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**for the**

## **Ministry of Information & Communications (MOIC)**

### **Final Workshop on Increasing ICT Access in Rural and Peri – Urban Areas of Nepal**

**January 5, 2006**

(held at Hotel Himalaya, Kupondole, Lalitpur)

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## ABBREVIATIONS

<b>AEPDB</b>	Alternative Energy Promotion Development Board
<b>CBO</b>	Community Based Organisation
<b>CDMA</b>	Code Division Multiple Access
<b>COPPADES</b>	Committee for the Promotion of Public Awareness and Development Studies
<b>DDC</b>	District Development Committee
<b>DHQ</b>	District Headquarter
<b>HLCIT</b>	High Level Commission for Information and Technology
<b>HMG</b>	His Majesty's Government of Nepal
<b>ICT</b>	Information and Communication Technology
<b>IFDF</b>	ICT Facilities Development Fund
<b>IT</b>	Information Technology
<b>ISP</b>	Internet Service Providers
<b>MOEST</b>	Ministry of Environment Science and Technology
<b>MOIC</b>	Ministry of Information and Communication
<b>NEA</b>	Nepal Electricity Authority
<b>NGO</b>	Non Governmental Organisation
<b>NPC</b>	National Planning Commission
<b>NPIX</b>	Nepal Internet Exchange
<b>NT</b>	Nepal Telecom
<b>NTA</b>	Nepal Telecommunication Authority
<b>ODC</b>	Organisation Development Centre
<b>PAF</b>	Poverty Alleviation Fund Board
<b>PCO</b>	Public Communication Office
<b>RMC</b>	Rural Market Centres
<b>RTDF</b>	Rural Telecom Development Fund
<b>RUPP</b>	Rural Urban Partnership Programme
<b>RWSSFDB</b>	Rural Water Supply and Sanitation Fund Development Board
<b>TOR</b>	Terms of Reference
<b>VDC</b>	Village Development Committee



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# 1 INTRODUCTION

A half day **Final Workshop on Increasing ICT Access in Rural and Peri – Urban Areas of Nepal** was held on 5<sup>th</sup> of January 2006 under the study commissioned by the Ministry of Information and Communications (MOIC) on– “*Increasing ICT access in rural and peri – urban areas of Nepal (PS-4)*”, with the World Bank assistance.

## 1.1 OBJECTIVE OF THE WORKSHOP

Following were the objectives of the final workshop

- To present the findings and out come of the study
- To outline the contents of the draft final report
- To present the activities of the partners of pilot project
- To obtain comments and suggestion of the stakeholders that could be incorporated in the final report

## 2 WORKSHOP PROCEEDINGS

The half day workshop included:

- Opening Session
- Technical Session
  - Second Session
  - Third Session

(Please refer to *Annex I* for the schedule of the workshop)

## 3 OPENING SESSION

The opening session commenced with welcome speech followed by a presentation on objectives and findings of the study. The session ended with the remarks of the Chair.

### 3.1 WELCOME SPEECH BY MR. RAMESH KUMAR ADHIKARI (COORDINATOR TSRP)

Welcoming secretaries, joint secretaries, under secretaries, consultants and experts of information communication sector, Mr. Adhikari said that the ‘Study on Increasing ICT Access in Rural and Peri-Urban Areas of Nepal’ has been carried out jointly by international and national consultants under the lead consulting firm, Organisation Development Centre (ODC), Nepal. ODC has competed against the recognised international consulting firms to win the contract for this study. Consequently we are able to utilise contribution of large number of Nepali experts with local knowledge and skills suited to our local scenario along with that of the experts from overseas. Mr. Adhikari emphasised that findings and recommendations presented in the workshop would help the participants to understand the gist of the study.



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### 3.2 PRESENTATION ON TOR AND FINDINGS OF THE STUDY

Co-team leader of the study, Mr. Gajendra Singh Bohra presented on the key findings of the study. Mr. Bohra, in his presentation, outlined the 'contents of the draft final report' and briefly discussed following:

- Objectives of the study
- How objectives have been met
- Key findings of
  - Sector overview
  - Review of International experiences
  - Strategy Workshop
  - Demand study and demand modelling
- Summary of the recommendations made by the strategy workshop (held about a year back) and actions required by related authorities.

He stressed that regulatory actions required were urgent and in order to have least subsidy competition to succeed for rural communications, fair, competitive and liberal regulatory setup is essential among other things. He pointed out that for fair, competitive and liberal telecommunication sector to be established, to have separation of institutions managing policy, regulatory and telecom operations is recognised as one of the fundamental requirements.

### 3.3 REMARKS OF THE CHAIRPERSON

Mr. Kumar Prasad Paudyal, Secretary of MOIC, said that the presentation on the study findings allowed him to have the overview of the study. He opined that the study had been successful in presenting a real situation of ICT in the context of rural and peri-urban areas of the country. Mr. Paudyal agreed that the distribution pattern of ICT facilities is categorised by the geographical as well as economic condition of the area. He further acknowledged the existing huge disparity in distribution of ICT facilities in the country and admitted that His Majesty's Government of Nepal was facing real problems as to how ICT access and services to the rural areas of the country could be increased. He further said that rural population did not have adequate knowledge about ICTs and their actual value causing much less demand than in urban areas. Hence, he hoped that the study team would have included a programme/or activities to make rural population aware of importance of the ICT in their day-to-day life.

Emphasising on the subsidy mechanism recommended by the study (on the presentation of Mr. Bohra), Mr. Paudyal said that it was necessary to work out carefully to address the issues of sustainability while providing ICT services to the rural community on long term basis.

## 4 SECOND SESSION

Second session was chaired by Joint Secretary of MOIC Mr. Suresh Man Shrestha. The session included presentations and discussion (questions and answers). Following presentations were made in the session:



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- ICT Strategies
- Examples of Successful Models of Institutional Mechanism for managing Subsidy Programmes in Nepal
- Institutions for the implementation of ICTs (RTDF and IFDF)

*(Please refer to the Annex III for the presentations)*

## 4.1 PRESENTATION SESSION

### 4.1.1 Strategies for Increasing ICT Access

Mr. Suresh Regmi presented on Strategies for Increasing ICT Access. He emphasized the following in his presentation:

- Principles of the strategy
- Pillars of the strategy
- Supply and demand side barriers
- ICT development path
- Medium term telephone and Internet service objectives

### 4.1.2 Institutional Mechanism for Implementation of ICT projects

Mr. Mohan Das Manandhar presented on success stories for the institutional mechanism for implementation of demand driven community owned projects. Following institutions were presented as examples.

- Rural Water Supply and Sanitation Fund Development Board (RWSSFDB)
- Alternative Energy Promotion Development Board (AEPDB)
- Poverty Alleviation Fund Board (PAF) - recent operation whose success is yet to be determined.

Mr. Manandhar emphasised on the requirement of two institutions for managing ICTs in the context of the prevailing situation:

- Rural Telecoms Development Fund (RTDF) for managing implementation of the telecom facilities and services in the rural areas where commercial service is not viable and,
- ICT Facilities Development Fund (IFDF) for implementing ICTs other than telecom but intended basically for developing demand driven and community owned ICTs for rural development.

### 4.1.3 Institutions for Implementing ICTs (RTDF and IFDF)

Mr. Satish Krishna Kharel presented the regulatory aspects of RTDF and IFDF organisations and their functions. He emphasised the nature of the governing bodies of both the funds, particularly the committee members of RTDF and board members of IFDF being independent persons not representing the association or organisations they come from.



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## 4.2 DISCUSSION SESSION

Chairperson of the session Mr. Suresh Man Shrestha Joint Secretary of MOIC opened the floor for short discussion. Important comments and feedback raised from the floor are given below:

### Comments made and questions raised from the floor

- It would be appropriate if representation from HLCIT is also incorporated in the proposed institution (IFDF), as HLCIT is performing various activities in ICT sector for its development.
- One of the major problems of any development project in Nepal is about its sustainability. Most of the time after execution of donor support, the programme also gets terminated due to lack of resources. In such a situation, concrete strategies for the sustainability of the programme should be developed. More importantly, we should emphasis on utilising resources and infrastructure. For instance, post office has largest network in the country. It would be very appropriate to utilise existing infrastructure of the post offices by carrying out certain maintenance and upgrading.
- The study team should have emphasised on mechanism to provide subsidy. For instance, percentage of communities' contribution and external support to the programme/project.
- Raising on the existing challenges of coordination and cooperation among various sector, issues were raised regarding lack of such coordination and cooperation. Different sector including agriculture, health, and education should also be incorporated in the ICT projects. In addition, institutions working in the field of ICT sector should develop a common protocol in order to streamline all the effort in the ICT sector.
- Adding to the comments regarding coordination and cooperation, the e-governance advisor from Korea working in NITC was rather surprised as to why there were two Funds being managed by two organisations. In Korea, all the activities related to Communications and IT fall under the jurisdiction of one ministry called Ministry of Information and Communications while Science and Technology is looked after by other Ministry. Thus ICT activities under one Ministry eliminates the confusion and need of two Funds as proposed here.

### Study team reminded the participants that:

- *Subsidy requirements for different project have been worked out on the basis of what is needed in the pilot project design report.*
- *Coordination by the central authority and sustainability issues are stressed in the report and the coordination issues form the part of the main recommendations as central action in the final report.*
- *RTDF is legally meant for rural telecommunications only and is under the jurisdiction of solely NTA. The main purpose of establishing autonomous IFDF is to be able to manage subsidy for other ICTs than telecom for rural areas more effectively. It was reiterated that it would not be appropriate to load NTA with additional burden while a separate implementation body can be created for IFDF.*



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After receiving comments from the participants, and their corresponding responses, chairperson of the session opined that the study team will incorporate all the relevant and necessary suggestions and comments in the final report. He further assured that HMG is ready to cooperate and facilitate development of ICT sector in Nepal by creating enabling environment.

## 5 THIRD SESSION

Third session was chaired by Mr. Suresh Kumar Pudasaini, Chairman of NTA. The session also included presentation and discussion (questions and answers). Following presentations were made:

- Pilot Project and Implementation Modalities
- How RUPP Manages Telecentres and ICTs in Rural Market Centres
- How COPPADES Manages Computers and Internet in Schools
- nPIX and its Activities

*(Please refer to the Annex III for the presentations)*

### 5.1 PRESENTATION SESSION

#### 5.1.1 Pilot Project and Implementation Modalities

Mr. Manohar Kumar Bhattarai presented basically following aspects of ICT project implementation in rural areas:

- The ICT projects for pilot implementation
- Implementation modalities of community owned and run pilot projects in partnership:
  - Role of RUPP
  - Role of NTA
  - Role of NGOs in Computers in schools project
  - Role of nPIX in the Regional Internet Switching Project
- Role of Community organisation and Rural Urban Partnership Programme (Municipalities)
- Infomobilisation and building social awareness for ICTs

#### 5.1.2 How RUPP Manages Telecentres and ICTs in Rural Market Centres

Mr. Ramesh Adhikari, National Programme Manager of RUPP presented on the Purpose of Rural Urban Partnership Project (RUPP) in poverty alleviation. He briefly outlined various activities that RUPP undertakes. He mainly emphasised on the contribution of RUPP in developing and applying ICTs as tools for development. He presented a summary of ICT activities as below:



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- In collaboration with AEC/FNCCI developed use of ICTs in collecting and disseminating daily agriculture market price information from 18 major markets to provide easy access of price information to the farmers, traders and other business communities.
- In cooperation with HLCIT and AEC/FNCCI, developed Nepali e-Haat Bazar as a National B2B e-commerce service. The main objective of implementing Nepali e-Haat Bazaar is to establish single electronic gateway to promote trade and market linkage within the country and with the international markets.
- Developed telecentres in the rural market centres and
- Developed e-governance in the municipalities with the objective of increasing citizen participation in municipal planning, decision making and to enhance transparency.

### 5.1.3 How COPPADES Manages Computer and Internet in Schools

Mr. Dikendra Kanel, Head of COPPADES started his presentation by providing brief institutional information. Mr. Kanel said that COPPADES is a leading NGO working in the field of ICT for the rural areas, focusing on the government schools and community people. He further said that COPPADES is trying to standardise the quality of education by adding IT on traditional education and finally contributing on reducing digital divide in between urban and rural areas. Mr. Kanel said that in cooperation with donor partners (using donated P3 and P4 computers) COPPADES is trying to increase the access to ICT in rural areas.

### 5.1.4 nPIX and its Activities

Mr. Gaurab Raj Upadhyay CEO of nPIX started his presentation by saying that Nepal Internet Exchange (nPIX) is a Layer 2 peering facility, established through collaborative efforts of the Internet Service Providers (ISPs), and other industries in Nepal. Mr. Upadhyay said that core objective of the nPIX is to provide efficient interconnectivity within Nepal for the Internet. He further said that nPIX would like to setup independent peering locations in other major cities of the country. However, it is costly for the small service provider of the regions to peer in the formative stage of their companies. For this, Mr. Upadhyay said that we have to attract and encourage such ISPs for peering by providing some sort of subsidy in operation.

## 5.2 DISCUSSION SESSION

Chairperson of the session Mr. Suresh Kumar Pudasaini (Chairman of NTA) opened floor for short discussion. Following is the summary of questions and comments:

### Comments made and questions raised from the floor

- No more pilot projects in the ICT sector - instead of piloting new projects one of the viable and best alternatives is to strengthen the existing ICT service centres, as a large number of pilots have already taken place.



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- The study should have clearly distinguished the pockets of ICT intervention area and defined rural and peri-urban areas clearly.
- The study should have also incorporated detailed expenditure and resource (financial, infrastructure, equipments, etc) requirement to establish telecentres.
- In order to achieve sustainability of ICT projects, prior to the implementation process, detailed strategy on gaining ownership to the project by the targeted beneficiaries should be explored. For this, developed strategies should come up with procedure on sharing the investment by community and the external or government counterparts. In addition, it would be appropriate if the study have incorporate expenditure and income obtained from the service in order to predict its longevity and sustainability.
- The 10<sup>th</sup> Five Year Plan of the country targeted to establish 1500 telecentres all over the country. However, due to various impediments, the activities are not as planned. In such situation, we have to develop a detailed action plan considering:
  - a) Contribution of government sector (ministries) for ICT development
  - b) Contribution of DDC and other local government institutions
  - c) Contribution of private sectors, NGOs, CBOs and community.
- One thing that seems overlooked by the study is about the gender. We should conceive the development of ICT from the gender perspective. We should also consider how access to ICT will benefit women of the rural population. For this we can incorporate maternal and child health sector and other various sectors.
- Emphasis should be given in mobilising established institutions (like health centres, post offices and agriculture service centre) and their human resources while implementing ICT facilities for the rural populations.

