

# Overview of MCT Project

(Multi-purpose Community Telecenter)

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Kathmandu

Presented by:  
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NEPAL TELECOM

# Background

- information & request letter for Research Proposal from APT (Asia-Pacific Telecommunity)
  - MOIC (Ministry of Information & Communications)
  - SECEN / NITC-MOST/ CAN / NEA in April 2003
  - . . . .
  
- “Applicability of Data Mining Tools for forecasting prospects of e-Technology integration at the MCT”

# Introduction

- Program
  - APT HRD Program for Exchange of ICT Researchers and Engineers through Collaborative Research 2003
  - [www.aptsec.org](http://www.aptsec.org)
- Funding
  - Extra-budgetary Contribution from the Government of Japan
  - funding received by SECEN on behalf of the project
- Project Area : Nepal
- Operations Base : Kathmandu
- Project Period
  - Sept/Oct 2003-April 2004
- Chief Researcher
  - Er. Rajesh Joshi
- IT Consultant
  - Er. Binod Vaidya
- Project Collaborator
  - Prof. Kenji Saga
- Co-ordinator for Project (from SECEN)
  - Er. Bhagat MS Pradhan (VP SECEN)

# Objectives

- to explore applicability of Data Mining Tool for forecasting feasibility of integrating e-Technology in MCTs in the context of NEPAL
- to assess suitability of findings to other countries of the Asia-Pacific Region (i.e. Laos)
- to recommend issues related to sustainable MCT
- in general:
  - to introduce an improved approach in data analysis for forecasting and strategy building

# Steps

## 1. Literature Study

- ❑ Internet
- ❑ Seminar Papers
- ❑ Magazines
- ❑ Newspapers

## 2. Data Collection

## 3. Conducting Seminar

## 4. Survey Data Analysis

- ❑ MS Office Tool (EXCEL)
- ❑ Data Mining Tool (WEKA)

## 5. Study Visit & Courtesy Calls

- ❑ Nepal
- ❑ Laos
- ❑ Thailand

## 6. Regular Discussions

## (2) Data Collection . . .

- Requirements for Data Mining:
  - envisages use of operational data
  - absence of operational data; strategy of making surveys and analyzing them
  
- Criteria for Site Selection / district selection:
  - wider geographical diversity
  - at least one district from each zone (14 zones in total)
  - proportionate distribution in accordance with
    - development regions
    - ecological regions
    - population distribution
    - literacy level
    - access by road &/or by air

# Preparations for Site Survey

- survey forms
  - Households
  - VDC Official
  - PCO Operator(s)
  
- guidelines/instructions for the survey team to ensure:
  - questionnaires are clear
  - data obtained is correct and consistent
  
- Test Survey
  - Two survey teams were dispatched to two different sites that have only a few similarities.
  
- Actual Survey
  - 35 districts
  - 4-VDCs per district
  - 15-HHs per VDC  
(spread in 5 Wards)

## Co-ordination for Survey Teams

Co-ordinating Institutions / Organizations	Total no. of districts	VDCs per district	Total no. of VDCs considered
CIT/ IOE	13	4	52
ANP/ NTC	18	4	72
SECEN	4	4	16
Total	35	-	140

## (2) Data Collection . . .


- extent of survey according to Administrative Division of the country:



- Development Regions covered : 5 / 5
- Zones covered : 14 / 14
- Districts covered : 35 / 75
- VDCs covered : 141 / 3,915
- HHs covered : 2,100
- PCOs covered : 50

## (3) Conducting Seminar

Society of Electronics and  
Communications Engineers Nepal



**Seminar  
on  
Multipurpose Community Telecenter  
for Rural Development**

Organized by  
SECEN

January 22, 2004  
Hotel Hyatt Residency  
Kathmandu

### Presentations:

Key Issues for the Success of Telecenters

- **Prof. Dr. Kenji Saga**,  
Research Fellow,  
Communication Research Lab, Japan  
& Chairman, the Digital Divide Study  
Group, the Japan Society of Information  
and Communication Research

Standardization in Rural Communications for  
Bridging the Digital Divide

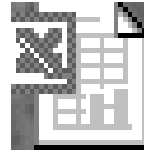
- **Dr. Kazuo Sasaki**  
Director, International Affairs,  
The Telecommunication Technology  
Committee, Japan

Nationwide Connectivity: NTC's Vision

- **Mr. Sugat Ratna Kansakar**  
Deputy General Manager,  
Nepal Telecommunications Corporation,  
Nepal

