Nepal’s ICT Scenario

*Opportunities and challenges*

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Presentation highlight

- ICT Scenario of Nepal
- Emerging trends
- ICTs in the context of Nepal's development aspirations
- Key issues
- Conclusion
**General ICT scenario**

- **Telecom/ connectivity**
  - CDMA coverage > > all 75 districts, GSM mobile > > 72 districts.
    - Tele connection to *all 75 districts* by mid-July 2010.
    - All 75 districts to be connected by FO by 2014
  - F/O optic network across E-W highway (terminating in India) and a north-south connection to the Tibetan border
  - Total international bandwidth UL/DL 1.5 gbps
  - Telcos pay 2% of their gross revenue into RTDF > > NRS. 2 Billion
  - Wi-fi de-licensed for public use (no permission/fee required for two frequency bands)
  - Internet users: 1,359,805: penetration rate 4.85% if GPRS is factored in
1. Telecom Statistics at a glance (as of Bhadra, 2067, 15 August, 2010)

1.1 Available Voice Telephony Services

<table>
<thead>
<tr>
<th>Services Operators</th>
<th>Fixed</th>
<th>WLL</th>
<th>GSM</th>
<th>CDMA</th>
<th>LMS</th>
<th>GMPCS</th>
<th>3G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDCL</td>
<td>587,457</td>
<td>173,326</td>
<td>4,033,357</td>
<td>842,600</td>
<td>-</td>
<td>4,099</td>
<td></td>
<td>5,640,839</td>
</tr>
<tr>
<td>UTL</td>
<td>69,693</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>420,603</td>
<td>-</td>
<td></td>
<td>490,296</td>
</tr>
<tr>
<td>SNPL</td>
<td></td>
<td>3,428,491</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>3,428,491</td>
</tr>
<tr>
<td>STM</td>
<td>4,841</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>4,841</td>
</tr>
<tr>
<td>NSTPIL</td>
<td>885</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>57,643</td>
<td>-</td>
<td></td>
<td>58,528</td>
</tr>
<tr>
<td>Smart</td>
<td>3,902</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>3,902</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,742</td>
<td>-</td>
<td></td>
<td>1,742</td>
</tr>
<tr>
<td>Total</td>
<td>597,085</td>
<td>243,019</td>
<td>7,461,848</td>
<td>842,600</td>
<td>478,246</td>
<td>1,742</td>
<td></td>
<td>9,628,639</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tele-Density</th>
<th>Penetration Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>2.99</td>
</tr>
<tr>
<td>Mobile</td>
<td>29.61</td>
</tr>
<tr>
<td>Others (LM, GMPCS &amp; 3G)</td>
<td>1.73</td>
</tr>
<tr>
<td>Total</td>
<td>34.33</td>
</tr>
</tbody>
</table>

Note: Projected population for 2010 is 2,80,43,744 (Source : cbs.gov.np)

1.2 Data/Internet Services

<table>
<thead>
<tr>
<th>Services</th>
<th>NDCL</th>
<th>UTL</th>
<th>SNPL</th>
<th>ISPs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialup (PSTN +ISDN)</td>
<td>7,637</td>
<td>-</td>
<td>-</td>
<td>19,500</td>
<td>27,137</td>
</tr>
<tr>
<td>Wireless Modem, Optical</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13,000</td>
<td>13,000</td>
</tr>
<tr>
<td>Fibre Ethernet</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cable Modem, Cable etc.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>32,500</td>
<td>32,500</td>
</tr>
<tr>
<td>ADSL</td>
<td>49,406</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GPRS</td>
<td>211,324</td>
<td>-</td>
<td>1,667,326</td>
<td>-</td>
<td>1,878,650</td>
</tr>
<tr>
<td>CDMA IX/EVDO</td>
<td>76,641</td>
<td>24,823</td>
<td>-</td>
<td>-</td>
<td>101,464</td>
</tr>
<tr>
<td>Total</td>
<td>345,008</td>
<td>24,823</td>
<td>1,667,326</td>
<td>65,000</td>
<td>2,102,157</td>
</tr>
</tbody>
</table>

Internet Penetration Rate % 7.49

1.3 Public Call Centres (PCO)

<table>
<thead>
<tr>
<th>Services</th>
<th>Subscribers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural PCO’s of STM Telecom Sanchar Pvt. Ltd.</td>
<td>1,968</td>
</tr>
<tr>
<td>Rural PCO’s of SMART Telecom Pvt. Ltd.</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>2,038</td>
</tr>
</tbody>
</table>
Telephone Penetration Rate

