ITU Assistance for e-Health in Nepal and Future Planning Issues

Submitted to:
The 21st Pacific Science Congress Okinawa Asia Pacific Telecommunity Telemedicine Initiative June 15-16, 2007, Okinawa, Japan

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Outline

- Background
- General Statistics (Health, Telecom)
- Transmission Network of Nepal Telecom (Radio, Satellite, Optical Fibre)
- Importance of eHealth
- ITU eHealth Mission
- National Task Force and Its responsibilities
Background

- Nepal a mountainous country with difficult terrain
- 3 main geographical regions: flat land in south (17%), hilly region in centre (68%) and Himalayas in north (15%).
- huge health divide between rural and urban areas in terms of health facilities and skilled health personnel
- no telemedicine and health insurance policy currently in place
- healthcare structure follows three tier approaches
- ITU assistance sought at the government level in preparing an eHealth master plan.
Remote Hospital & a Typical Home
Background

- national policies aimed for co-coordinated healthcare services in rural and urban areas
- promotion of healthcare is in the hands of the state
- private sector also involved in healthcare services: not affordable to the general people
- a few private health institution and health practitioners have set up a telemedicine network for teleconsultation
An Injured Boy being carried to a local clinic
This site is developed and maintained by "Himalayan Health & Environmental Services Solukhumbu", a nonprofit local Non Governmental Organization. The doctors and health workers in the remote hospitals can provide treatment to their patients after discussing with their colleagues & medical Specialists from elsewhere. It is intended to extend this service to all the remote District Hospitals of Nepal in the near future.
General Statistics

HEALTH

• 3 main geographical regions: flat land in south (17%), hilly region in centre (68%) and Himalayas in north (15%).

• Last Year, Basic health services provided by 89 hospitals, 186 Primary health Care Centers (PHCCs), 697 Health Posts (HPs) and 3129 sub Health Posts (SHPs).

• also supported by 14,710 PHC/ORC sites and 48,164 Female Community Health Volunteers (FCHVs).

• 60 percent staff work in rural areas: 20% of them Nursing personnel

• EDP contributions: 44.9% of the total budget
General Statistics

Telecom

- Service Providers: Basic Telephone(2), Cellular Mobile Telephone(2), Rural Telecom(1), Limited Mobility(1) and Internet with email(38).
- Nepal telecom, the incumbent operator, with penetration of around 5%.
- fully digital network offering national and international direct dialing services
- About 1250 optical SDH E-1 links for broadband connections.
General Statistics

• Digital C-DOT, MARTS, VHF/UHF radio, Digital microwave, HF radio, VSAT for rural connectivity with penetration level about 50.4% of VDCs.
• Private sector basic telecom operator, UTL, has subscriber base of around 45000 WLL phones and 3000 limited mobility phones (recently converted to full mobility)
• Private sector mobile operator, SNPL, has the total subscriber penetration of around 110,000 lines.
PRESENT TRANSMISSION
Networks of Nepal Telecom

1. Microwave Radio Network:
   - Backbone Links (Nokia, Nera, Fujitsu & Siemens)
   - Spur Links (JRC, OKI, BTMC, Nera, Alcatel, HFCL, NEC & Startex)
   - Nepal-Bangladesh Terrestrial Link (Nokia)

2. Optical Fiber Network:
   - Kathmandu valley Optical Fiber Network (Nokia, Alcatel & Huawei)
   - East-West Highway SDH Optical Fiber Network (Siemens)
   - NEA’s leased OPGW network
   - Optical Fiber Access network in Kathmandu valley (Huawei)
   - Nepal-India Optical Fiber Network (ITI)
   - Other optical fiber network e.g. Tx Room-Sw Room, interconnection of MSCs, ABS etc.

3. Satellite Network:
   - Earth station (Advantech, MantTech, Vertex, Andrew)
   - RSAT (Advantech, Andrew)
   - VSAT (STM)
   - DSAT (Planned)

4. WLL/Mobile Network:
   - CorDECT WLL (HFCL)
   - CDMA WLL (ZTE)
   - GSM Network (ZTE, Huawei & Nortel)
   - MARTS/VHF/UHF network (NEC, Alcatel, Fujitsu, RF-Tel, Telemobile, ITI, BEL etc.)

5. DSL Network
   - HDSL (Maipu, Tainet & RAD)
   - ADSL (Planned)
Kathmandu-valley Optical Fiber Network

Note: Nodes enclosed in a dotted rectangle are located in the same site/building.
Nepal Telecom

CDMA - Coverage

Total Zone=14, Districts=75, VDC=3,914

Present coverage: Zone:14, Districts=65, VDC=1,774

Total BTS installed: 180
(as of May 23, 2007)

Future Program: To cover all VDCs
VSAT Project

• Present:
  – Total Terminal=425
  – Total Line= 840
  – VDC Coverage by VSAT=271

• Future Program:
  – 400 Terminals(200 Ku Band+200 C Band)
  – For CDMA 50 Terminals (118 VDC)
  – Total coverage: 350 VDC
Arniko Highway Optical Fiber Project