# (4) Highlights of Survey Data Analysis

1. MS Office Tool (EXCEL)



2. Data Mining Tool (WEKA)

**Waikato Environment for  
Knowledge Analysis**

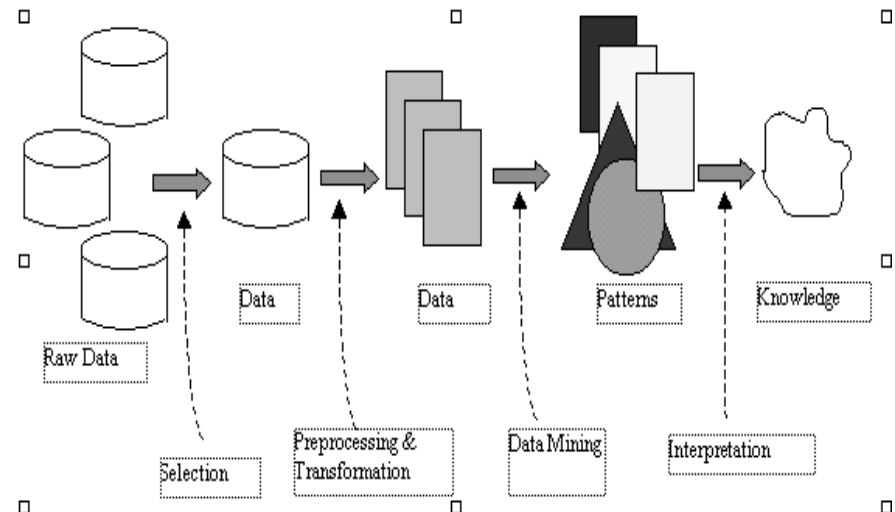
(c) 1999 - 2000

University of Waikato  
New Zealand

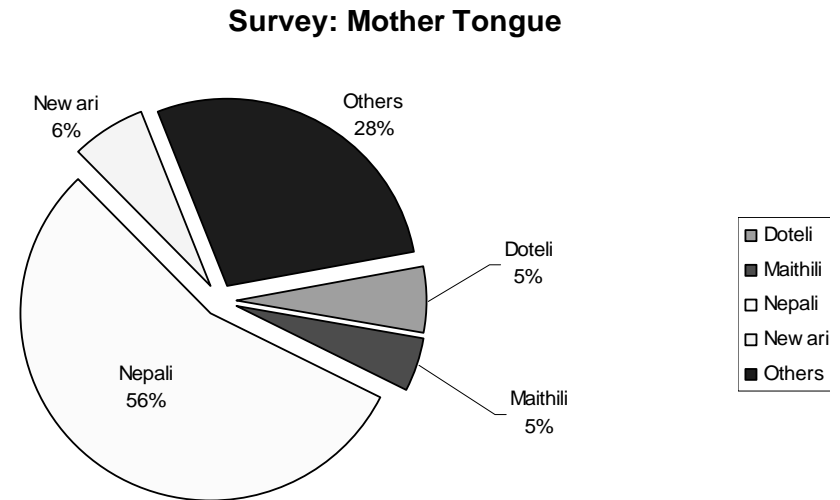
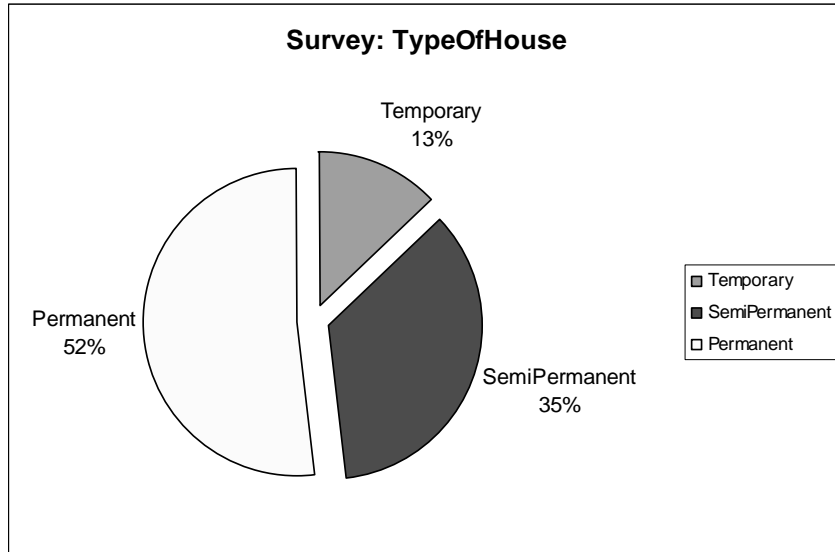