- Fixed: 1.73
- Mobile: 2.99
- Others (Limited Mobility, GMPCS etc.): 29.61
1.4 Licence issued by NTA* (Existing as of Bhadra, 2067, 15 August 2010)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Services</th>
<th>Number of the licensee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Basic Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>2.</td>
<td>Cellular Mobile</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Network Service Provider</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>VSAT User</td>
<td>111</td>
</tr>
<tr>
<td>5.</td>
<td>Internet (With E-mail)</td>
<td>46</td>
</tr>
<tr>
<td>6.</td>
<td>GMPCS</td>
<td>3</td>
</tr>
<tr>
<td>7.</td>
<td>Rural Telecom</td>
<td>2</td>
</tr>
<tr>
<td>8.</td>
<td>Limited Mobility</td>
<td>48</td>
</tr>
<tr>
<td>9.</td>
<td>International Trunk Telephone</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>Rural VSAT User</td>
<td>8</td>
</tr>
<tr>
<td>11.</td>
<td>Rural Internet Service Provider</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>240</strong></td>
</tr>
</tbody>
</table>

* Year wise licensing activity of NTA is shown in Appendix-1
Key telecom players

- Voice communication services are being provided by
  - Nepal Telecom (government monopoly prior to privatization)
    - PSTN, CDMA based WLL service and mobile services based on both GSM and CDMA technologies.
    - Remote areas are being served by VSAT technology as well
  - United Telecom Ltd,
    - CDMA technology to provide both WLL and Limited Mobility services.
  - Spice Nepal Pvt. Ltd,
    - GSM based mobile service
  - STM Telecom Sanchar Pvt. Ltd,
    - *rural operator* and primarily uses VSAT technology but has recently started other wired and wireless last mile solutions to provide the individual subscriber
  - Nepal Satellite Telecom Pvt Ltd and
  - Smart Telecom Pvt. Ltd.
Institutional arrangements

• Regulators/institutional arrangements
  • Nepal Telecom authority
    • Regulator with semi-judicial authority.
      • Spectrum licenses, QOS issues, promoting competitive environment
  • Ministry of Information and Communications
  • High Level Commission for Information Technology
  • National Information Technology Center
  • Controller of Certification Authority
Policy frameworks

- Telecommunication Policy 2004
- IT policy, 2000 revised 2010
- Electronic Transaction Act 2006
- Industrial Enterprise Act, Foreign Investment and Technology Transfer Act (FITT)
- Trade Policy 2009
Technical Assistance for Preparing the SASEC Information Highway Project, approved in December 2006
ICTs and Nepal’s developmental aspirations
Community interest in ICTs is growing

How ICTs can be leveraged to generate favourable policy outcomes?
ICTs vis-a-vis policy outcomes

• e-government

• Delivering crucial services through ICTs: telemedicine, distance education >> DTH
IT and IT enabled service Industry
IT/ITES

• Addressable market size: US$500 Bn, 35% growth rate annually
  • India US$ 50 Bn, 2.2M employed, US$ 120 Bn > 2020
  • The Philippines US$ 6.8 Bn/345k employed (08/09)
• Sector biased towards employment of youth and women
  • Women 65% of IT/ITES workforce in the Philippines
  • India: Avg employee age 28.9 yrs in IT/ITES sector
• Potential to catalyse Inclusive Growth
  • ICT-enabled solutions in healthcare, education, financial services and public services
Nepal scenario: overview (contd..)

• Emergence of strong fundamentals
  • Compelling cost arbitrage advantage
    • Estimated to be 25-35% lower than India
  • English language proficiency,
  • Demographic dividend
    • Median age 21 years
  • Sustained improvement in telecom infra
  • Domestic market>> eGov initiatives, growing financial sector
  • Maturity of verticals (banking and finance, for ex.)
Example: An animation studio working for US customers including Walt Disney
Emerging trend

- Mobile computing generating a lot of interest
  - Financial services
  - Connecting micro entrepreneurs to customers
  - Agriculture commodity price info
Cloud Computing

With ArcGIS Online, users share maps, data, and applications with specific groups or the world.

Delivers technological capabilities on demand as service via the Internet.
Crowd sourcing
ICT in disaster preparedness: SAHANA @EOC
Bandwidth however will be a key issue.

![Internet Traffic Chart]

*Source: Caspian Networks and Cisco Estimates*
1/2 TRILLION  Annual Web Searches
2 BILLION  Videos Viewed Every Day
1 BILLION  Consumer Email Boxes
1 BILLION  IM Users
100s of MILLIONS  Using Social networking Sites Daily
100,000  Blogs Created Daily
Key challenges

- Conducive policy and regulatory environment
- Infrastructure
  - Power issues
- More important, *broad band*
- Innovation ecosystem
Conclusion

• Broadband access and availability increasingly becoming key issue

• Emerging technological trends offering enhanced prospects for driving ICT uptake

• Mobile computing lending itself to game changing innovations >> ICT to the masses

• Need forward looking Policies and Regulatory mechanism

  • Adopt supportive regulations that foster competition and market-based investment
THANK YOU