Wireless backhaul, Satellite –
- Case Presentation
- E-learning 1 - Overview and Theory
- E-learning 2 - Instructional Design
- E-learning 3 - Information and Communication Technology
- E-learning 4 - Law and Economy
- E-learning 5 - Case study

# Grading Criteria

- Report
  - With respect to relevant topics, students shall report the summary.
- Case presentation
  - Each individual student is assigned a case, and shall present the summary and the analysis of the case.

# Textbooks / Reading Materials

- Report of the Independent Commission for Worldwide Telecommunications Development “The Missing Link,” December 1984.
- Other materials to be assigned later on.

# Web Page for the Course

<http://portal.titech.ac.jp/>

- Contents to be distributed also by OCW-I
- For this week, I will distribute the slides to all of you by e-mail.

# Difficulties in Rural Areas

- Low population density and long distances between settlement areas
- Unfavorable geographic and climatic conditions
- Unfavorable access from urban centers
- Low educational level, high illiteracy rate
- Hardly any job opportunities
- Low income per capita and per family



# Difficulties in Rural Areas

- Increasing migration of the young to urban centers
- Unreliable and badly functioning (public) transport
- Irregular, if any, power supply
- Poor health care and medical services
- Lack of other government services
- Little participation in national affairs

# Difficulties in Rural Area (input from past students)

- Geographic difficulty
  - Mountain areas
  - Remote islands
- Few experts of telecommunications for maintenance and drainage
- Security of infrastructure (thieves etc)
- Private companies avoid the service in rural areas
- Political instability and unsecure situation in some rural areas

# Difficulties in Rural Area (input from past students)

- Ethics
  - In Bali, traditional regulation prohibits to build high tower
  - Conflict between traditional idea and new technology, e.g. Internet provides pornography

# Difficulties in Rural Area (input from past students)

- Long distance between urban and remote may degrade the reliability and raise the cost for communications.
- Number of telecommunication users is very small.
- Population is one big obstacle for communication service
- In Malaysia, backbone infrastructure between West and East area under the sea is not yet sufficient.

# Difficulties in Rural Area (input from past students)

- Some countries limit the contents of the traffic.
- Attitude of service providers sometimes discourage the local people for use.
- Limited number of services in rural area. Even if same infrastructure is established, smaller number of users may raise the cost.
- In some countries, even if funding is available, due to corruption or selfish people, infrastructure is not really developed.

# Difficulties in Rural Area

## (input from past students)

- There is lack of understanding of importance of telecommunications among rural people as they are not exposed with telecommunications. In Malaysia, Government is trying to describe the benefits to rural people.
- Although population require, technology may not fulfill. Most of people want to have Internet, but mobile technology is still expensive to afford.
- People in rural areas are with low income and they can not afford the cost of telecommunications.

# Difficulties in Rural Area

## (input from current students)

- Government does not have enough money. Aid agencies support the government, but sometimes there may be the corruption.
- Little competitions among service providers. One entity occupy market share of 70%. Price of communication cost is controlled by them.
- In Mongolia, rural population is very small.

# Difficulties in Rural Area (input from current students)

- In Philippines, salary is quite low in mobile companies compared with ICT. So infrastructure of mobile phone is not good.
- In Philippines, lack of comprehensive development plan in the government prevent providing services in remote areas.



# Difficulties in Rural Area

## (input from current students)

- In Nepal, after the introduction of wireless technology, the telecommunication services are drastically improved. Voice services are available almost everywhere; Internet services are not available in rural areas, though.
- In Turkey, everything is available but rural communication quality should be improved. LTE may resolve the situation.

# Difficulties in Rural Area (input from current students)

- In Philippines, there is the lack of strong regulatory body to set telecommunication tariff.

# Telecommunications in Rural Area

- To trigger and sustain structural and economic development
- To improve the quality of life in rural and remote areas
  - Improvement of health and education through the use of telecommunications
  - New industries and other commercial operations  
e.g. One Village One Product
  - Security
  - elimination of feelings of isolation
  - improvement of government administration

# Telecommunications in Rural Area

## (input from past students)

- There is a negative aspect: With introduction of telecom and internet, there is possibility that traditional cultures are lost.
- Employment opportunities via credit transfer services, e.g. shops.
- Mobile banking and money transfer are very popular in Kenya and Ghana.
- Via telecommunication infrastructure, people do not have to migrate to urban as some works can be done at home. (tele-working)
- Response to disaster.

# Telecommunications in Rural Area (input from current students)

- As the government do not guarantee, some mobile banking/credit services are not reliable for transactions.
- Prepaid services help rural areas for low cost provision of services. There some problems in Japan, such as confusion and crimes.
- Bad people can also enjoy the services to transfer wrong information to kids.

# Telecommunications in Rural Area (input from current students)

# 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?

# Lecture Schedule

## Takada

- October 10, 17, 24, 31 (exercise)
- November 7, 14, 28
- December 5, 12 (presentation)
- February 6 (supplement)

## Aoyagi

- December 19
- January 9, 16, 23, 30