▪ Data Mining:

- any form of data analysis
- results into extraction of
  - implicit
  - previously unknown
  - potentially useful information

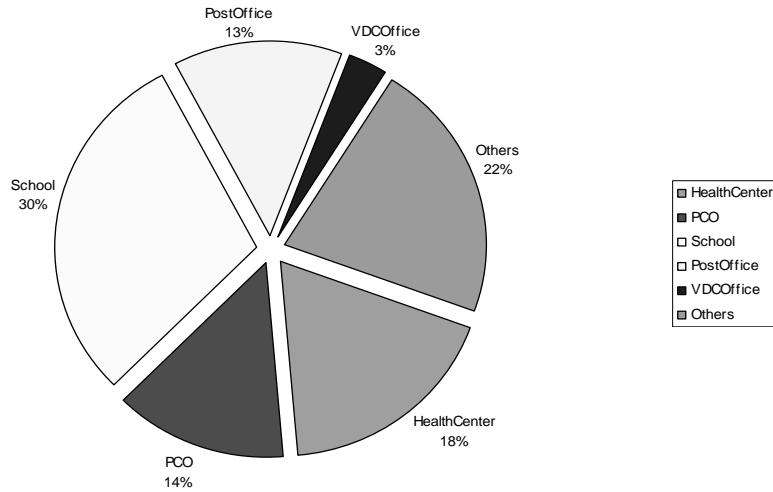


# 4.1 MS Office Tool (EXCEL) . . .

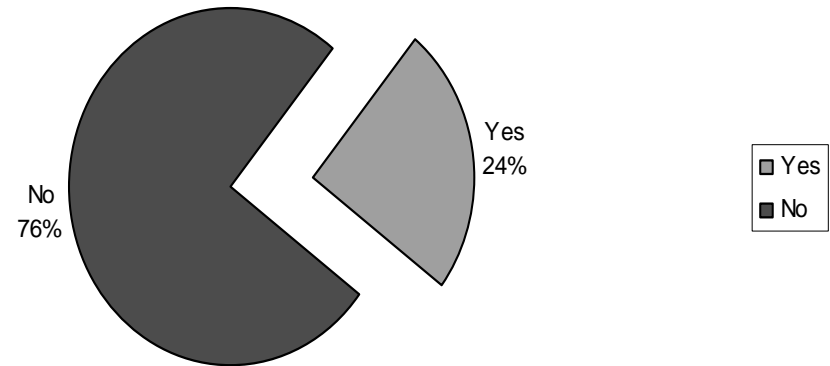


# 4.1 MS Office Tool (EXCEL) . . .

Survey: Suggested location of MCT

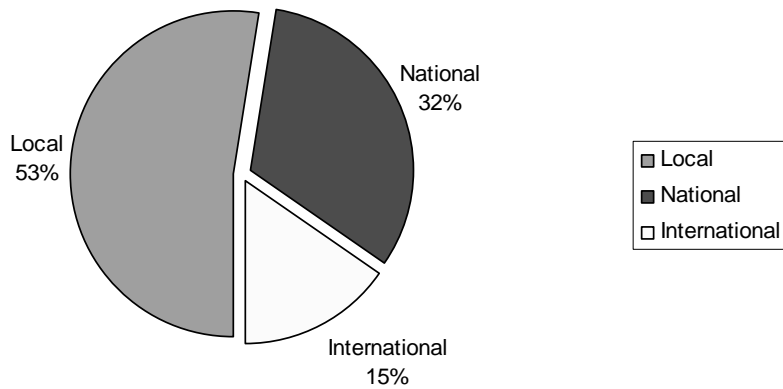


Survey: Access of HHs to Newspapers

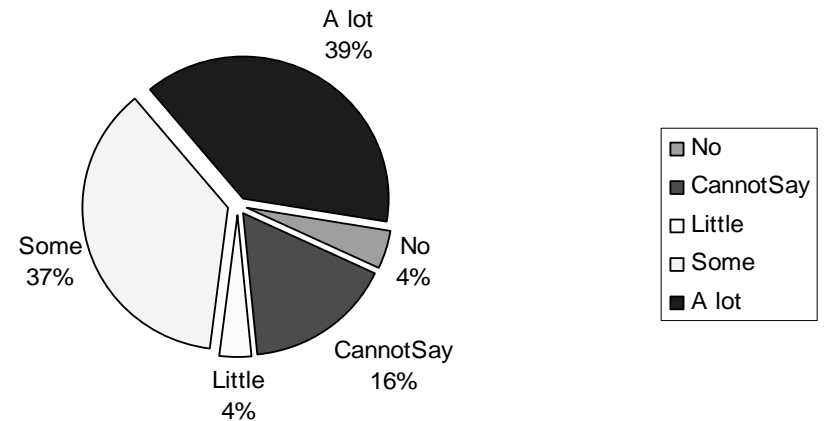


# 4.1 MS Office Tool (EXCEL) . . .

**DailyAverageIncomingCallScenario**

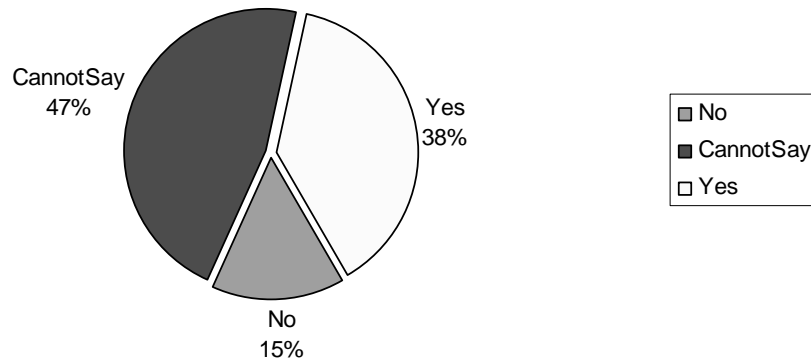


**Will MCT benefit?**

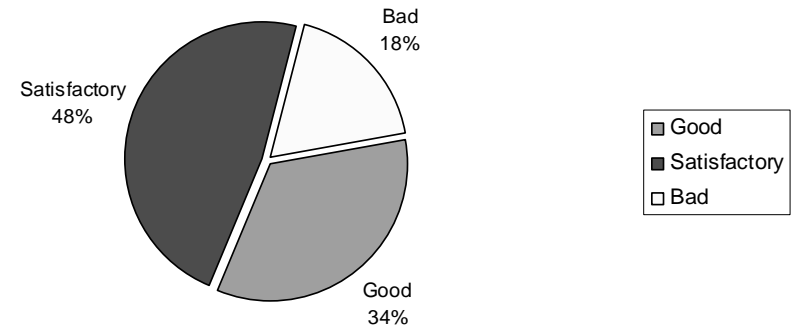


# 4.1 MS Office Tool (EXCEL) . . .

**Availability of local financial resource**

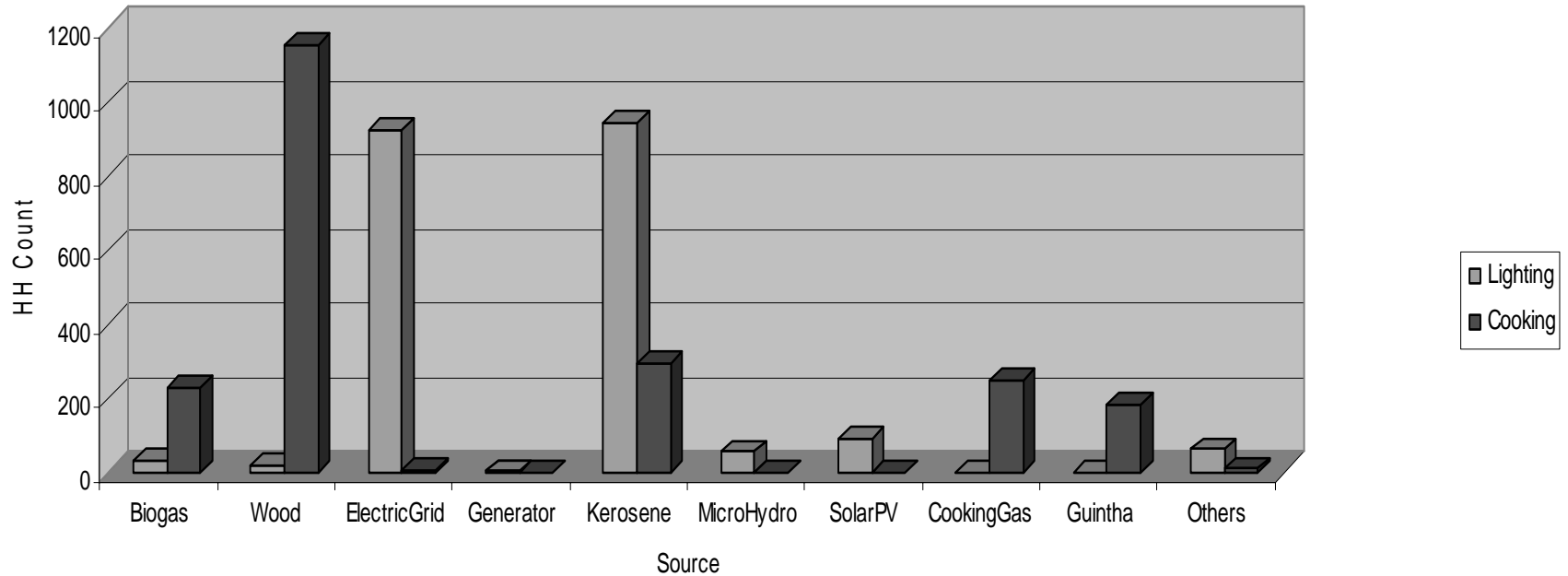


**Quality of Telephone service at present**



# 4.1 MS Office Tool (EXCEL) . . .

Survey: EnergyForLighting&Cooking



## 4.2 Data Mining Tool (WEKA) . . .

- Classification
- Appropriate location for MCT based on mother tongue (as 'gurung') and source of income
  - mothertongue = gurung
    - | sourceincome = agriculture:  
healthcenter
    - | sourceincome = business:  
postoffice
    - | sourceincome = service:  
pco
- → HHs whose mother tongue is 'gurung' choose
  - healthcenter as the suitable location for MCT if their source of income is agriculture
  - otherwise, if their source of income is business, they choose postoffice
  - and, if service, then they choose pco.

## 4.2 Data Mining Tool (WEKA) . . .

- Association
- distance healthpost = less\_than\_1km  