### *The consultants once again reminded that*

- *The entire strategy proposed is based on the principle of what is feasible under the prevailing environment and situation. Due to the diversity in topography, ethnicity, economic situation and literacy, the solution and uptake of the type of ICT that people would benefit from also differs greatly.*
- *Estimated numbers of telecentres suggested per district would vary from 2 to 6 depending on the characteristics of a district which should be established with the full government assistance and the total suggested in the next couple years is far less than 1500.*
- *Sustainability issues and infomobilisation to create demand in the communities for ICTs are basic requirements before telecentres can be established or before providing any ICT facilities to the communities. There are number of experienced CBOs and community mobilisers in ICT field*
- *Gender has been dealt to some extent in the strategy work. Gender differences are one of the variables (along with religion, caste, language, age, etc) that must be dealt with at a local level. But of course there is also room for national-level initiatives.*



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### 5.3 CLOSING REMARKS BY MR. SURESH KUMAR PUDASAINI

“Our country itself provides various unforeseeable impediments”, said Mr. Pudasaini in his closing remarks. He further emphasised that instead of searching escape route from the problem, we should explore possible solutions. He further opined that while designing projects and programmes for the rural settings, we should give emphasis on creating awareness about its importance. ICT requires sound technical expertise; one should consider that along with standard equipment, supplementary equipments suitable to the local setting for the system to work properly may be necessary. For instance, where power supply is unreliable, supplementary equipments like generators, etc would be helpful to give continuity to the services. Further, Mr. Pudasaini remarked that the study team will come up with the detailed action plan incorporating roles and responsibilities of each and every sector for the effective implementation of ICT projects. Mr. Pudasaini finally concluded the Workshop by congratulating and thanking all the experts, and participants for providing their whole hearted remarks, comments, and feedbacks.

## 6 CONCLUSIONS AND RECOMMENDATIONS

- The workshop was able to inform the stake holders about the entire study and its findings and outcome.
- As some of the stakeholders could not have the opportunity or time to go through the full report the study, the questions of sustainability of ICT projects like telecentres figured once again. Consultants reminded the participants that sustainability was the basis of the strategy proposed in the study. Basing on the sustainability consideration, the number of telecentres proposed in the study is far less than what is proposed in the tenth plan.
  - *It is recommended that while implementing ICTs, full consideration on strategies outlined in the report be considered by authorities so that sustainability issues are addressed adequately.*
- While NTA is fully satisfied about the way RTDF manual has been designed, HLCIT seems to still have question regarding having one more agency like IFDF and its role in the face of several agencies (as expressed by them) already involved in managing ICTs in the government. HLCIT thought that they were not consulted while working in such an important area.
  - *It is recommended that while finalising the establishment of proposed IFDF, MOIC, MOSTE and HLCIT work closely.*
- There was strong opinion about need of awareness building for ICTs in rural area. The study has stated that provision of ICTs in rural areas in community should be demand driven. The situation of demand driven can only be reached by building awareness of the people for ICTs, which is one of principles on which rural ICT development is proposed in the study.
  - *It is recommended that awareness building by using infomobilisation techniques and other means should be followed to create real need for ICTs in rural areas.*
  - *It is further recommended that gender aspects must be fully taken care of in the local level while providing ICT access to rural areas.*



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Mr. Mohan Das Manandhar  
 Mr. Manaswee Raj Vaidya

**Consortium Consultancy Firms:**  
 Antelope Consulting, United Kingdom – Ms. Claire Barbara Milne,  
 Professional Computer System, Nepal – Mr. Suresh Kumar Regmi  
 Teleplanning A. Wirzenius Ltd., Finland – Mr. Arno Wirzenius  
**Independent Consultants - National:**  
 Mr. Gajendra Singh Bora  
 Mr. Satish Krishna Kharel  
 Mr. Manohar Bhattarai  
**Independent Consultants - International:**  
 Dr. Roger Harris

# ANNEXES

## ANNEX 1: WORKSHOP SCHEDULE

### FINAL WORKSHOP ON INCREASING ICT ACCESS IN RURAL AND PERI-URBAN AREAS OF NEPAL

Date: **Thursday, 5 January 2006**Venue: **Hotel Himalaya, Kupondole,****Registration – Starts at 08.30am**

First Session: Opening Session (09:00 – 09:55)		
Chairperson: Mr. Kumar Prasad Paudyal (Secretary MOIC)		
Time		Programmes
From	To	
08:30	08:55	<b>Registration - Arrival of Guests and Participants</b>
09:00	09:10	<b>Welcome Speech</b> Mr. Ramesh Kumar Adhikari (Coordinator TSRP)
09:10	09:30	<b>Presentation on ToR and Findings of the Study</b> Mr. Gajendra Bohra (Consultant)
09:30	09:40	<b>Remarks of the Chairperson</b>
09:40	09:55	<b>Tea Break</b>

Second Session: (10:00 – 11:15)		
Chairperson: Mr. Suresh Man Shrestha (Joint Secretary MOIC)		
Time		Programmes
From	To	
10:00	10:25	<b>ICT Strategies</b> Mr. Suresh Regmi (Consultant)
10:25	10:40	<b>Examples of Successful Models of Institutional Mechanism for Managing Subsidy Programmes in Nepal</b> Mr. Mohan Das Manandhar (Consultant)
10:40	11:00	<b>Institutions for Implementing ICTs (RTDF and IFDF)</b> Mr. Satish K. Kharel (Consultant)
11:00	11:15	<b>Discussion (Questions and Answers)</b>

Third Session: (11:20 – 12:40)		
Chairperson: Mr Suresh Kumar Pudasaini (Chairman NTA)		
Time		Programmes
From	To	
11:20	11:35	<b><i>Pilot Project and Implementation Modalities</i></b> Mr. Manohar Bhattarai (Consultant)
11:35	11:50	<b><i>How RUPP Manages Telecentres and ICTs in Rural Market Centres</i></b> Mr. Ramesh Adhikari, National Programme Manager, (RUPP )
11:50	12:05	<b><i>How COPPADES Manages Computer and Internet in Schools</i></b> Mr. Dikendra Kanel (Head of COPPADES)
12:05	12:20	<b><i>nPIX and Its Activities</i></b> Mr. Gaurav Upadhaya (CEO nPIX)
12:20	12:40	<ul style="list-style-type: none"> <li>▪ <b><i>Discussion (Questions and Answers)</i></b></li> <li>▪ <b><i>Closing Remarks of the Chairperson</i></b></li> </ul>
12:40	13:30	<b><i>LUNCH</i></b>