- Grant project from Govt. of China
- Agreement was signed on Dec. 3, 2004
- Survey and Design agreement was signed on Dec. 7, 2005
- Link Kathmandu with Khasa, China via Tatopani (approx. 115 Km)
- Sixteen (16) nodes between Kathmandu and Tatopani (5x STM-16 nodes, 4x STM-4 nodes and 7xSTM-1 nodes) with PoS and FE interface.
- **Nodes**: Sundhara, TTC, Koteswor, Thimi, Bhaktapur, Nalinchowk, Sanga, Banepa, Dhulikhel, Tinpiple, Lamidanda, Dolalghat, Balephi, Lamosanghu, Barhabise, & Tatopani
- **Type of OF cable**: 36 fiber, single mode (G.652, 1310/1550 nm), Duct type
- **Application**: Interconnectivity of exchanges in the route, Build information highway between Nepal & China, Create an alternate international gateway route via Hong Kong (no dependency on present satellite link with limited resource), Enhancement of ICT development in Nepal, Greatly help ISD and internet traffic, can create information highway between India and China etc.
- **Activities**: Preliminary survey and design of the project has been completed
Kathmandu Valley Proposed NG-SDH Network
Health Policy

• national health policy adopted in 1991
• primary objective is to extend the primary health care system to the rural population
• focuses on: Preventive health Services, Primitive Health Services Curative Health Services, Ayurvedic and other traditional health services, Co-ordination with private sectors
• MoHP developed a 20-year Second Long Term Health Plan (SLTHP) for FY 1997-2017
• main targets: reduce the infant mortality rate, crude birth rate crude death rate
  : increase life expectancy, contraceptive prevalence rate, EHCS available from 70% to 90% of the population living within 30 minutes’ travel time to health facility, increase total health expenditures
Health policy

• government has carried out National Health Sector Program (NHSP)
• NHSP focuses on performance results and health policy reforms
• Nepal government endorsed the Millennium Declaration to achieve the MDGs
• aims to extend cooperation with the private sector to make available the benefits of ICTs.
Telecom Policy

• National communication policy 1992 is the main framework for telecommunication development.
• encourages the private sector participation
• Telecommunication Act 1997 was established for the regulation of the telecom sector
Other government initiatives:

• MCTs are being established to provide ICT tools to the people of urban and rural areas.
• Currently, 21 telecentres around the country have already been in operation
• specific objectives of accessing & distribution of agricultural information, distance learning, Telemedicine, productive economic activities and employment opportunities.
• Initiatives started thro joint effort of MoEST and HLCIT
Importance of e-health

• a great deal of disparity in quality and access to healthcare between urban and rural regions.
• Almost 80% of population live in the rural areas
• ironically, majority of the doctors and trained medical workers & technicians in the urban areas
• accessibility by transportation is the main hindrance for reaching a nearest medical centre
• three days of walk to arrive at some district level hospitals in some areas.
• telemedicine avoids travel time, its cost, burden to patient’s relatives, their household works
Importance of e-health
ITU Mission

- Nepal Government felt utmost need for developing policy and plan for eHealth practices, E-education.

- For Nepal, Telehealth can help in the domain of Distant Medical Education, Tele Consultation, tele-healthcare even in disaster period

- ITU assistance has been requested for developing the extensive master plan
  - for guiding the strategic and operational procedures in setting up eHealth network in Nepal
ITU Mission

- eHealth master plan could be a milestone guiding framework for the initiation of telemedicine activities such as:
  - policy formulation,
  - enactment of e-Health act,
  - integration of current health care facilities with e-health network,
  - implementation issues,
  - setting up countrywide hospital network for improved and integrated Hospital Information System (HIS),
  - possible expansion of the network and link with other tertiary care hospitals in India & abroad.
  - Availing the local/nodal hospitals and referral hospitals with telemedicine equipments
ITU Assistance

- Prof. Saroj Kant Mishra, the Nodal Officer at SGPGIMS, visited Katmandu from 11 to 22 September on an ITU mission in Nepal
- Dr. Mishra met and discussed with government senior officials, submitted report on Feb 2007
- the expert has recommended to the Nepal Gov to constitute a National Task Force on e-Health
- further advises to develop projects to prove some of the concepts like rural healthcare access and offers his continued help.
- Task Force set up in Mid April 2007 with Seven members.
- Includes officials from MOHP, MOIC, Department of Health Services, Medical University, High Level Commission for Information technology, and Nepal telecom
- Aims to submit an Interim report within 3 months.
- Recommends Govt to set up a high level eHEALTH Committee upon recommendation of current Task Force.
Future Issues

• Set up high level eHEALTH Committee upon recommendation of current Task Force.
• Prepare e-Health Strategy, Plan and Implementation activities for Nepal
• Providing consistent suggestions to the Government on the policy plan and programme to be adopted for the development of tele-healthcare services.
• Assessing the status of connectivity and Suggest the government for making necessary arrangements to avail basic telecom service preferably for high speed connectivity and facilities to the prescribed areas.
• Identifying the different types of healthcare services to be provided through telemedicine in different regions of the country
• Identify the PHCs or SHPs in each district, regional hospitals thereby and central university hospitals to be connected to the telemedicine network.
Future issues

• Making strategic and operational guidelines in the provision of such services.
• Carrying out cost calculation for setting up such a network and making cost benefit analysis.
• Conceive few pilot projects at least, to start with, after assessing the available health and telecom facilities.
• To estimate the budgeting requirements and, if required, to look for prospective donor agencies such as WHO, ITU, UNDP, APT, UNESCO, ADB etc. Provide guidelines for the system requirements and standardization of Telemedicine equipments, software, security etc.
• Form separate sub committees as required for the facilitation and speedy work
Thank You Very Much for Listening Patiently!

Queries?!!

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