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for the

Ministry of Information & Communications (MOIC)

Workshop on Strategies for Increasing ICT Access in Rural and Peri – Urban Areas of Nepal

December 31, 2004

(held at Hotel Blue Star, Tripureshwor, Kathmandu)

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ABBREVIATIONS

CDMA	Code Division Multiple Access
CR	Community Radio
DDC	District Development Committee
GHz	Giga Hertz
HLCIT	High Level Commission for Information and Technology
HMG/N	His Majesty's Government of Nepal
ICT	Information and Communication Technology
IT	Information Technology
ISP	Internet Service Providers
MOIC	Ministry of Information and Communication
NEA	Nepal Electricity Authority
NPC	National Planning Commission
NT	Nepal Telecom
NTA	Nepal Telecommunication Authority
PCO	Public Communication Office
RTDF	Rural Telecom Development Fund
SAARC	South Asia Association for Regional Cooperation
UTL	United Telecom Limited
VDC	Village Development Committee
VSAT	Very Small Aperture Terminal
WLL	Wireless Local Loop



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1 INTRODUCTION

A one day **Workshop on Strategies for Increasing ICT Access in Rural and Peri – Urban Areas of Nepal** (*herein after termed as Workshop on Strategies*) was held on 31st of December 2004 under the study commissioned by the Ministry of Information and Communications on– “*Increasing ICT access in rural and peri – urban areas of Nepal (PS-4)*”, with the World Bank assistance.

The overall structure of the World Bank funded project is divided into three phases. The specific tasks in the *Phase I* entailed development of a paper that gives an overview of the sector and reviews the international experiences and preparation of a strategy paper.

Phase II entails designing of the pilot project, conducting a demand supply, designing a bidding process for the pilot project, and carrying out in-house capacity building activities through participation in the study process, seminars and hands-on-training. Similarly, *Phase III* entails providing support to His Majesty’s Government of Nepal (HMG/N) in conducting the competitive bidding process under the pilot project designed in *Phase II*, and carrying out negotiations with the winning bidders.

The *Expert Strategy Workshop*¹ was conducted prior to the current *Workshop on Strategies* with the aim of giving proper shape to strategy discussion paper in preparation for this Workshop. The Expert Strategy Workshop came up with following conclusions.

- For the ICT development both top down and bottom up approach would be appropriate.
- Infrastructure expansion and development along with addressing the fundamental needs like awareness raising, creating a need to use ICT, etc should be commenced simultaneously
- Many smaller projects as well as few larger projects should be piloted on the basis of need identification.

The **workshop on strategies** for increasing ICT access in rural and peri-urban areas of Nepal aims at exploring alternative options for developing strategies on processes, institutions and rural telecom infrastructure and internet access strategies in rural and peri-urban areas of Nepal.

¹ The Expert Strategy Workshop was held at IDMS (Institute of Development Management Studies), Kupondole on 30 November 2004 and was facilitated by Ms. Claire Milne. The main objectives of the workshop was to explore constructive suggestions and to stimulate constructive discussions which in turn will aid in developing full agreed strategic paper for the Increasing ICT access in rural and peri-urban areas of Nepal.



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1.1 Objective of the workshop

Overall objective of the workshop was to answer the question – *how to increase ICT access to the rural and peri – urban areas of Nepal?* Moreover, specific objectives of the workshop are to:

- Discuss on sector overview, Nepal's experience in ICTs and relevant international experience and institutional requirement of developing ICTs with subsidies
- Build consensus on draft strategy on process, institutions and options of ICTs
- Explore constructive suggestions and inputs from participants to develop future strategies for ICT development.

2 SUMMARY OF THE WORKSHOP PROCEEDINGS

The main purpose of the workshop was to develop consensus among all the experts and concerned stakeholders on strategies for increasing ICT access to rural and peri – urban areas. The one day workshop was conducted in four sessions.

- Inaugural Session
- First Working Session
- Second Working Session
- Third Working Session

At the end of each working session the floor was opened for a short duration for comments and questions from the participants. The schedule of the workshop is attached in the *annex I* of this report.

3 INAUGURAL SESSION

The Workshop on Strategies was inaugurated by Honourable Minister of Information and Communication Dr. Mohammad Mohsin and the inaugural session was chaired by Mr. Sharad Chandra Shah, Honourable Vice Chairman of HLCIT.

3.1 Welcome Speech by Joint Secretary of MOIC Mr. Mukunda P. Acharya

Joint Secretary of MOIC Mr. Mukunda P. Acharya welcomed distinguished dignitaries and participants and thanked in particular, those members who had agreed to facilitate, make presentation and chair sessions. Highlighting on the purpose of the workshop, Mr. Acharya opined that the workshop would mainly focus on how to make ICT access to the rural community and how they would be benefited from the ICT services. In addition, Mr. Acharya added that the workshop would ultimately help to develop a strategy for the ICT services to the



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rural communities; bring consensus among all the concerned stakeholders participating in the project including policy formulating bodies.

3.2 Introduction to the Project by Mr. Gajendra Singh Bora

Mr. Gajendra Singh Bora provided an introductory remark to the project – *increasing ICT access in rural and peri – urban Nepal*, and the purpose of the workshop. He highlighted on the work so far accomplished by the team and the objectives of the study which included gathering international experiences that may be considered relevant for Nepal in the ICT sector; sector overview study of rural settings including developmental activities of rural areas and ICT sector status; and preparation of draft strategy for discussion.

Mr. Bora stressed that it was necessary to appreciate the diversity that exist in geographical settings, in population distribution, culture and ethnicity and poverty and illiteracy while designing the ICT interventions for rural and peri-urban areas of Nepal. Mr. Bora said that among the ICTs community radio was a real success in rural communities. Mr. Bora highlighted the findings of the study and categorically pointed out actions required by relevant institutions on solving the problems of regulatory and policy nature that need immediate attention of the authorities. The findings of the study which were taken into consideration for designing the discussion paper on strategies were also presented in summary. As co-team leader, Mr. Bora hoped that the workshop would come up with a general consensus on building draft strategy on options of ICTs, policies, processes and institutions for implementation of the ICT access in the rural and peri-urban areas of Nepal.

3.3 Remarks of Honourable Vice Chairman of HLCIT, Mr. Sharad Chandra Shah

Mr. Sharad Chandra Shah remarked, “We all have a dream – the dream is that all of us will get connected and we can reach all over the world through connectivity. It is necessary to think how we can transfer the intellectual input of this room internationally. It is the question of connectivity.” Mr. Shah emphasised on how to represent ourselves and interact in global networking is the major issues that needs to be addressed. For this, he said that it is necessary to consider how developed countries have put their concepts on ICT sector. Mr. Shah congratulated organising committee of the workshop and assured his presence and support for the project in future.

3.4 Remarks of Hon. Minister of Information and Communication, Dr. Mohammad Mohsin

Honourable Minister of Information and Communication Dr. Mohammad Mohsin put forward his opinion by citing an example from the book ‘Future Shock’. He said, “In the 21st century, definition of literacy will change”. He added “Those people are called literate who can learn



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quickly. In this era people are dragged by future". He remarked that "Those people or even Nations will move to the path of success who thinks more about future." He emphasised on importance of information and communication systems in the development of human society by saying that in these decades man has made drastic change due to advancement in IT sector that had not been achieved in ten thousand years of human history.

Dr. Mohsin requested the participants and stakeholders of the ICT sector to decide which of the following two paths to follow: *mutually assured destruction*, or *mutually assured survival and progress*. He added, "First path lead us ultimately to the destruction knowingly or unknowingly. For instance, invention of atomic power, increase in pollution leading to ozone layer depletion, etc. Similarly, the second moves us forward with the cooperation and support and mutual understanding, towards development and in turn saving of our planet from destruction as well".

Dr. Mohsin further emphasised, "Physical resource alone is not enough for development. In the 21st century, knowledge and information count more in this respect". He underscored the importance of access to ICTs to initiate people centred development. He stressed that politically talking about enfranchisement has little value unless real participation of the people is assured and to bring people's participation people need access to ICT facilities. In the process of development of ICTs for the rural areas, Dr. Mohsin put forward following issues which need to be addressed immediately.

- Digital disparity between urban centres and rural areas; e.g. more than 69% of ICT experts are concentrated in Kathmandu
- Gender gap – hardly 14% female are involved in ICT sector
- E- government concept emerging, however, government has shown its negligence towards it by not having sufficient ICT experts in this sector

In the context of Kathmandu being designated as SAARC Information Centre, Dr. Mohsin said that more responsibilities are upon the ICT experts to make it exemplary in SAARC Region. For this Honourable Minister called for the collaborative efforts to enrich the information Centre by making it the database of social, economic, and cultural information of SAARC nations.

3.5 *Hon. Member of National Planning Commission Dr. Hari Krishna Upadhyaya's remarks*

Acknowledging distinguished guests, chairpersons, and the participants, Hon. Member of NPC, Dr. Hari Krishna Upadhyaya expressed that prosperity had changed tremendously during the last decade. Life expectancy, service access, and even change in prosperity and better livelihood had direct linkage with ICT. He said, "In the world of modernisation, indicator of prosperity of people as well as of a Nation is counted on the basis of use and access to ICT services and it can be inferred that ICT is a daily necessity for improved livelihood." He stressed the important role of ICT for improving livelihood of the people. Highlighting on the main agenda of the



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workshop – how to increase the access of ICT and therefore ensure productive use, Dr. Upadhaya emphasised it from economic perspective i.e. demand and supply side of ICT services.

Dr. Upadhaya giving the perspective of an economist said that many constraints existed from demand side impeding ICT service development, namely:

- Poverty
- Low willingness to pay
- Economic disempowerment
- Economic hardship often being barrier even if prices were nominal
- Lack of awareness about the value and benefits of ICT

Dr. Upadhaya also highlighted impediment to ICT service development from supply side. Difficult terrain, inadequate infrastructure, weak institutions and weak enforcement of policies systems and regulatory and policy environment not being dynamic and responsive to the changing environment were some of the supply suppressing issues identified by Dr. Upadhaya.

Dr. Upadhaya emphasised that to address the constraints that are seen on demand and supply of ICT, tremendous exercise need to be executed for the formulation of the software. The formulated software or process should incorporate social mobilisation that would be able to show the importance or value of ICT for enhancement of livelihood of the people. Dr. Upadhaya further stressed that future sustainability of the ICT projects would be possible only when economic values of the ICT services become visible to the people.

Dr. Upadhaya congratulates three district office of the valley for using IT for distribution of citizenship. Dr. Upadhaya finally concluded by asking participants to consider as to how we can balance supply and demand side of ICT services and how effectively we can work not only to widen access but also to promote more effective and economic use of ICT access.

3.6 Vote of thanks from Joint Secretary of MOIC, Mr. Sushil Ghimire

Mr. Sushil Ghimire, Joint Secretary of MOIC, provided vote of thanks to Honourable Minister, Hon. Member of HLCIT, Hon Member of National Planning Commission Secretaries of MOIC, and MOST and other distinguished guests, experts and participants for showing their presence, and for providing key remarks on the workshop.

Mr. Ghimire said that, for land-locked countries like Nepal, use of ICT would help in disseminating information successfully and easily even to the third countries. Nepal could advance in the process of globalisation and e-governance sector with the use of ICT. Mr. Ghimire emphasised that 10th Plan has incorporated poverty reduction through ICT. In the process, different line agencies, government and non governmental organisation are moving



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forward. Our concern is how to streamline different activities being undertaken by different line agencies ultimately achieving ICT access to the rural people and adoption of a concept of e-governance for good governance. In this regard, Mr. Ghimire opined that HMG bodies, for instance, district office, immigration department, etc should explore the possibility of use of ICT for better and faster services.

Mr. Ghimire emphasised that huge investment has been made in the ICT sector. However, the expected outcome has not been achieved. He congratulated the Consultancy Organisation composed largely with local expertise familiar with local environment for winning internationally announced bidding process. Mr. Ghimire showed his expectation that the Consultancy Team would come up with concrete strategy paper. Finally, Mr. Ghimire once again showed his heartfelt gratitude to the honourable dignitaries, distinguished guests, chair persons, experts and participants of the workshop.

4 WORKING SESSIONS

4.1 First working session

First working session was chaired by Dr. Hari Krishna Upadhaya, Hon. Member of NPC. The session mainly focused upon **ICT for rural and peri-urban areas and strategies development**. Five ICT experts presented on various topics related to ICT development. A brief summary of the presentations made by each expert is given below and presentations are attached in the *annex II* of this report:

Mr. Gajendra Singh Bora in his presentation on “*overview on telecom infrastructure and internet*” emphasised that Telecom Policy – 2004 has created favourable condition by fully opening licensing (except in scarce spectrum case which is limited in number due to spectrum itself). He described the existing telecom sector structure in Nepal. He took few minutes highlighting existing ICT services; telephone facilities, mobile services, WLL – CDMA systems, and Internet development in the country. More importantly, he said that existing infrastructure was not suitable for expanding Internet in the rural areas and the situation was not going to change greatly in the coming three years considering the plans of the Nepal Telecom, and existing operators other than NT were not likely to be players in the long distance infrastructure for sometime in future. He stressed that regulatory interventions were needed for implementing the telecom policy. *Lack of one door policy in providing spectrum that frustrates licensees, slow implementation of Telecom Policy that hinders liberalisation of the sector in general and impedes development of rural telecom services are some of the issues that were raised during his presentation.* He even outlined the action and agency concerned to solve each of the regulatory and policy issue identified. He also suggested that license free bands of spectrum that are used in WiFi radios in most of the developed countries also need to be freed for development. This could easily be addressed by the MOIC. He put



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forward some of the issues of infrastructure and Internet development in rural and peri-urban areas that would require discussion and consensus during the group work

Mr. Satish Kharel presented on *“the relevant international experiences on ICT development”*. He provided many successful stories regarding ICT. One of the interesting cases which might be relevant to Nepal was the case of ‘Gramin Sanchar Sewak’. This programme was launched in Madhya Pradesh, India where postmen carry mobile phones that can be used by villagers. It is a type of walking PCOs. In the context of Nepal where postal services has covered almost all the district of Nepal, walking PCOs could be one of the relevant options to provide access to ICT to the rural communities. Finally, Mr. Kharel concluded his presentation by emphasising on the fact that international experiences are interesting and a source of learning. However, we cannot expect to copy exactly what works elsewhere.

Mr. Manohar K. Bhattarai gave his short presentation on *“lessons learnt from tele-centre and other ICT initiatives in rural Nepal and tele-centre/ICT implementation approaches”*. His main focus was to provide answers on some of the questions like:

- Can ICT catalyse the development processes?
- Can ICT meaningfully bridge the gaps in government service delivery?
- Are telecentres best models to bridge digital divide?

The issues that were raised during the presentation included the existence of wide disparity between rural and urban areas on access to basic ICT services, lack of adequate telecom infrastructure in the country, challenges posed by prevailing security situation, and more importantly, critical sustainability issues surrounding telecentres and rural ICTs. Taking stock of the current situation of Telecentres in the country, Mr. Bhattarai said that poor infrastructure (mainly telecom and electricity) and high cost of connectivity coupled with the lack of locally relevant contents and services and worsening security situation, among others, have contributed to the slow expansion and poor performance of telecentres in Nepal. Mr Bhattarai also remarked that the pilot initiatives launched so far did not provide for a sustained mechanism of engagement with the participating communities where such centres were launched, resulting in inadequate handholding support required to bring the telecentres to a level of maturity where they could develop themselves into self-sustaining institutions.

This was particularly important given relative novelty of the concept especially in the rural settings. Mr. Bhattarai argued that the issue of value creation through ICTs (in terms of development models, contents and services) to the rural communities must be one of the key strategic orientations of deployment of rural ICTs. Finally Mr. Bhattarai concluded his presentation by saying ‘building successful community telecentres takes time and needs continuing support from all the associated stakeholders’.



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Providing presentation on “*community radio in Nepal*”, **Mr. Vinaya Kasajoo** spent some of his time on providing the concept of community radio. His foundation of the presentation was community radio is for the community and is developed by the community people. Community radio disseminates locally developed relevant contents which are easily palatable to the rural people. Mr. Kasajoo further emphasised on problems facing by community radios. In his opinion, lack of clear policy on community media and lack of laws and regulations on differentiating community radio from commercial radios are some of the important issues. Formulation of new policies, laws and regulations, state support to community radio, etc were some of the recommendations cited by Mr. Kasajoo for the betterment of community radio.

Presentation on “*increasing ICT access – development path and strategies*” was given by **Mr. Suresh Kumar Regmi**. In his presentation, he emphasized that diversities in culture, ethnicity, language, literacy, economy of the people and the geography of the country have huge implications on strategy development in ICT sector. Mr. Regmi highlighted some other principles of strategy development and explained different barriers to increasing ICT access. Supply side barriers are the closed telecom market and inadequate resources to deliver services, where as demand side barriers are that all people do not have enough money to pay for the services and ICT is not seen as a priority. He suggested that some of the ways in which these barriers can be addressed are: injecting cash strategically, opening licensing, mobilising communities, and developing relevant contents.

Mr Regmi listed a variety of possible development paths for increasing ICT access and also emphasised on “bottom up and top down approach” – both are essential in the context of Nepal². Some of the bottom up outline strategy includes - increasing awareness of ICT capabilities, supporting preparing proposals & business plans, including ICT in the participatory planning process and using RTDF for the implementation of community plans. Some of the top down actions that can be taken are – implementation of Nepal Telecom Policy 2004, coordinating different ICT programmes, producing relevant content and services, government leading by example etc. He outlined some of the piloting that needs to be carried out during this project.

4.1.1 Some key comments raised from the floor

Important comments and feedback raised from the floor are given below.

- Developed strategy should come up with detailed plan. For instance, exact institutional responsibilities should be incorporated. Time frame should be drawn, for instance, when to commence the project, or phase wise implementation of the project or some other

² Top down and Bottom up approach for ICT development was agreed issue in the Expert Strategy Workshop.



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alternatives should be clearly defined. The strategy should also incorporate resource requirements and means or way of fulfilling it.

- 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 like telecentres, community radios, etc.
- Comprehensive study on the spatial distribution pattern should be performed for the establishment of new telecentres and other ICT service centres.
- Gender incorporation is prerequisite issues while exploring options for content development.
- Sustainability of ICT projects would be ensured if the awareness raising activities are performed from school level i.e. by incorporating ICT in course curriculum. More importantly, identifying what sort of contents do local people give priority should be explored.

4.1.2 Bottom line considerations from Chairperson Dr. H. K. Upadhaya

- Rural – Urban digital divide has heightened up. In this regard, how to package a strategy which ultimately addresses the digital disparity, and provide equal access of ICT to the rural people regardless of their ethnicity, gender, and economic status, is the main concern.
- The other consideration is packaging of ICT services. Whether to take the ICT as a stand-alone or to see it in totality, with an integrated-holistic approach, linking with over all human welfare are the issues that need to be addressed. It is obvious that, no matter how much information we have, what eventually happens in the field is what people get. Mere physical presence of the ICT services does not mean much, how to ensure its optimal use is the subject that needs to be addressed with caution.
- The issues of ICT sectors are more related to beyond its sectoral issues such as infrastructure, language, literacy, etc. So the concern here is how these beyond sector issues would be addressed.

4.2 Second working session

Second working session revolved around **subsidy management and institutional strategy for ICT development** and was chaired by Mr. Mukunda P. Acharya, Joint Secretary of MOIC.

Mr. Gajendra Singh Bora once again had a presentation on the topic '*subsidy management*'. His main argument was in rural areas where commercial viability of ICT does not exist – some sort of subsidy will be required for its development. Citing example of least subsidy bidding and tender procedures of Chile and Uganda, Mr. Bora said that the success in these countries was due to existing competitive service provision and presence of several providers in the countries. The Nepalese case cannot be said very successful one in this regard due to lack of competition and having no possibility to for purely Nepalese investors compete in the bidding. He said that



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qualification of the bidder was one restrictive item for Nepali entrepreneurs to participate. He emphasised that even for Nepalese entrepreneur the management skills and technical know necessary for telecom operation is available in the market who is prepared to take risk in investing for anticipated gain. The Telecom policy already has outlined that it is necessary to find which areas are commercially viable by opening competition and covering the maximum of rural areas by competition first, and then providing subsidies in unprofitable areas. However, not all the ICT facilities, that are required for rural and peri-urban areas and where community ownership is desired, are suitable for least subsidy bids. Therefore, such provisions in the community level would require different policies for managing ICT access with subsidies. The management of subsidies and transparency required needs substantially different approach along with social mobilisation and community participation playing a crucial role in value creation to the people and suitability of the facility point of view. Examples of similar cases exist in number of areas of rural development, for instance, in Alternate Energy Promotion, Rural water supply and sanitation and poverty alleviation fund programmes.

Mr. Mohan Das Manandhar presented on *"institutional requirements for implementation of ICT projects."* Mr. Manandhar emphasised mainly on two types of institutional requirements: the first one was *communication infrastructure for rural communities* e.g. institutional arrangements to disburse RTDF for development of communication infrastructure. The Telecom Act stipulates that NTA is entirely responsible for creating and disbursing the Fund for rural Telecom development. However, he stressed that some what autonomous unit under NTA would be suitable for managing RTDF related activities to help NTA to devote itself mainly for its regulatory functions. And the second was the *type of institution needed to manage subsidies for ICT access services for rural communities* – institutional arrangement for promoting demand in rural communities for ICT services and creating a viable transparent subsidy management institution in managing varieties of ICT activities to satisfy the diverse demand.

4.2.1 Some key comments raised from the floor

- The project of ICT which is under process in Eastern Region of the country has been utilising the World Bank's fund. There is no share of RTDF in that project. Share of RTDF in the project would have been possible if RTDF generating body has shown interest upon it.
- The fund generation under RTDF is clear, but what is required is the best modality for its optimum utilisation. Hence, creating a more participatory and transparent independent autonomous body within NTA would be more practical for optimum utilisation of RTDF.
- In NTA's scope of work, RTDF generation part is clear, however, NTA is unable to define utilisation and operational modality of RTDF.
- Tele Communication Department of India utilises the fund similar to RTDF mainly to promote PCOs in rural area. In context of Nepal, Nepal Telecom Act does not restrict



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the use of fund to any other project related to telecommunication. Concept of creating this fund was developing telecommunication in rural areas including ICT. RTDF was not developed to fund the bigger project but to provide and create communication facilities in those areas where there are no or minimum telecommunication facilities. RTDF has about 3 million dollar and to invest this fund, it does not require a separate entity, however, separate management unit can be created within NTA with board of director, government representatives and community representatives including operators (service providers), which can develop all the procedures, policies etc for ICT development.

4.2.2 Bottom line considerations from Chairperson Mr. M. P. Acharya

- There are more areas to be explored for telecommunication facilities. Demand is ever increasing and we haven't explored much for the possibilities of ICT expansion.
- Nepal Telecomm Act has clearly mentioned that we can easily use the RTDF for ICT expansion and development in rural sector. However, appropriate institutions and procedures should be developed.

4.3 Third working session

Third working session was designed for **group work** where participants were divided into three groups respectively and were given three different topics to work on. The session was chaired by Mr. Sushil Ghimire, Joint Secretary of MOIC.

Table 1: Topics allocated for each group

GROUP	TOPICS
GROUP A	Developing Strategy Options
GROUP B	Rural Telecom Infrastructure and Internet Access Strategy
GROUP C	Institutional Options for ICT development



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4.4 Outcomes of Group Work

4.4.1 Outcomes of Group A

Table 2: Outcomes of Group A

Group A	DEVELOPING STRATEGY OPTIONS
GROUP A	<ul style="list-style-type: none"> • In the context of Nepal, both top down and bottom up approaches are essential for rural ICT development. Top down approach would be essential to create enabling environment through policy and regulatory interventions whereas bottom-up approach would draw its rationale from the need to stimulate local demand for ICTs in rural settings, raise level of awareness and develop contents and services that are aligned with local needs and requirements. • The key areas where ICTs could be most effectively deployed is the education sector. This will serve to stimulate demand for ICTs at the local level. • The issue of locally relevant contents and services would be a critical factor in successful deployment of rural ICTs beyond provision of telecommunication facilities. The initiatives aimed at content development should factor in the issue of geographic as well as ethnic diversity in the country. From sectoral perspectives, contents and ICT-enabled services in the area of health and agricultural, among others, need to be developed in order to ensure value creation through ICTs. • PTD (Participatory Technology Development) would ensure a feeling of ownership and in turn address sustainability issues. • Initiatives aimed at expanding ICTs access to rural and peri-urban areas must ensure a mechanism whereby all pertinent stakeholders are involved. Women participation in such initiatives is a must. • In order to ensure that RTDF resources are effectively leveraged to create community value through ICTs under more participative and competitive framework, initiatives must be undertaken to raise public awareness through print and electronic media including CR (Community Radio). • Ensure that the implementation modality of RTDF is inclusive in that all key stakeholders are represented in its governance structure including its monitoring and evaluation aspects • Develop strategies for promoting both on-line and off-line usage of ICT resources, mainly PCs and other related equipment.



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Group A	DEVELOPING STRATEGY OPTIONS
	<ul style="list-style-type: none"> Assess and evaluate current rural ICT initiatives and implement strategies aimed at addressing shortcomings and challenges that such initiatives are currently facing so as to help them mature to self-sustaining implementations and models that can be replicated. Create conditions for expansion of Internet POPs through private sector initiatives. Local call mechanisms available through NT-run Internet POPs in the district should be expanded to include ISPs established by the private sector or other agencies. Strategy for expanding ICT access to rural and peri-urban areas should be geared towards achieving a) <i>Short term</i> targets and goals in peri-urban areas and b) <i>Medium term</i> targets and goals in rural areas.

4.4.2 Outcomes of Group B

Table 3: Outcomes of Group B

Group B	RURAL TELECOM INFRASTRUCTURE AND INTERNET ACCESS STRATEGY
GROUP B	<p>1. <u>Telecomm Infrastructure (Backbone):</u></p> <ul style="list-style-type: none"> Micro-wave – projection period end of 2005. VSAT – completed by 2007 <ul style="list-style-type: none"> East West Fibre Optical Access completed by NT under Indian Government has served as an important backbone for ICT development. NTA should ensure that easy access at reasonable price to this backbone is made for the private users and private entrepreneurs. Private participation and their stake on the Fibre Optics should be ensured to obliterate monopoly in case third party might create monopoly when it has its full stake on it. This implies that government should examine if part ownership of it by operators other than NT can be worked out as it may be desired by the operators to counter the likely monopolistic behaviour of presence of only single provider (NT).



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Group B	RURAL TELECOM INFRASTRUCTURE AND INTERNET ACCESS STRATEGY
Group B	<ul style="list-style-type: none"> Nepal Electricity should be encouraged by the government to speed up provision of East-West as well as North-South (in several corridors) fibre through economical OPGW technique in the Kingdom. <p>2. <i>Internet Access Strategy:</i></p> <ul style="list-style-type: none"> For rural areas internet including access network, license fee, royalty and RTDF should be fully waived. For accessing private ISP within the development region (there are five development region in the country), local dial up charge should be applied for users of the region. RTDF – 2% should remain as a contributing fund raising activity for rural ICTs. Royalty in Internet including in the Community Broadcasting should either be decreased from its present 4% to lowest possible percentage. (4% royalty is high for small ISP and broadcasters) WiFi Band (2.4 and 5 GHz) should be made license free for all infrastructure development for all areas, if not at least for rural areas and cities other than Kathmandu immediately. Implementation of Telecomm Act and Radio Act should be harmonised in respect of radio equipment usage for licensees of NTA. It can be said in another way i.e. radio equipment importation coordination function and spectrum assignment should be managed only through NTA for licensees of public telecommunication services including Internet. MOIC and NTA should take immediate steps in this direction. National Telecom Act, 2004 with amendments should be implemented as soon as possible. <p>Comments:</p> <ul style="list-style-type: none"> Two private operators are now existing – UTL and STM. Will they agree to bear the local rate within a region? Nepal Telecom will definitely agree to bear the cost as it is Government Company. However, the major question is who will bear the transmission cost while implementing local rate within a region. The issues of imparting local rate within a region should come up in the government policy as well.



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Group B	RURAL TELECOM INFRASTRUCTURE AND INTERNET ACCESS STRATEGY
	<ul style="list-style-type: none"> • Possibilities of subsidised rate for internet access in certain time or ‘off time’ period should be explored. • For private sector to use optical fibre, it would be the responsibility of government to create a favourable atmosphere so that monopoly power is not misused i.e. NTA should regulate the lease prices of incumbent operator. The government should encourage NEA to construct fibre networks and lease infrastructure to private sectors.

4.4.3 Outcomes of Group C

Table 4: Outcomes of Group C

Group C	INSTITUTIONAL OPTIONS FOR ICT DEVELOPMENT
GROUP C	<ul style="list-style-type: none"> • RTDF could be divided rationally for infrastructure development and for its application. <ul style="list-style-type: none"> ○ (Say) 60% of the fund for infrastructure development. Unless and until we have infrastructure, it would be difficult to go to its application part. ○ Remaining (say) 40% for applications, for instance, computers/radios, and even to community strengthening works, awareness raising, etc • RTDF fund should be utilised as per the Nepal Telecom Act. For this concrete governing board or body should be institutionalised for fund management, policy development and development of project format and even for approval of the projects. Importantly, it has also responsibility of approving projects auctioned to the private sectors. • Structural composition of the purposed institution will incorporate all the line agencies and concerned stakeholders. For instance, NTA, concerned Ministries, Operators, Local representatives, ISPs, professional and experts – including women.



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Group C	INSTITUTIONAL OPTIONS FOR ICT DEVELOPMENT
	<ul style="list-style-type: none"> • Management unit should be a part of NTA. This will work as a secretariat with responsibilities of daily administration and project execution. • Monitoring by line agencies. Group incorporating line Ministries should be formulated for monitoring and evaluation. <p>Comments: Using and administering RTDF fund for infrastructure development and connectivity is relatively easy. What is important is how to manage the proportion of RTDF fund that will be used in other ICT applications. Managing 40% fund in this case, is not an easy task because it includes variety of items and basically owned by communities. Should regulator be involved in managing this 40% fund that will go to the rural communities and should regulator be involved in such activities. Should regulator at all do that? Group should focus and consider that regulator does not get bogged down in other activities too much than proper regulation of the Telecom sector.</p>



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5 MAIN CONCLUSIONS AND RECOMMENDATIONS FROM THE WORKSHOP

In the development of ICT services in the rural and peri-urban areas of the country, the importance of the MOIC and other agencies was emphasised in the workshop. The importance of identifying and addressing new challenges to ICT development, and coming up with an agreed strategy and plan of action as a part of the project was highlighted.

5.1 Important points raised in the workshop

A number of important points were raised. These are:

- Telecom Policy – 2004 has created favourable condition also for rural telecom infrastructure development by fully opening licensing to all who desired to provide services (except in scarce spectrum case where number of service providers will be limited).
- Diversity in language, culture, ethnicity, geography and economic activity has strong implication on ICT strategy and appropriate options for rural and per-urban areas, therefore, will vary accordingly.
- ICT demand was suppressed due to high rate of illiteracy and poverty, and lack of making local people aware about the enhancement in livelihood that would come about through ICT access.
- Similarly, ICT supply was suppressed due to inadequate infrastructure, difficult terrain and cultural and language barriers.
- Lack of appropriate infrastructure is and will also be for sometime one factor among other bottlenecks for rural Internet development and expansion.
- CR (community radios) initiated through community, are gaining popularity and valuable in development of rural communities like Palpa, Gumli, Arghakhanchi, and whole of Lumbini Zone and some other parts of the country.
- Community Radios can be considered exemplary in the context of Nepal. However, lack of clear policy on community media and lack of laws and regulations on differentiating community radio from commercial radios are some of the barriers that are being faced by CRs.
- It was recognized that sustainability issues of rural ICTs could be addressed to some extent by creating the demand for services by the communities themselves. However, the role of State in sustaining the services in the context of more difficult and poorer communities cannot be ignored.



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- One of the key remarks made in the workshop was that providing access to physical facility is important, but even more important is to insure its optimal use by creating value from the service for the community.
- Poor infrastructure and high cost of connection, unavailability of locally relevant contents, worsening security situation, etc has resulted in the slow expansion of telecentres and also cause of failure in most cases in the existing rural setting.
- Various International ICT application experiences have relevance in ICT service development also in Nepal, however, it would not be appropriate to copy exactly what works elsewhere.
- Relevant content development was considered as extremely important aspect for making ICT access worthwhile for the communities. Some participants strongly felt that this particular item, which is very important for ICTs provision to succeed, as missing from this study.
- Mere physical presence of the ICT service is not enough, how to ensure its optimal use is the subject that needs to be addressed.
- It was recommended to formulate management unit or an institution as a small entity of NTA. The institutions thus formulated within NTA would be responsible for formulating policy to manage fund (RTDF) and approve projects regarding ICT in rural sector.
- Sustainability issues of telecentres and existing ICT services in the rural environment should also be explored. It was recommended that feeling of ownership rooted in the rural community and central level support initially for certain period should be provided for sustainability of ICT projects and more importantly, demand driven ICT services should be provided to the people.
- ICT projects should not entirely depend on the central governing bodies. Fund should be generated from the local bodies. Incorporating local bodies, for instance, VDCs and DDCs would enable fund generation.
- Collaboration with postal services would be one of the viable options for ICT expansion. More than 60 districts have post offices in district and lower levels with adequately qualified employees which could gainfully be utilised, after proper training, for ICT expansion by providing certain incentives like additional remuneration. Even offices and infrastructures of post offices could be used for ICT services. Health Posts and Schools were also thought of value in creating ICT facilities for them selves and also for communities.
- Rural – Urban digital divide is ever increasing. In this regard, how to package a strategy which ultimately addresses the digital disparity, and provides equal access of ICT to the



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rural people regardless of their ethnicity, gender, and economic status, is the main concern.

5.2 Recommendations from the workshop

The key points which were raised as well as main points which figured in recommendations of each group are as below:

- Both on-line and off-line technologies should be used for rural ICTs.
- *Incorporation of ICTs in educational systems* would build the capacity of rural people and would create the demand on ICT sector from the rural communities. Location specific and general content development package of practices useful to the communities is necessary for making ICT infrastructure facilities useful to the people.
- Strategy for ICT development should be divided into two terms: *short term* targets and goals for peri – urban areas whereas for rural areas, *medium term* targets and goals should be considered for ICT implementations.
- In the context of Nepal *bottom up as well as top down* approach for the development of ICT is essential. Bottom up approach was considered necessary for increasing awareness of communities about usefulness of ICTs and having the important role of community in participatory planning processes. Top down approach as managing subsidies such as RTDF to support implementation of ICTs for community including creating favourable policy and regulatory environment such as implementation of Nepal Telecom Policy 2004, coordinating different ICT programmes, and for developing tools and techniques for managing transparent implementation of subsidy in ICT development for rural areas also is equally important.
- *Subsidies are essential for the ICT development* in our rural settings. In general for sizable infrastructure projects, providing subsidies in unprofitable areas on the basis of competitive bidding for least subsidy is a good approach. However, most of community owned ICT facilities to be created on demand driven fashion may not be suitable for competitive bidding for least subsidy. Similarly small access network facilities may also be created under some sort of subsidy criteria without going into least subsidy bidding. Therefore, to manage the second type of ICTs facilities for the communities, transparent policy for subsidy and its management by proper institution would be necessary.
- RTDF should be utilised to create public awareness through electronic media including CR (Community Radio,) as well as Print media.
- *RTDF fund should be utilised as per the Nepal Telecom Act.* For this concrete governing board or body should be institutionalised for fund management, policy development and development of project format and even for approval of the projects demanded by



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- communities. Importantly, NTA has also responsibility of approving projects implemented through the private sectors on least subsidy bids.
- Structural composition of the purposed institution (institution for implementation of ICT project) will incorporate all the line agencies and concerned stakeholders. For instance, NTA, concerned Ministries, Operators, Local representatives, ISPs, professional and experts – including women.
 - For rural areas, Internet license fee should be fully waived and Royalty in Internet and Community Radio Broadcasting should be decreased from its present 4% to a very nominal value. For accessing private ISP in the region local dial up charge should be applied.
 - WiFi Band (2.4 and 5 GHz) should be license free for rural internet infrastructure development and implementation of Telecomm and Radio Act should be harmonised through one – door policy.
 - Immediate actions required from MOIC and NTA in implementation of Telecom Policy 2004, and regulatory activities including sorting out of spectrum management related issues and radio equipment coordination functions for licensee of telecom services to make it one window policy.
 - NEA should be encouraged for development of fibre optics links (East-West and several North-South links) using their vast power transmission grid throughout the country.
 - Like community radios, community televisions could also be one of the important alternatives for disseminating information and creating demand for ICT services in the local community as visual and verbal media are effective in rural context.
 - The government should practically implement e-governance concept.
 - East West Fibre Optical Access completed by NT under Indian Government can serve as an important backbone for ICT development. This has allowed easy access for the private users and private entrepreneurs. Hence, NTA should regulate the leasing of this facility to the private sector operators from Nepal Telecom as it is the sole provider of backbone infrastructure.



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6 CLOSING REMARKS BY MR. S. GHIMIRE, JOINT SECRETARY OF MOIC

The *Workshop on Strategies* was concluded by Mr. Sushil Ghimire, Joint Secretary of MOIC by thanking all the dignitaries, distinguished guests, experts, and participants for providing their wholehearted remarks, comments, and feedbacks. Mr. Ghimire emphasised that cyber crimes, cyber addictions, etc should also be addressed while designing the project.

Sustainability issues of telecentres and ICT service centres were raised in the workshop. In this regards, Mr. Ghimire proposed three options.

- Allowing local people or community to have full responsibilities upon ICT service centres.
- For a time being providing backup supports from line agencies including government agencies.
- Commercially driven services – focusing on the peri-urban areas where youth are attracted towards internet and cyber café.

Mr. Ghimire opined that all these three options should be followed. For this, Mr. Ghimire highlighted that incorporating local bodies like VDCs/DDCs would help to address the sustainability issue during initial phase. Local bodies have fund that can be used in the ICT sector if they are involved as a partner from the initial period of the project. Further, Mr. Ghimire emphasised that post offices could be incorporated for the ICT development in the rural communities.

Mr. Ghimire emphasised that the *workshop on strategies* would lead the consultants to come up with concrete strategy for ICT development. Mr. Ghimire stressed that instead of adopting or following only one particular successful modality, different alternative options should be incorporated in the strategy paper including the role of policy formulating bodies, NTA, and even all the concerned stakeholders. Mr. Ghimire finally concluded the Workshop by congratulating and showing his gratitude to all the dignitaries, experts and participants.



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ANNEXES



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Annex I: Workshop Schedule

WORKSHOP ON STRATEGIES FOR INCREASING ICT ACCESS IN RURAL AND PERI-URBAN AREAS OF NEPAL

Date: 31 December 2004

Time: Registration Time (8:30 AM)

Venue: Hotel Blue Star, Tripureshwar

1. INAUGURAL SESSION

From	To	
08:30	08:50	Arrival of Guests and Participants
08:55	09:00	Arrival of the Chief Guest
09:00	09:05	Dignitaries are seated at the Dais
09:05	09:15	Welcome Speech Mr. Mukunda P. Acharya, Joint Secretary, MOIC
09:15	09:30	Introduction to the Project and the Purpose of the Workshop Mr. <i>Gajendra Singh Bora, Consultant</i>
09:30	09:35	World Bank Representative's Remarks
09:35	09:45	Hon. Member, National Planning Commission's remark <i>Dr. Hari Krishna Upadhyaya</i>
09:45	09:55	Inaugural speech by the Chief Guest <i>Dr. Mohammed Mohsin,</i> <i>Hon. Minister of Information and Communications</i>
09:55	10:05	Closing remarks by the Chairperson <i>Mr. Sharad Chandra Shaha, Hon. Vice Chairman, HLCIT</i>
10:05	10:10	Vote of Thanks <i>Mr. Sushil Ghimire, Joint Secretary, MOIC</i>
10:10	10:25	Tea break

MC- Ramesh Kumar Adhikari –

Project Coordinator Telecommunications Sector Reform Project (TSRP)



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2. FIRST WORKING SESSION (10:25 - 12:30)

ICT for rural and Peri urban areas - Development Strategies

Chaired by Dr. Hari Krishna Upadhaya, Hon. Member, National Planning Commission,

10:25	10:35	Overview of Telecom Infrastructure & Internet <i>Mr. Gajendra Singh Bora, Consultant</i>
10:35	10:55	Relevant International Experience <i>Mr. Satish Kharel, Consultant</i>
11:55	11:20	Lessons learnt from Tele-centre and other ICT Initiatives in Rural Nepal and Tele-centre / ICT Implementation approaches <i>Mr. Manohar Bhattarai, Consultant</i>
11:20	11:35	Community Radios in Nepal <i>Mr. Vinaya Kasaju, MSI Nepal</i>
11:35	11:55	Strategies for Increasing ICT access for Peri-urban and Rural areas <i>Mr. Suresh Regmi, Consultant</i>
11:55	12:20	Questions & Answers and Comments
12:20	13:20	Lunch break

3. SECOND WORKING SESSION (13:20 - 14:20)

Subsidy management and Institutional strategy

Chaired by Mr. Mukunda P. Acharya MOIC, Joint Secretary

13:20	13:35	Subsidy Management for ICT sectors <i>Mr. Gajendra Singh Bora, Consultant</i>
13:35	13:55	Institutional Requirements for Implementation of ICT projects <i>Mr. Mohan Das Manandhar, Consultant</i>
13:55	14:10	Questions and Comments



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4. THIRD WORKING SESSION (14:10 –15:10)

Group Work and Recommendations

Chaired by Mr. Sushil Ghimire, Joint Secretary, MOIC

- Group A** Development Strategy Options
Mr. Suresh Regmi, Mr. Manohar Bhattarai
- Group B** Rural Telecom Infrastructure and Internet Access Strategy
Mr. Gajendra Singh Bora, Mr. Satish Kharel
- Group C** Institutional Options
Mohan Das Manandhar, Manaswee Raj Vaidya

Tea will be served during the Group Work		
15:10	15:40	Presentations by groups
15:40	16:00	Comments and discussions
16:00	16:10	Closing remarks by the Chair



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Annex II: Presentations

The presentation “Lessons learnt from Tele-centre and other ICT Initiatives in Rural Nepal and Tele-centre/ICT Implementation approach” by Mr. Manohar Bhattarai is available separately because of its high graphic content. The texts of all the other presentations are reproduced below.

Increasing ICT Access in Rural and Peri-Urban Areas of Nepal By Gajendra S. Bora, Consultant

1. Project

- **Introduction to the project**
 - Objective of the study
 - Brief terms of reference
- **Work performed**
 - International Experience
 - Sector Overview
 - Draft strategy for discussion

2. Objective of the study

- Characteristics of rural/peri-urban and low income ICT market and methods of meeting it including the appropriate institutional arrangements.
- Cost of providing ICT access to such areas- portion of subsidy from RTDF required.
- Cost of expanding Internet PP in all districts in Nepal,- encourage the private ISP's for this expansion
- Institutional and regulatory requirements for the operation of the RTDF.
- How private sector can deliver ICT services such areas and the regulatory requirements to monitor them and detailed strategy to increase ICTs in rural/peri-urban area.
- Business models for the sustainable delivery of ICT access to rural/ peri- urban and low income users through public-private partnerships;
- To design and support HMG in conducting a pilot project for public access to ICTs.



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3. Terms of reference

Phase I:

- Analyze the existing level of provision of these services,
- Potential demand for them,
- Constraints - (technical, economic, and regulatory).
- Propose viable alternatives to meet this demand, with a detailed analysis of the costs involved as well as the regulatory implications,
- The role of the RTDF.
- Develop practical strategic options and operational schemes for the provision of the necessary infrastructure and services, such as Internet Points of Presence, telecenters, and Internet access for schools.

Phase II:

- Conduct a demand study and develop a detailed pilot project to be funded by the RTDF (managed by NTA) to demonstrate the viability of the proposed strategy.
- Prepare the bidding documents for the pilot project (for Internet POPs and Telecenters), which can be considered as an experimental bidding round from the RTDF.

Phase III:

- skill transfer and consensus building
- Support in conducting the competitive bidding process under the pilot project designed in phase II, and
- Help in negotiations with the winning bidders.

4. Purpose of the Workshop

Tasks under Phase I:

- Sector Overview
- International Experience
- Develop strategy

Workshop Objective:

- Discussion on Sector Overview, Nepal's experience in ICTs and relevant International experience and Institutional requirement of developing ICTs with subsidies
- Consensus building on Draft strategy on process, institutions and options of ICTs



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5. Sector Overview

• Rural Environment-

- difficult terrain,
- diversity in population density, ethnic and language and poverty, agriculture as main livelihood, illiteracy high- (listen, watch)

• Infrastructures, Services, Institutions-

- 675 Ilaka HP, every VDC sub Health P,
- post 842 Ilakas 3074 additional,
- 7289 lower 4350 secondary Sc,
- DHQs-60 with road,
- 43% of households (2007) electricity, Rural-hydro/Solar(REDP/AEPC)
- NEA (GRID+ Small Hydro)

• Information Technology Sector-

- govt-use is low in info systems, email, Internet
- financial sector-moderate in applications
- manpower- 5000 students(2002),
- 74 companies in IT

• Broadcasting Sector

- liberalised,
- Improvement in regulations required. ,
- community radio-success,
- cable networks-vehicle for national programme and can be developed for local content

• Telecom

- Monopoly in trunk,
- Internet use is low outside of Kathmandu-
- reg/ policy action . required

• Other ICTs- Telecentres, computers for schools, WIFI-net



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6. Key Findings

Findings	Action
Info-systems, email, internet in gov. low	MOST/HLCIT/NTTC
Radio licensing regulations –discretionary	MOIC
License fees- for C Radio and rural cable net- reduce or remove	MOIC/NTA
Telecom policy implementation-slow	MOIC/NTA
Trunk rates-for internet access –no POP	NTA (active reg)
Interconnect/Lease circuits/ rates/ not reg. competition require-reg of monopoly beh.	NTA
No one- door policy spectrum to licensees	FMD/MOIC/ NTA
Free WiFi –bands req. like elsewhere- at least for rural and out of Kathmandu	FMD/MOIC

7. Difficulties faced

- Conflict affected- Rural Tel –yes, Community ICT-no
- Little rural facility- no Internet capability for 3 years except some DHQs
- Lack of institutional capability to manage ICT dev.

Strong points

- Private sector in ICT, --- Young –enthusiastic -ICT
- Community Radio -low-cost and effective rural ICTs.
- substantial experience of rural telecentres

Other findings for Rural Telecentres and ICTs

- Continuity of external support in a flexible manner & sensitive to local needs.
- DHQs, tel exchange locations, Ilakas, potential for Telecentres
- variety of ICTs needed-as for the different development stage
- sustainability requires demand driven supply



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8. Findings/ Suggestions

Infrastructure Development

- **Infrastructure Building For lease-**
 - no license fees to construct
 - Allow to start any time just by notifying the regulator.
- **Lease of the bandwidth needed by operators**
 - no charges for royalty and,
 - RTDF as it is investment to generate revenues out of service
- **Lease of the bandwidth needed by end user**
 - Pay royalty, RTDF on this revenue –as it is now.
- **Fiber backbones along the East-West and North South Power grid**
 - Mandatory for NEA-to setup
 - Speed it up by government order
- **Right of Way to laying cables along the highway**
 - roads authority not allowed to charge for use
 - charges for recovering highway facilities only

9. Summary

With the help of workshop build strategies-

- Identification of top down and bottom up actions
- Options – for ICT implementations in rural and peri-urban areas
- Discussion on Institutional options for implementation and subsidy management



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Overview of Telecom: Infrastructure and Internet: Mr. Gajendra S. Bora

1. Summary

- Telecom Sector Status
 - Structure
 - Existing and planned facilities
- Bottlenecks in sector and Internet growth
- International Experience- a few examples

2. Telecom Sector structure

- **Nepal Telecom**- provides all types of service through the country
- **UTL- WLL- in Kathmandu valley** – in coming three years- only major towns to cover, rural telecom obligation 15% of the Investment to go to the rural areas.-CDMA
- **STM Communications**- Eastern development region rural telecom- VSAT Technology
- **Spice Nepal**- second mobile operator –no service yet, to cover major towns in the coming three years-GSM Technology
- Several ISPs, some paging operators, number of VSAT operators, cable operators etc.

3. Telecom Policy Regulatory frame work

- Telecom Act 1997 and amendments
- Telecom regulations- 98- amended in 2002
- NTA came in to being in 1998
- Telecom policy -2004 announced in March 2004

4. Telecom Policy-2004

- Open licensing regime -no limits except in scarce spectrum case
- Simplify selection using scarce spectrum by rural coverage rather than amount
- License fees to cover NTA's running expenses.
- *universal access* within “shouting distance” to answer telephones
- Establish liberalisation by interconnection principle, obligation of dominant operator and management of anticompetitive practices to benefit the citizens.
- Telecom sector to bear normal taxation as the rest of industry, by gradually offloading the charges and fees



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5. Trunk backbone and spur routes

Microwave radio by 2007

- Replacing backbone East of Kathmandu and 140 mbps routes with SDH radio links of 2+1
- 100 hops of radio links of 8-34 Mbits/s spur links going to DHQs and some smaller towns in low lands.
- Will be completed by July 2006.
- Replacement West of Kathmandu with SDH radio links being expected to be completed by 2007.

6. Backbones

Optical fibre

- The East-West Fibre Link laid installed capacity of STM-16
- NEA - Hetauda-Kathmandu and Butwal-Kaligandaki-Pokhara-Marsyangdi-Kathmandu OPGW fibre links operational.
- KTM –Hetauda and Butwal to backbone with OPGW (NEA).
- NEA to install Kathmandu-Khimti-Sundhuli-Bardibas OPGW fibre NEA
- NEA considering Nepal Telecom's request to provide fibre optic link through OPGW in their North-South sections of the power grid.
- Fibre backbones for expanding cellular mobile and fixed wireless access to rural settlements in the hilly part of Nepal also

7. Satellite links

Regional satellite

- Links providing 150 voice circuits each between Kathmandu, and regional towns Nepalgunj, Bhairahawa, and Pokhara exist.
- A 120 voice circuit link between Kathmandu and Dhangadhi is also same time as district satellite links.

District satellite

- links providing 60 low bit rate (8 kbps) coded voice with digital speech interpolation circuits and other required bearers for connecting over 300 CDMA subscribers in each of the 30 primarily remote and difficult districts
- *The plan includes for 2 Mbps DVB down link and 64 kbps up link for Internet services per district terminal.* Target date before July 2006.



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8. NT's fixed and rural telephone facilities

- 187 exchanges in 181 locations of 69 districts
- Installed capacity- 482,000 lines and 412,000 are connected
- Tele density -1.65 lines per hundred persons
- Rural tele density is 1.2 lines per thousand persons.
- VDCs served with telephone are 1959.
- 539 terminals and 92 repeaters of MARTS, 186 VSAT terminals, and a number of VHF single or two channel telephones-no updates
- 3957 lines through MARTS (2749), VSAT (174) and VHF (1034) are affected due to conflict.
- Existing rural telecom facilities projects through VSAT technology and WLL for rural areas are facing problems due to conflict as well as supply contract.

9. Mobile services and coverage

- July 2004 -post-paid subs – Capacity 90,000 and subs-70,360, Prepaid- 120,000 subs.
- 58,000 additional prepaid customers added to the network in 2 days
- Service –KTM-Dhulikhel, Birgunj - Hetauda, Bharatpur, Janakpur, Rajbiraj, Siraha Biratnagar, Dharan, Inerwa, Damak, Bhadrapur, Ilam, Pokhara valley, Bhairahawa, Butwal, Lumbini, Nepalgunj, Kohalpur, Dhangadhi, Mahendranagar, and Attarya.
- The coverage - by 2060/61 along the highways and adjoining towns from Kathmandu to Bhadrapur in the east and main towns and cities in the west.
- Bid under evaluation I phase -750,000 subs (of which 600,000 prepaid).- 18 months once the bidder is elected.
- The second phase of 250,000 connections, will be scheduled later

10. WLL- CDMA

- CDMA system for 1 million subscribers, and aimed at providing 500,000 subscriber connections by July 2007.
- The new system will virtually cover the whole country through three networks with three switching centres located in Kathmandu (Network I), Bhairahawa (Network II) and Biratnagar (Network III) for the Central, the Eastern and the Western parts of the country respectively.

11. Internet Development

- Rapidly dev. in Kathmandu with fall in connectivity prices
- Estimate –Accounts-50,000 users- 200,000 -2004
- International bandwidth - 45 mbps.
- (POPs) in all major towns



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- High access cost- trunk rate & small market- no Internet in districts
- Dial-up access at a local fee in 55 DHQs by NT now
- This facility is not available to other ISPs

Nepal Internet Exchange (NPIX) established in 2002

- faster exchange of data locally,
- saving international bandwidth,
- New services through NPIX like web hosting, telephony, ecommerce.
- Connects -ISPs including World link, MOS and Vianet.
- Regional RIX will aggregate bandwidth

12. Bottlenecks for rural Internet

Bottlenecks due to infrastructure

- All VSAT system in rural - data rates (below 8 kbps), -inadequate for functional Internet access.
- The rural exchange of C-DOT type is not able to provide Internet connections.
- The dial-up traffic through low rate coding in trunks if not taken care of –
- Present CDMA and GSM equipment cannot be used beyond 8 kbps.

Some solutions

- 55 DHQs digital switch, Internet works
- 30 DHQs with 2 Mbps DVB for Internet
- Possible to add EVD (a data specific TXRX) in CDMA- 2Mbps in coverage

13. Regulatory interventions

- Lack of rural access lines, and technical limitations of the existing and planned network.- Access with subsidy by NTA
- No one door policy for license and frequencies- MOIC/NTA Action
- Access cost 40% of total for a user- intervention
- DSL only through NT- to be regulated ie. (unbundling, price reg)
- Cable networks –if few need regulation
- Telecom policy implementation-slow
- Trunk rates-for internet access –no POP
- Interconnect/Lease circuits/ rates/ not reg. competition require-reg of monopoly beh.
- Free WiFi –bands req. like elsewhere- at least for rural and out of Kathmandu



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14. Findings/ Suggestions-Cont.

Infrastructure Development

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Lease of the bandwidth needed by operators

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- RTDF as it is investment to generate revenues out of service

Lease of the bandwidth needed by end user

- Pay royalty, trdf on this revenue –as it is now.

15. Findings/ Suggestions-Cont.

Fiber backbones along the East-West and North South Power grid

- Mandatory for NEA-to setup
- Speed it up by government order

Right of Way to laying cables along the highway

- roads authority not allowed to charge for use
- charges for recovering highway facilities only

16. Group Work

Regulatory interventions- For Infra structure and Internet

- Infrastructure
- Internet

Liberalisation will it help immediately-Telecom policy 2004

- What should we do for short term
- What should we do for longer tem
- How could subsidies be used - For access, pops, NPIX
- Small operators- big operators how could they work together in rural access – interconnection, local operators and longer distance carriers



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 Mr. Manohar Bhattarai
Independent Consultants - International:
 Dr. Roger Harris

Relevant International Experiences: Claire Milne & Mr. Satish Kharel

1. Types of case study

Success stories

- Pondicherry village information centres
- Telephones in Laos

Look interesting

- GSSS (mobile phones for postmen)
- Rural phones in Madhya Pradesh

New technology

- Mobile WiFi (Motoman, DakNet)
- PCtv

E-Post and Computers

- Jhai Foundation computers in schools
- E-post in India and Bangladesh

2. Pondicherry Village Knowledge Centres

- 12 villages networked with public telecentres for some years (CIDA, IDRC support)
- M S Swaminathan Foundation working closely with communities on all aspects of development
- Note: use of local language and content, multimedia, help with finding and using information, entitlements database
- Good development outcomes, but not financially self-sustaining

3. Telephones in Laos

- Rigorous empirical study of German-funded Rural project in Laos
- In 2000, 40% of districts had received over 1,000 lines (each got 24 to 48 lines) – where previously there were none
- Demand was under-estimated: revenues projected at DM 780 per line turned out at DM 1,700 per line
- 45% of households were classified as phone users, including members of all income groups
- Use of phone shown to raise consumption by 20%



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4. Gramin Sanchar Sewak

- Launched December 2002 in Madhya Pradesh (BSNL MP)
- Postmen carry mobile phones which villagers may use: “walking PCOs”
- Scheme is expanding – 139 GSS covering 432 villages
- Need information on rates charged, calling patterns, effects on postmen’s delivery schedules, and other operational effects

5. Rural phones in Madhya Pradesh

- New CIDA-assisted project Gyan Sanchar started installation in late 2003
- Plan to cover 30 villages with cor-DECT phones (36 towers) and broadband-connected VICs on n-Logue model (with Local Service Provider NGO NCHSE)
- CIDA contributing \$7.3m, suppliers Midas and Tulip (working with PwC, NB and SaskTel) [may cover other projects too]

6. Mobile WiFi

- Well-known applications:
 - DakNet (buses in central India)
 - Motoman (motorbikes in Cambodia)
- Intermittent connectivity principle: vehicle carries wireless terminal (MAP) which connects with wireless-equipped computers at each stop. Email sent and received through internet connection at base.
- Could work for voicemail, but suitable cheap terminal equipment not yet available

7. Yuri Gitman’s Magic Bike

8. How Magic Bike works

9. PCtv

- Multi-function terminal under development at Carnegie-Mellon University
- Includes TV, Personal Video Recorder, Video Phone, IP Phone and PC
- Specifically designed for poor illiterate people in the developing world
- Target cost under \$250 by 2007
- Pilot in India planned for November 2004



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10. Jhai Foundation computers in schools

- Chosen from many similar projects in other countries because of:
 - Apparent success in achieving sustainability (schools open facilities to public outside school hours)
 - Apparent availability of good information
- Success depends on close and continuing co-operation among funders, local experts and communities

11. E-post in India and Bangladesh

- India introduced national e-post in January 2004 after a trial, Bangladesh has had similar service for 5 years
- Both services accept written documents at main Post Offices, which are scanned for e-delivery; or will print out e-documents for physical delivery
- High rates compared with using cybercafés or free commercial alternatives; business case rests on bulk mailings by companies (“hybrid mail”)
- Indonesia, Pakistan, Sri Lanka, Thailand, Malaysia, Bhutan also working on e-post – information sought

12. Conclusions

- International experience is interesting and a source of detailed learning, but we cannot expect to copy exactly what works elsewhere
- Good results using information for development need integration with other projects and long-term support
- Worth keeping abreast of new technology and experimental services
- Other findings will be fed in as project progresses
- Exciting new technology may help, but not yet proven
- POTS is a winner



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Community Radios in Nepal: Mr. Vinaya Kasajoo, MSI Nepal

1. What is Community Radio?

- Community radio is a social process / event
- Community members associate together to design programmes and produce and air them
- Community takes on the primary role of actors in their own destiny.
- Use of radio to achieve a common goal
- Ownership of democratic and development efforts by the members of the community
- This is participatory communication

2. Community Radio for Whom?

- Community radio is for the community
 - Speak/interact with each other;
 - act together for common goals;
 - live and act as a community:
 - several families,
 - several neighbourhoods, or even
 - several villages or communities,

3. Community Radio Madanpokhara (CRM)

- The first Community Radio owned by a Village Development Committee
- Madanpokhara VDC is the license holder of the CRM
- It is owned, controlled, managed and operated by the community, which it serves
- Madanpokhara is a village, at the mid-hill area in Western Nepal

4. Areas served by CRM

- Focus Area
 - 23 VDC and 1 Municipality
- Command Area
 - 65 VDC and 1 municipality (including Focus Area)
- Coverage Area
 - 7 Districts (Palpa, Gulmi, Arghakhanchi, Syangja, Parbat, Nawalparasi and Baglung)
 - Estimated Listeners: 500,000 people.



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5. Communities served by CRM

- Farmers
- Labourers
- Community Forest User Groups
- Women's Groups : Mothers' Groups
- Students, Teachers
- Marginalized groups: ethnic, cast, gender and economic
- Friends of CRM : Listeners' Clubs
- Small/local business men and entrepreneurs
- Income generation groups

6. Issues covered by CRM

- Local and National News and Current Affairs
- Agriculture Market
 - Awareness of new agriculture techniques,
 - Market Price and weather
 - Promotion of dairy industry
- Health
 - Sanitation and safe drinking water
 - Emergency Health services, Blood donation
 - Awareness of HIV/AIDS, Safer motherhood and health issues
- Education
 - Girls' education,
 - Adult Literacy
 - Distant education: Subject wise classes by related teachers

7. Issues covered by CRM

Cont.

- Social Justice and equity
 - Gender, Cast based groups, Ethnic groups
 - Domestic violence, girl trafficking,
 - Advocacy for Democracy, Human Rights and Social Justice
- Culture
 - Preservation and promotion of local culture
- Sustainable Development
 - Community Forest
 - Conservation of natural resources and water



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8. People's participation in CRM

Mobilization of community through

- General assembly comprising of:
 - Representatives of listeners, Community and grassroots organizations, professional organizations, friends of CRM, life-members, Intellectuals
- Board of Advisors
 - Expertise and visionaries of community communication
 - Government officers related to communication
 - Peoples elected representatives and political parties
- Management Board Lifelong members
 - Elected by the General Assembly
 - Belonging to the General Assembly

9. Community Support to CRM

- Fees from life members and general members
- Fees from visitors of radio station
- Local advertisements
- Contribution from local governments, VDCs
- Charity: Handful of rice or equivalent daily from listeners through Listeners' Clubs
- Community Forest Users Groups contribute a portion of their income
- Programs Sponsored by Development Org.

10. National Distribution of FM Station

11. FM Stations in Nepal

- Number of Licensees:

○ Government	1
○ Private	55
○ Commercial	36
○ Community	20
- Stations in operation:

○ Commercial	30
○ Community	16



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12. Regional Distribution of FM Stations

- Eastern Development Region 8
- Central Development Region 22
- Western Development Region 16
- Mid-west D. R. 8
- Far-west D. R. 2
- Districts with FM Stations: 21
- Districts without FM Stations : 54

13. Distribution of Community Radio

14. Ownership Pattern of Community Radio

- Local Government 2
 - Municipality 1
 - VDC 1
- Cooperatives 7
- NGOs 11

15. Problem of Community Radio

- Lack of clear policy on
 - Community media
 - Use of air-waves
- Lack of laws and regulations on
 - Management of air-waves
 - Differentiating Community radio from Commercial Radio
 - Role of National and Local Broadcasting
 - Public Service Broadcasting and Commercial Broadcasting

16. Problem of Community Radio

- Non-transparent administration
- High License and Renewal Fees
- Adverse terrain
 - Wrong choice of technology/equipment
- Inadequate Human Resource/Skill
 - Technical and Editorial Skill
- Inappropriate Technology
 - High power transmitter and
 - Hi-fi technology/equipment



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17. Remedies and recommendations

- Formulation of new Policies Laws and Regulations to address:
 - Information Needs and Rights of the People
 - Use and management of air-waves
 - Community Radio and Commercial Radio
 - Public Service Broadcasting
- Deregulation of FM Transmission up to 20 Watts
- Implementation of Recommendations of the task forces commissioned by the government

18. Recommendations

State support to Community Radio for:

- Removal of license and renewal fees
- Financial support with PSA like in the print media
- