Connecting villages: The role of village administration

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Objective

• 75% percent of rural India is still unconnected.
• Govt of India intervention Bharat Broadband Nigam Limited (BBNL) is going slow.
• The government has the agenda to connect only the Gram Panchayats but not the villages.
• Remote, un-served villages will remain so for longer duration of time.
BharatNet

• A digital plan of the Government of India.

• It aims to digitally connect 250,000 Gram Panchayats (GP) by broadband Internet connectivity.

• 125,000 GPs to be connected using fiber in Phase 1 of BharatNet.

• The remaining 125,000 GPs to be connected using an optimal mixture of technologies such as fiber, radio and satellite.
Current Connectivity Requirements in Rural India

• Only 13.25% Gram Panchayats are connected.
• Based on population and contention ratio of 1:25, throughput requirement of the GP can be calculated

- Nearly 60% of GPs require less than 40 Mbps throughput
Network Architecture

- Wireless link
- Telecom tower/Connected GP
- Optical Fiber Point of presence
- Connected GP

Approximately 5 km
Why remote villages need connectivity?

• These villages are completely un-served.
• All official work is taken to the cyber café in the city.
• Lots of travel expenditure borne by the village administration without reimbursement.
• Quality of work gets affected.
• Villagers cannot avail the E-Governance services.
Why village administration?

- Integral part of seeding the growth of community networks in remote villages.
- Village administration needs to own the network to make the connectivity sustainable.
- Enables community participation and involvement.
- Security and longevity of the devices.
How village administration can be involved in the connectivity process?

• Connectivity is needed both by the GP office as well as the villagers.
• Need for low heighted (<15 meters) towers at the GP office.
• Use of alternate power supply, such as solar panel, should be employed.
• Fund for the tower infrastructure at the GP office.
• Pay for 2 Mbps bandwidth monthly from the local ISP.
Partnership Model

4P Model

- Efficient Management
- Technology
- Finance Management

- Infrastructure
- Dedicated Personnel
- Policies

- Meet Regional Needs
- People Involvement

Sustainable Model
### Inclusion of Internet for Development in 5 year plan by the GP

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Street lights</td>
<td>xyz</td>
</tr>
<tr>
<td>2</td>
<td>Water taps</td>
<td>Xyz</td>
</tr>
<tr>
<td>3</td>
<td>Roads</td>
<td>Xyz</td>
</tr>
<tr>
<td>4</td>
<td>Internet for Development</td>
<td>CAPEX cost + OPEX cost</td>
</tr>
</tbody>
</table>

Both CAPEX and OPEX cost be proposed by the GPs under their 5 year financial plan.
# Government Expenditure

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Category</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government Expenditure</td>
<td>CAPEX + Bandwidth charges for 6 months</td>
<td>OPEX (per month)</td>
<td>OPEX (per month)</td>
<td>OPEX (per month)</td>
<td>OPEX (per month)</td>
</tr>
</tbody>
</table>

*Cost is variable according to the tower used per village.
*Use of defunct tower at GP premise will reduce the cost further.

NOTE: Per user/village cost is Rs. 120-150
Cost Benefit Analysis
Village - Shilshet, population - 708
ROI scaled to cumulative investment
ROI is positive since 3\textsuperscript{rd} month
AP increased in month 12 itself
5 years predictive model

- **BW/AP required**
- **BW/AP available**
- **ROI scaled**
- Bandwidth is scaled to 30 Mbps bulk bandwidth
- ROI is scaled by cumulative investment (initial 34,05,000 + OPEX 37,000 + additional BW)
5 years predictive model