    distance pco = less\_than\_1km {260}  
==> distance school = less\_than\_1km {248}   conf:(0.95)
- → If the distance to the health post and distance to PCO is less than 1 km, then it can be said with 95% certainty that the school lies at a distance less than 1 km.
- This means that the health post, PCO and school (all three) are located near each other.

## (5) Study Visit

### ■ Nepal

- Courtesy Calls: MOIC, NTA, NTC, MOST, HLCIT, ICT4D, NPC, IOE, SECEN
- Site Visit: Pharping, Pokhara area, Bhairahawa area

### ■ Laos

- Courtesy Calls: LaoTel, MCTPC, Jhai Foundation
- Site Visit: SchoolOnline site, bicycle powered site & other Jhai Foundation initiatives

### ■ Thailand

- Courtesy Calls: APT Secretariat, NECTEC
- Site Visit: Tambon Net site (Floating Market area)

# Nepal . . .



## SheshNarayan VDC (Pharping)

- surrounded by other 5-VDCs
- population of six VDCs is 35,000
- two higher secondary schools and seven secondary schools
- active organizations (or groups) in these VDCs are as follows:
  - Co-op. organizations: 16
  - Farmer's group : 26
  - Women's group : 70
  - Forest User's group: 33
  - NGOs : 7
  - Youth Clubs : 40

# Nepal . . .



- a local shopkeeper has started a PCO with telephone set based on “Cordless” technology in Rupandehi district
- as there is no telephone in the village, he has started the PCO business along with his grocery business
- But, now after seeing the success and demand of telephone in the VDC, one of his neighbors is going to bring in another cordless phone in near future.