## ANNEX 2: LIST OF PARTICIPANTS

S. No.	Name	Designation	Organisation
1	Mr. B.P. Khatiwada		Agriculture Information & Communication Centre
2	Mr. Dikendra Kendel	Head of COPPADES	COPPADS
3	Mr. Pradep Adhikary		COPPADS
4	Ms. Rojee Kattel	Com. Specialist	DLGSP
5	Mr. Rajendra Sharma		General Post
6	Mr. Atma Ram Ghimire	Member Secretary	HLCIT
7	Mr. Dambar Bahadur Khadka	Member	HLCIT
8	Mr. Pavan S. Shakya		ISPAN
9	Mr. Durga Prasad Bhusel	Section Officer	MLD
10	Mr. S.P. Acharya		MLD
11	Mr. Purusottam Ghimire	Under Secretary	MOEST
12	Mr. Kumar Prasad Paudyal	Secretary	MOIC
13	Mr. Suresh Man Shrestha	Joint Secretary	MOIC
14	Mr. Ratna Raj Pandey	Joint Secretary	MOIC
15	Mr. Sohan Bahadur Nyachhuon	Special Officer	MOIC
16	Mr. Vishwa Nath Dhakal	Under Secretary (Finance)	MOIC
17	Mr. Amar Raj Poudel	Under Secretary (Legal)	MOIC
18	Mr. Ramesh Kumar Adhikari	Under Secretary PPME/TSRP	MOIC
19	Mr. Shyam Bahadur Basnet	Sr. Executive Engineer	MOIC
20	Mr. Parasuram Aryal	Under Secretary	MOIC
21	Mr. Sanat Kumar. Neupane		MOIC
22	Mr. Chuda Raj Neupane	Member	MOIC/TSRP
23	Mr. Rana Bahadur Gharti		NHEICC
24	Mr. Deepak Pudasainee		NITC
25	Mr. Bimal Shah		NITC
26	Mr. Y.S Kim		NITC
27	Mr. Durga Khatiwada	Section Officer	NPC



S. No.	Name	Designation	Organisation
28	Mr. Gauab Raj Upadhaya	CEO	NPIX
29	Mr. Binay Bohra		NPIX
30	Mr. Sugat Ratna Kansakar	Managing Director	NT
31	Mr. Rupak Haldar	DGM	NT
32	Mr. Amar Nath Singh	DGM - CDMA Project	NT
33	Ms. Laxmi Kanta Shrestha	DGM	NT
34	Mr. Madan Kaji Shakya	Director – New Services	NT
35	Mr. Rajesh Joshi		NT
36	Mr. Suresh Kumar Pudasaine	Chairman	NTA
37	Dr. K.B. Khatri	Member NTA Board	NTA
38	Mr. Bijay Kumar Roy		NTA
39	Mr. Ambar Sthapit		NTA
40	Mr. Kailash Neupane		NTA
41	Mr. Purushottam Khanal		NTA
42	Mr. Kumar Prasad Sharma		NTA
47	Mr. Mohan Das Manandhar	ICT - Consultant	ODC
48	Mr. Manaswee Raj Vaidya	ICT - Consultant	ODC
49	Mr. Shyam Kumar Thapa		ODC
50	Ms. Doma Sherpa		ODC
43	Mr. Suresh Dhoj Shrestha		RUPP
44	Mr. Ramesh Adhikari		RUPP
45	Mr. Manish C. Lal		RUPP
46	Prof. Jagan Nath Shrestha	President	SECEN
51	Mr. Satish K. Kharel	ICT - Consultant	
52	Mr. Manohar Bhattarai	ICT - Consultant	
53	Mr. Suresh Regmi	ICT - Consultant	
54	Mr. Gajendra Bohra	ICT - Consultant	

## ANNEX 3: PRESENTATIONS

The presentation “**How RUPP Manages Telecentres and ICTs in Rural Market Centres**” by Mr. Ramesh Adhikari has not been included in the report because of its high graphic content. The texts of all the other presentations are reproduced below.

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### Increasing ICT Access to Rural and peri-urban areas of Nepal

#### Objectives and Findings By Gajendra

Contents of the draft final report

#### 1. EXECUTIVE SUMMARY

- Introduction
- Objectives of the study and structure of the assignment
- Phase I-Background Work for Developing Strategy
- Phase I - A Strategy for Increasing ICT Access in rural and peri-urban areas of Nepal
- Phase II- Pilot Project Design
- Phase II - Demand study
- Phase II - Design of Bidding Process and RTDF Manual
- Phase III: Support to HMG in conducting pilot project
- Recommendations

#### 2. OBJECTIVES

- Characteristics of the rural/peri-urban and low income ICT market
- Methods of meeting this demand and institutional setup
- Cost of providing ICT access and subsidy requirement
- Cost of expanding Internet points of presence in all districts in Nepal;
- Institutional and regulatory requirements for RTDF.
- How private sector can participate in the delivery of ICT services for rural and low income users
- Strategy to improve access
- Business models for the sustainable delivery of ICT access through public-private partnerships;
- To design and support HMG in conducting a pilot project for public access to ICTs.

### 3. HOW OBJECTIVES HAVE BEEN MET

- Characteristics of the low income ICT market and methods of meeting demand:
- Very low rural penetration of telephones, but demand throughout the country.
- Internet has just appearing in the DHQs but the demand is very low.
- Illiteracy, poverty and lack of useful applications and access facilities are bottlenecks
- Demand for radio, TV and FM radio in particular, is high but again these have coverage problems.
- Cost of providing ICT access
  - Telephone -largely by commercial means small 5 % of the population need subsidy
  - Rural areas need promotional interventions as :
    - Community telecentres for Internet access,
    - Community FM radio
    - Computers and Internet for schools.
- Cost of encouraging Private ISP's to expand PP in districts
  - Presence in the regional centres sufficient-demand low the demand
  - Accessing at local call rate from the districts with in a region.
  - NTA strongly advised to oblige the incumbent to provide local call rate access
  - Assist ISPAN (nPIX) to extend Internet switching
- Institutional and regulatory requirements for RTDF:
- RTDF management committee under NTA managing telecom infrastructure with RTDF
- The institution is called ICT Facility Development Fund. (IFDF) for other ICTs
- RTDF Manual and IFDF draft manual prepared
- Private Sector in the delivery of ICT services public-private partnerships:
- Competitive bidding for minimum subsidy or maximum coverage for fixed support for Telecom
- Some smaller initiatives may not requiring competitive bidding.
- Telecentres under community ownership on demand driven basis.
- Computer and Internet for school one time support to the schools.
- FM radio very useful rural development and empowerment
- Design and support HMG in conducting a pilot project for public access to ICTs:
  - Telecom infrastructure and PCO-deferred for a year or two while NT is implementing its large CDMA project and district satellite projects.
- Partners suggested –
  - RUPP for telecentres in RMC and cybercafes in the DHQs
  - experienced NGO for computer and Internet for schools project,
  - and ISPAN the owner of nPIX in setting up for Regional Internet switching
  - The MOUs with partners -bidding docs for equipment and services

#### 4. FINDINGS

- Summary of Findings from Sector Overview
- Findings from Review of International experience
- High-level findings of other studies
- Lessons from using Competition for subsidies in Rural Telecom
- Key factors in successful approach
- Experience from other countries
  - Latin America
  - Uganda
  - Nepal
- Key findings from workshops

#### 5. FINDING OF SECTOR OVERVIEW

- Rugged topography, huge diversity in distribution of population , ethnicity and language . poor infrastructure,
- 85% rural population, 80% depend on agriculture, 32% below poverty line, literacy 53%, highest decile of the population spend 6 times as much as the lowest.
- Low use of information systems, email/Internet, web by the government
- Broadcasting fair liberalised-
- Community FM is the proven media for rural development.
- Substantial experience in establishing telecentres –sustainability issues not seriously considered
- Autonomous institutions like AEPC, RWSSDB,PAF good examples for implementing community owned and demand driven projects like ICTs under full or part subsidy.
- Telecom slow to liberalise, services mainly limited to capital city and the municipalities.
- Rural coverage very low further due conflict to security reasons.
- Most DHQs had no Internet services until mid 2004 -now altogether 55 districts 20 districts by 2006
- NT's recently launched CDMA for extensive rural 81% -2007, 95%- 2010,
- STM in EDR With VSAT

#### 6. WORKSHOP FINDINGS

- Use of information systems, email, Internet in government low
- Radio licensing regulations discretionary
- License fees too high for community radio and rural cable networks
- Official levies too high for ISPs to expand in rural areas
- Telecom policy implementation slow
- Lack of backbone infrastructure
- Trunk rates for internet access - no local PoP or virtual PoP
- Leased circuit rates not regulated
- No one-door policy spectrum to licensees
- WiFi licensing position unclear
- Community radio problems

**7. FINDINGS- REVIEW OF INTERNATIONAL EXPERIENCE**

- The Gramin Sanchar Sewak- MP India, postmen mobile
- In a Rurtel in Laos, - of telephone +tive effect on incomes.
- The Jhai Foundation's provision of computers to rural schools in Laos. some attained self-sufficiency
- The DakNet Mobile Ad Hoc Connectivity UP,India, bus-mounted Mobile Access Points

**8. FINDINGS- REVIEW OF INTERNATIONAL EXPERIENCE**

- Examples of e-post implementations in India and Bangladesh - expensive and to rely on commercial mailings to break even.
- A multifunctional item of terminal equipment (for video, audio and text) –under dev
- India's rapidly growing e-Chaupal system, -farmers to deal directly with a large purchaser of agricultural produce - bypassing traditional middlemen.

## Strategies for Increasing ICT Access

Claire Milne  
Suresh Regmi

### 1. DISCUSSION SUMMARY

- Principles
- Overcoming barriers
- Pillars of Strategy
- Objectives for Telephone Service
- Objectives for Internet Access

### 2. BACKGROUND

- “ICT access” first meant public Internet access (telecentres); now being interpreted more broadly to include radio, TV, phones, and non-networked kit (computers etc)
- Many studies already – now the real challenge is implementation

### 3. PRINCIPLES FOR STRATEGY

- Diversity (Terrain, Climate, Ethnicity, Language, Culture, Economic activity, Education etc.)
- Natural growth (walk, then run)
- Oral society
- Community spirit & voluntarism
- Start with young people
- Sustainability

### 4. BARRIERS TO INCREASING ICT ACCESS

- Supply Side Barriers
- Closed telecom market
- Inadequate resources to deliver services
- Demand side Barriers
- Not enough money to pay for services
- ICT not seen as a priority

### 5. OVERCOMING BARRIERS

- Strategic Actions
- Open licensing (telecom and broadcast)
- Boost supply side (soft loans, less red tape, promote partnerships)
- Inject cash strategically (RTDF, IFDF)
- Mobilise communities (include ICT in development agenda)
- Add value to ICTs (relevant content, applications)
- Develop and share tools
- Coordinate & collaborate

## 6. COMMUNITY DEVELOPMENT PATHS

- Provide computer(s) to secondary school, link to internet when available
- Expand existing PCO to provide assisted email service through Internet connection
- Provide Internet and phone for an NGO-led development project; facilities can be shared by outside users.
- Provide phone at all health centres, available as PCO; later Internet access (for both health workers and public)
- Support local initiatives like Mahabir Pun's Internet connections in the Nangi area.
- post → e-post → use of mobile phone
- Build on existing multipurpose telecentres
- By making usage affordable and actively publicising the services available.
- Start community radio stations, later connect office to Internet
- Link cable TV stations to Internet, give social mission, provide public access to both TV and Internet
- Provide computer access for all students in further/higher education, and Internet access in all colleges
- Rural banks to modernise branch communications, while providing PCO service
- Incentives to existing cyber-cafes to attract wider clientele and set up new branches to serve marginal groups
- Provide community radio/TV sets for shared use; later, could record programmes for individual replay
- Link telecommunications upgrade to develop tourism
- Low cost telegraph systems using citizens band radio

## 7. OUTLINE STRATEGY FOR NEPAL (1)

- Two parts: “bottom up” and “top down” – both essential
- Bottom up:
  - Increase awareness of ICT capabilities
  - Support preparing proposals / business plans
  - Communities to include ICTs in participatory planning processes (may use “community development paths”)
  - Use RTDF/IFDF to support implementation of community plans, where necessary

## 8. OUTLINE STRATEGY FOR NEPAL (2)

- Top down: “central actions” including
  - Implementation of Nepal Telecom Policy 2004
  - Co-ordinating different ICT programmes
  - Producing relevant content and services
  - Government leading by example
  - Providing good communication among universities
  - Developing tools and techniques



**9. NATIONAL OBJECTIVES FOR TELEPHONE SERVICE**

- By 2010: Telephone service, at (or near) normal NT PSTN rates as they will be then, available within a week of request, throughout areas covering 98% of Nepal's population, 3% of which will be covered by RTDF.
- Continuing: At least one phone line (PCO) to be installed close to each primary school location. This is accessed by 89.9% of rural population within 30 minutes, by 97.5% within one hour, 99.8% within 2 hours (NLSS II).

**10. STRATEGIES FOR FULFILLING NATIONAL OBJECTIVES FOR TELEPHONE SERVICE**

- Ensuring that NT fulfils its roll-out plans
- Fostering competition to NT in rural areas
- Ensuring viability of small competitors
- Getting value for money from subsidies.

**11. NATIONAL OBJECTIVES FOR PUBLIC INTERNET ACCESS**

- By mid 2006: at least one public Internet access point in each District Headquarters town.
- By 2008: at least one public Internet access point in each "first round" selected RMC.
- By 2010: at least one public Internet access point in each "second round" selected RMC.

**12. STRATEGIES FOR FULFILLING NATIONAL OBJECTIVES FOR INTERNET ACCESS**

- Districts identify 1st round and 2nd round RMCs for Internet Access Points (IAP)
- DDC to take benefit from NT's commitment to provide IAP at DHQ
- Demand driven community based process promotion
- Support ISPs for regional internet exchanges
- Reviews of subsidies provided and change in the strategies on a timely basis

# Institutional Mechanism for Implementation of ICT projects – Example of Some Success Stories Consultant Mohan Das Manandhar

## 1. COMMUNICATION INFRASTRUCTURE FOR RURAL COMMUNITIES

- Utilizing Rural Telecom Development Fund (RTDF)
- Management of Subsidy
- Competitive Bidding
- Policy Based
- Proposal Based
- Local institutions encouraged

## 2. ACCESS TO ICT SERVICES FOR RURAL AREAS

- ICT Rural Access Funds to provide subsidy
- Content Development
- Knowledge (Services and applications) and Information (international, national and local)
- Local knowledge and Language
- E-governance
- Local Human Resource Development
- Support to Educational programmes (Seed fund for sectoral budgeted programmes)
- ICT Rural Access Funds to provide subsidy
- Awareness building and social mobilization for communities for demand creation of ICT use
- Assist communities to develop proposal and implementation of ICT activities
- Community broadcasting
- ICT educational component in School
- ICT services in Health post, Post offices,
- PCOs, Telecenters, & other communication facilities, etc
- Others
- Implementing Arrangement:
- Flexible to collaborate with variety of local institutions including Communities and local entrepreneurs
- Thin & Lean management structure to manage the subsidy and programme
- Implementing Arrangement:
- Decentralisation of authority to district and local units to provide ICT advice and support to communities and help both with applying for financial support and with implementing ICT projects (whether or not subsidised)
- Implementing Arrangement:
  - Success stories in Rural development activities suggest that these units should not be part of government but should be left to the private sector or NGOs
  - Initially, Government/Private/NGO partnership may be needed to develop local capability at the DHQ level

### 3. INSTITUTIONAL ARRANGEMENTS FOR RURAL FOCUS SERVICES

- Demand driven community focused structure
- Success stories of Nepali Institutions for demand driven community based programmes are:
  - Rural Water Supply and Sanitation Fund Development Board
  - Alternative Energy Promotion Development Board
  - Poverty Alleviation Fund Board

### 4. DEVELOPMENT BOARDS FOR COMMUNITY SERVICES: EXAMPLES

- Similarities and Differences
  - AEPC and RWSSFDB – Cabinet Decision
  - PAF – Separate Act
  - AEPC – regulatory body but have implementation authority for promotional programmes
  - RWSSFDB and PAF – both directly work with communities, providing fund for implementing rural development programmes
- Similarities - RWSSFDB and PAF
  - Community based demand driven approach
  - To increased community participation and decisions at all level of project cycle
  - Community cost sharing
  - Mobilisation of national and local private firms, NGOs and CBOs in service delivery as Support Organisation (SO)
- Similarities - RWSSFDB and PAF
  - Provides technical, institutional and financial support to SO and communities to implement programmes and projects
  - The Board monitors implementation progress, impact of the investments made, and the quality of performance of the contracted SOs.
  - Executive Director and other staff recruited from market to implement the programme
- AEPC – promote the use of renewable technology
- Coordinates with relevant ministries for policy decisions
- Acts as an intermediary institution between the operational level NGOs/ private promoters
- Facilitates the implementation of the policies/ plans
- Development Boards for Community Services: Examples
- AEPC – Thin and lean structure
  - is based on functional entities within the organisation
  - is flat and matrix based
- AEPC works with various NGOs and Private organisation in implementing the programme
- AEPC – managing subsidy
- Established Interim Rural Energy Fund (IREF) to channel jointly financed subsidies
- Financial Institutions (FIs) will be responsible for loan financing only.
- IREF will provide necessary assistance to train the human resources of FIs

**5. RECOMMENDATIONS**

- Two Funds - Two organisations
- Rural Telecoms Development Fund : RTDF

**6. ICT FACILITIES DEVELOPMENT FUND : IFDF**

- Rural Telecoms Development Fund : RTDF
  - The RTDF is a fund for supporting telecom infrastructure in those areas in which telecom service provision on commercial basis is not available.

**7. ICT FACILITIES DEVELOPMENT FUND : IFDF**

- The IFDF is a fund for supporting access to ICT services in those areas in which access on commercial basis is not available, and developing ICT services for the majority of the population to bridge the digital divide.
- ICT Facilities Development Fund : IFDF
- The services that the IFDF supports are closely related to community activities and community participation.
- The IFDF works mainly on a micro-level, while the bulk of the work of the RTDF is on a macro level.

## **Institutions for Implementing**

### **Satish K. Kharel, Legal Consultant**

#### **1. RTDF AND IFDF**

- Rural Telecommunication Development Fund (RTDF)
- ICT Facility Development Fund (IFDF)

#### **2. WHY TWO SEPARATE FUNDS**

- RTDF is already in existence under the statutory provisions.
- It is contemplated in Section 30 (4) of Telecommunications Act 2053
- It has to be used by NTA within the policy of the HMG for development, promotion and operation of telecommunication services in rural areas.
- The task of assessing and fulfilling rural ICT demand other than rural infrastructure is varied, large, and requiring community mobilisation, which NTA is currently not equipped to perform
- Taking such task could unbalance NTA's structure and distract it from its proper regulatory functions, it would not be in the interest of NTA on the long run.
- Many other parties, besides NTA, have a strong and legitimate interest in the outcome.
- Therefore, a new governing board (now called IFDF) or body is contemplated
- Which would perform fund management, policy development and development of project format and approval of the ICT projects other than belonging to rural telecom infrastructure.
- It was also agreed in last workshop that there is a need of an independent and semi-autonomous unit, suitable for managing subsidies and implementing the programme that focuses on development of ICTs in rural areas and promotes demand for communication activities in rural areas.

#### **3. FORESEEN ACTIVITIES**

##### **RTDF**

- mainly one-time investment support
- public phones
- public Internet access points (only communication through Internet)
- telecom infrastructure,

##### **RTDF – What it should be ?**

- Though RTDF is a part of NTA, its functioning could be improved and better outcome could be received by improving its management structure.
- Such management structure does not need to change prevailing statutory provisions.
- Proposed Structure

#### 4. **PROPOSED RTDF MANAGEMENT COMMITTEE (RTDF-MC)**

- i. Chairperson – Chairman of Nepal Telecom Authority -1
- ii. Member with background in rural telecom (NTA) 1
- iii. Member with background in rural development ( External)1
- iv. Member with a background in Consumer Society/Association (External)1
- v. Member Fund Manager (NTA)1

Total Members of the RTDF Management Committee 5

#### 5. **FUNCTIONING OF RTDFMC**

- The RTDF is proposed to be semi-autonomous body under NTA.
- The Chairman of the RTDFMC has right to disapprove individual decisions of the RTDFMC based on the ultimate NTA responsibility.
- An Advisory Committee to meet twice a year is established with the objective of enabling the main stakeholders, in particular private and other operators, involved in use of RTDF.
- A Fund Manager is to be appointed to run the operations of RTDF.
- The RTDFMC is to appoint the professional staff.
- Fund manager has the right of appointing support staff.
- RTDFMC may decide on use of external consultants as required.

#### 6. **ADMINISTRATION OF FUNDS**

- The funds of the RTDF shall be administered separately from the NTA funds.
- Day-to-day administration of the RTDF funds shall be outsourced to a suitable bank (the RTDF Bank), with international banking rights.
- The bank shall be selected based on competitive tendering for a period of 3 years.
- The RTDF Bank will take care of financial management of the fund based on an agreement as a result of the tendering process.
- The RTDF shall prepare an annual report within the same time frame as the NTA annual report.
- The RTDF funds shall be audited together with NTA funds, and the financial statement shall be approved in the same manner as NTA financial statement.

#### 7. **SUPPORT PRINCIPLES**

- Initially, suggested for telecom infrastructure to be based on one time investment .
- In parallel to the major support forms, support based on competitive tendering.
- shall develop other forms of support for minor projects that can be implemented with efficient administrative work.
- One possibility is standard subsidies for activities of the same type

#### 8. **RURAL ICT FACILITY DEVELOPMENT FUND (IFDF)**

- IFDF is structured in similar way as RTDF.
- IFDF is proposed as an autonomous governing body constituted as IFDF Board to manage the other ICTs.

**9. COMPOSITION OF THE BOARD**

- i. Chairperson from MOIC or MOST 1
- ii. Member, from MOIC or MOST 1
- iii. Member, background rural community development1
- iv. Member, background DDC /ADDCN 1 seat
- v. Member, Executive Director – IFDF

Total Members of the IFDF Board 5 Members

**10. SELECTION OF MEMBERS**

- Members shall be appointed on the basis of their personal capacity and expertise .
- Members shall act solely for the purpose of IFDF and not represent any external party.
- Only one person each from MOIC and MOST will be in the Board.
- The Board shall nominate one officer from the IFDF as secretary to the Board without voting rights.

**11. POWERS AND DUTIES OF BOARD**

- Manage tendering processes;
- Manage other support forms;
- Take into account the requirements of tied funds and related cooperation with donors;
- Create standard procedures for tendering and support forms;
- Encourage local institutions and entrepreneurs to participate in the construction, maintenance and utilisation of ICT services within the scope of IFDF;
- Commission research topics and other initiatives to support usage and utilisation of ICTs in Nepal, and propose such research topics and initiatives to other relevant institutions.

**12. COORDINATION COMMITTEE, PURPOSE**

- Assist IFDF in development of overall policies on information and communication for rural areas;
- Assist IFDF in developing policies and strategies for development of specific sector in ICTs;
- Coordinate among various stakeholders in gathering data and identifying issues;
- Share information on upcoming and running programmes with various stakeholders;
- Share information on the current socio-economic and political situation in the country and advise IFDF on how best to work within such a socio-economic and political environment.

**13. FURTHER IMPLEMENTATION PLAN**

- Two manuals are provided to structure and operate each of funds.
- These manual contains all procedural and operational principles and rules.
- Appropriate portion of these manuals could be basis of forming appropriate rules or bylaws.



**14. LEGAL STATUS OF FUNDS****RTDF**

- Being already setup by the section 30(4) of the Telecommunication Act, basic statutory ground is already in existence.
- Thus, any regulations formed as per clause 34A of the Telecommunication Rules could incorporate the proposed structure.
- Or under the authority given by section 30 (5) NTA could accept the manual as operational manual.

**IFDF**

- It could be set up as project governing body, established under the provisions of agreement between HMG and donors. In such case the manual could be annexed as part of project agreement.
- It could also be given legal personality by forming it under the Development Board Act, 2013.

# Increasing ICT Access in Rural and Peri-Urban areas of Nepal

Manohar K Bhattarai

ICT Consultant

Pilot Project and Implementation Modality

## 1. BACKGROUND

- Design and support HMG in conducting a pilot project for public access to ICTs

## 2. IN PERSPECTIVE - PHASE II ACTIVITIES

- Demand study
  - A thorough survey of selected locations to produce a detailed description of expectations for services in the rural and under served urban areas
  - The potential demand for new services, and technical, legal and business constraints for the delivery of additional services.
- Pilot project design
  - Appropriate zoning and determining objective service levels
  - Analyzing possibility of expanding point of presence,
  - Designing commercially viable of telecentres (ICT) projects to be expanded nationally
- Demand modelling
  - Report has been written as an additional contribution from the Consultant to Demand Study part of the work.
- Design of bidding process
  - Includes design of bidding documents necessary for the projects, preparation of regulatory structure of RTDF and its organization and procedures and RTDF manual. We have also included preparation of Draft IFDF (ICT Facility Development Fund) manual.

## 3. PILOT PHASE COMPONENTS VIS-À-VIS ENVISIONED DEVELOPMENT PATHS

- Cybercafes
- Telecentres
- Computers and Internet for schools
- Regional internet switching are proposed to be taken up for implementation
  - Community radio will have to wait for sometime. Telephone infrastructure project (PCOs included) to be provided with RTDF can wait for a year and two as massive CDMA and district satellite network of NT is under implementation now.

## 4. CYBERCAFES IN DHQS

- Objective : Provide internet access
- Operational premise:
  - multifunctional private entrepreneur owned businesses
  - >> creating capability in providing computer related services in the district level and making it viable business in the small towns of DHQs.
  - Interventions aimed at making cybercafes capable of providing computer hardware, software maintenance, and training in applications and use of computers >> makes reason to combine all these functions in one unit make a good business case in a DHQ given low demand for ICT related services.

## 5. CYBER CAFES IN DHQS

### Implementation modalities

- Collaborative arrangement involving RUPP (on a shorter horizon) and DLGSP (on a longer horizon)
  - Need to factor in role of municipalities and ultimately that of DDCs
    - MOU >> (NTA and RUPP/DLGSP)
    - Muni/TLO sensitized about the purpose of cyber cafes
    - RUPP/TLO identifies willing entrepreneur for running cyber café in DHQ (municipality)
    - Project funds the cost of training HR to effectively run and sustain telecentres (all aspects of sustainability)
    - Based upon needs, entrepreneur will have access to RUPP/MLD funds
    - RUPP/Municipality to monitor the project

## 6. PUBLIC INTERNET ACCESS POINTS (TELECENTRES)

- Telecentres>> to provide Internet access in RMCs
  - Guiding principle >> lessons learned so far

## 7. PUBLIC INTERNET ACCESS POINTS (TELECENTRES)

### Implementation modalities

- Collaborative arrangement involving RUPP) and DLGSP
- Need to factor in role of municipalities and ultimately that of DDCs
  - MOU >> (NTA and RUPP/DLGSP)
  - Muni/TLO sensitized about the purpose of telecentres as well as role of ICTs for development
  - Muni/TLO sensitized about as to how each of the actors – DDC, municipality and RMC could contribute
  - To ensure that RMC and DDCs collaborate to reflect telecentres in annual plans

## 8. PUBLIC INTERNET ACCESS POINTS (TELECENTRES)

### Implementation modalities

- TLO's in RMCs form user committees to implement and sustain telecentres
- TC users committee will one person initially to manage and operate the telecentre
- Capacity development – a key activity through project resources
- Telecentre management and info. Mobilization
- Email/ internet
- Shared responsibility – TC equipment – project, installation – municipality/ RUPP
- One time expense of 24k provide to cover 1 year of operation
- Handholing support by RUPP/DLGSP for 1 year

## 9. COMPUTERS AND INTERNET IN SCHOOLS

- A strategic move – students as change agents
- Objectives and targets :
  - Provide 80% of lower secondary schools and 100% of higher secondary schools and above with computers and Internet by the year 2015.

- Sub Target 1.1 (Pilot phase) – the projects for the high schools >> those districts where cyber cafes are being established in the DHQs and market centres are being provided with PIAPs.
- About 20 schools in each District will be taken up. This will be implemented within a year (2005-2006)

## 10. COMPUTERS AND INTERNET IN SCHOOLS

Implementation modalities

- Collaborative arrangement involving related national and International NOG's (with the option of making use of used equipment) – equipping > 1000 schools with connectivity and hardware a capital intensive venture...
  - Alternative path – using IDA credit to procure equipment
    - Access to latest technology and deploy configurations to suit local needs
- NTA shall work with one selected national level NGO.
- NTA will provide the fund necessary to import the used computers for the project
- The NGO will manage the entire project:
  - Importation of the equipment, safe keeping during the process of work, purchase of all the components of the equipment to be locally procured for installation,
  - Refurbishing if required,
  - Selection of school
  - Monitoring
  - Collecting the contributions from the schools required to meet some part of the project costs.
  - Getting equipment installed and teachers trained.
- Tripartite MOU :
  - among International NGO,
  - National NGO and
  - NTA
- National NGO will also develop local NGOs wherever possible to divide the implementation responsibility through them.
- DDCs/DOE/and VDCs – play important roles in monitoring and evaluation involving periodic reporting mechanism highlighting the progress made by the schools in computer education in the schools
- The project will also provide Internet connectivity when it becomes available and will subsidize first year of operation

## 11. REGIONAL INTERNET EXCHANGES FACILITIES UNDER ISPAN (NPIX):

Growing need of exchanging traffic among users of services of national ISPs locally

- Component aimed at extending this peering arrangement among ISPs also in other major towns than Kathmandu.
- NPIX (ISPAN) is an Association of ISPs working to build Internet switching facilities in the country.
- Recommendation - nPIX (ISPAN) be helped for funding the developing of some local switching facility and training small ISPs to enhance their capacity to understand the BGP technology and to be able to peer.
- Equipment and installation, training the ISPs and some salaries through project
- Modality of implementation: local competitive bidding .....

## **Committee for the Promotion of Public Awareness and Development Studies (COPPADES)**

**Dikendra Kanel**

### **1. COMPUTER AND IT EDUCATION**

#### **COPPADES with BCICT Project**

- COPPADES a leading NGO working in the field of ICT for the rural areas
- Focused on government schools and community people
- Standardizes the quality of education by adding IT on traditional education
- Contributing to the Bridging of the Digital Divide
- Launched ICT program Phase wise
- Launched phase One program in the year 2000
- Phase One covered 65 schools and communities from 8 districts
- About 20,000 students and 8,000 community people have learned computer applications annually
- Project is continuing
- Phase II program – Year 2005
  - 80 schools and community people from 22 districts
  - Approx. additional 20,000 students and 10,000 community people will learn computers and computer enabled IT

### **2. OVERVIEW OF IT**

- Use of IT exponentially grown in important businesses and services
- Access to information essential for improvement of the lives of people
- In the context of Nepal only very few people have access to IT
- The gap is growing

### **3. PROJECT OBJECTIVES**

- Promote access to knowledge and information as tools of equitable sustainable development
- Empower people, reduce poverty and improve lives
- Bring the power of the Internet to the people

**npIX**  
**Nepal Internet Exchange**  
**Gaurab Raj Upadhaya**

**1. WHAT IS NPIX ?**

- Nepal Internet Exchange (npIX), is a Layer 2 peering facility, located in Kathmandu. npIX is a neutral facilities providers, established through collaborative efforts of the Internet Service Providers (ISPs), and other industry players in Nepal.
- Currently, it's operating as a special project of ISPAN and CAN.

**2. OBJECTIVES OF NPIX**

- NPIX has two primary objectives.
  - To provide efficient interconnectivity within Nepal for the Internet (Core Activity)
  - To promote the interests of its Members (Non-Core Activity)

**3. PRE-REQUISITES FOR NPIX**

- Agreement in principle amongst all ISPs
- Other details
  - Physical Location
  - Membership policy / fees determination
  - Technical details
  - Peering Policy
  - Management guidelines

**4. LOCATION**

- Requirements
- Plenty of telecommunications pair
- High altitude for radio links
- preferably some kind of power back-up facility
- easy access for both ISPs and non-ISPs
- Building owner willing to make structural adjustments
- HB Complex, located in Ekantakuna selected as ideal location
- Building owner committed free space for the IX

**5. MEMBERSHIP POLICY / FEES**

- Pre Requisites for npIX membership
- There are three main prerequisites to becoming a NPIX Member:
  1. Candidates for membership shall be a recognized legal entity
  2. Candidates for membership shall have an ASN (Autonomous System Number) and use BGP4(+) routing protocol for peering.
    - The Autonomous System which the candidate is presenting to NPIX should be visible from the NPIX transit router
  3. The Candidates business shall have their own independent transit to the Internet.

Note: The candidate will also have to meet additional specific technical Requirements, which forms the basis of ongoing requirements for NPIX Members.

- Fees
  - One time fee Nrs. 10,000.00
  - Monthly fee Nrs. 5,000.00
  - Free for the first three months after connectivity

#### 4. TECHNICAL DETAILS

- Requirements for Peers
  - ASN is required for BGP
  - Most ISPs in Nepal, now have their ASN.
  - APNIC will process npIX requests on urgent basis.
  - Members provide their own connectivity equipment at both ends and can have redundant links in place
  - IX will help in implementing BCPs if requested, but peers are responsible to manage their routers
  - NPIX has the full capability and meets global IXP operations practices

#### 5. HOW TO JOIN NPIX?

- After the pre-requisites are met, the candidates are formally requested to join as members. The candidates can study the technical requirements and the Memorandum of Understanding governing the operation of the npIX.
- Once membership is processed, npIX will allocate the following resources for the use of the member.
  - IP address for peering interface
  - Rack space on the IXP for router, modem
  - Necessary cabling, patching and power supply.
  - Necessary time with npIX staff to aid in connecting
- The members will be responsible for terminating their own circuits to the npIX premises. Necessary procedures with the telecommunications company are the responsibilities of the candidate.

#### 6. PEERING POLICY/ MANAGEMENT

- Peering Policy
  - Peering Policy is normally determined by Peers based on bandwidth and value of the network
  - Members may have open peering policy
  - For NPIX, optional Multilateral peering policy available
  - Participants asked to peer with the npIX route server for routing data collection.
- Management
  - Legally under ISPAN, to be made a non-profit company next year. Separate management structure, with participation from all sides, and two general members meeting every year.
  - Membership fees decided on cost-recovery basis
  - “Pre-establishment” work done by an open working group (e.g, policies, location, staffing etc.)



## 7. SOME ADVANTAGES

- Savings in international bandwidth
- Statistics on Internet Infrastructure in the country
- Forum to conduct technical briefing and advanced network training
- Test bed to roll out new IP services (IPSec, IPv6 etc.)
- Forum for collaboration with international internet groups like APNIC, APTLD etc..

## 8. PARTNERSHIPS..

- Packet Clearing House, USA
  - Training at policy and technical level & Donation of Route Server and a switch
- Cisco Systems
  - Training and technical assistance, BGP/OSPF tutorials
- EP.net LLC
  - IP Address Block for IX Lan, technical support
- APNIC
  - ASN requests, member services
- APOPS / SANOG/ APRICOT
  - Educational interaction and training

## 9. WHAT WE WANT TO DO?

- Regional NPIX
  - The benefit of the NPIX is currently pre-dominantly to operators in Kathmandu Valley
  - We'd like to setup independent peering locations in other major city areas.
  - These local peering points will help the population in those areas
  - But owing to the underdeveloped market conditions in those areas, some sort of subsidy in operations will be required.

## 10. OTHER NPIX CONTRIBUTION

- npIX will soon host one of the Internet root servers, providing added resiliency to the Internet in Nepal
- npIX CEO helped in the formation of the IXP in Bangladesh, and also played a role in the establishment of NIXI. npIX being the first neutral IXP in the region.
- npIX successfully hosted the biggest Internet conference in the region - SANOG in 2004, in which more than 150 people participated.
- npIX has regularly run training programs for its members to enhance the internet experience in Nepal.