# Nepal . . .



- PCO in Pokhara City.
- This shop is a communication center providing STD, I SD, Local Calls and Fax.
- . . . also provides Computer Training, Email and Internet, sells air ticket and train reservations to India

# Nepal . . .



- One of the largest PCOs in Tansen with a quite professional-looking arrangements
  - number of wall clocks
  - billing machine
- . . . photocopy, spiral binding and fax services
- . . . “courier service” handling parcels and documents

# Laos . . .



- bargaining fare with Tuk-Tuk drivers for going to the Jhai Foundation Office
  - one of the drivers suddenly took out his mobile phone to contact the Foundation office to know the exact location
  - and, then he would fix the price!
- It was interesting to see the mobile penetration in Laos!

# Laos . . .



- GSM extension antenna mounted on a bamboo in the village
- there are only 3 GSM phones used in the same manner
- there is no electricity in the village
- but, there is a battery charging station just outside of the village

# Laos . . .



- ❑ A tree top antenna installed by the Jhai Foundation.
- ❑ however, this system is not in operation due to procedural problems between the Foundation and the government's rules and regulations

# Laos . . .



- The extended room of the school building that was intended to be used for the PCs and other equipments along with the bicycle to generate electricity to power the PCs.
- 8-minutes of pedalling to charge the battery for 1-minute use of PC !

## Comparison: Status of Nepal, Laos & Thailand

Year →	1995			2002		
	Nepal	Laos	Thailand	Nepal	Laos	Thailand
<b>Population (mid year, millions)</b>	<b>20.4</b>	<b>4.7</b>	<b>58.6</b>	<b>24.1</b>	<b>5.5</b>	<b>61.6</b>
Adult literacy rate (% , ages 15 & above)	36	60.6	94.1	44	66.4	95.8
<b>Telephone mainlines / 1,000 people</b>	<b>4</b>	<b>4</b>	<b>61</b>	<b>13</b>	<b>10</b>	<b>99</b>
Waiting list (thousands)	154	5	1,083	286	6	544
Revenue per line (\$)	496	1,018	894	246	488	579
<b>Cost of local call (\$/ 3 minute)</b>	<b>0.01</b>	<b>0.28</b>	<b>0.12</b>	<b>0.01</b>	<b>0.02</b>	<b>0.07</b>
<b>Mobile phones (per 1,000 people)</b>	<b>...</b>	<b>0</b>	<b>23</b>	<b>1</b>	<b>5</b>	<b>123</b>
Daily newspapers (per 1,000 people)	8	3	46	12	4	64
Television sets (per 1,000 people)	3	10	198	8	52	300
<b>PC (per 1,000 people)</b>	<b>1.2</b>	<b>...</b>	<b>14.1</b>	<b>3.5</b>	<b>3</b>	<b>27.8</b>
Internet Users (thousands)	0.2	...	55	60	10	3,536

Source: "ICT at a glance" Development Data Group, World Bank (Downloaded on: 10/3/03)

# Learning from Others . . .

“Learning from others”

is a clever way  
not to “re-invent the wheel”.

- Community Forestry,  
Nepal
- Community eCenter,  
The Philippines
- Jhai Foundation initiatives,  
Laos
- Tiger Leap Project,  
Estonia

# Learning from Others . . .

- ICT PC Project, Thailand
  - the project will only take desktop PCs less than five years old with the equivalent of Celeron processor with 350 MHz, 64 MB RAM
  - the old but usable PCs would be later donated to schools that don't have computers
  - Those who participate in the trade-in program can then purchase a new desktop PC powered by a Pentium 4 processor running at 2.4 GHz with 256 RAM, a 40GB hard disk and 17-inch monitor.

# Learning from Others . . .

- “Motoman” Wi-Fi System, Cambodia
  - ❑ Once a day, an Internet “Motoman” rides a cherry red Honda motorcycle slowly past the school.
  - ❑ On the passenger seat is a gray metal box with a short fat antenna.
  - ❑ The box holds a wireless Wi-Fi chip set that allows the exchange of email between the box and computers.
  - ❑ Briefly, this schoolyard becomes an Internet hot spot.

# Recommendations

## Recommendations ...

- [1] Pre-telecenter studies and detailed surveys including discussions and interviews with the community are required before deciding which community has prospects for a sustainable MCT.
- [2] MCTs should reflect the needs of the people and should be initiated from within the community or prospective users, rather than imposed from outside.
- [3] Technical and accounting processes should all comply with the legal & regulatory requirements, programs and needs of each country and the community.

## Recommendations ...

- [4] For actual implementation phase, UNESCO's publication titled "TEN STEPS for Establishing a Sustainable Multipurpose Community Telecenter" could be an elaborate, generic reference.
- [5] The chosen technology should be appropriate, inexpensive, and at the same time robust and highly reliable.
- [6] Collocation of MCT with other community initiatives should be encouraged.

## Recommendations ...

- [7] There is no single, standard equipment-list for a Telecenter, and so they should be customized as per the requirements of the community they will serve.
- [8] In order to attract involvement of rural communities, MCT should be promoted as a place to enhance socio-cultural interaction, and not as the center of technological excellence.
- [9] Collaborate with local schools to provide ICT education to the students who will be the 'customers' of the center in near future.

# Acknowledgment

- Organizations & its staff

- APT (Thailand)
- MOIC (Nepal)



- SECEN
- NECTEC (Thailand)



- Project Collaborator
- NEPAL TELECOM  
(formerly NTC)
- Pulchowk Campus (TU)
- . . . . .

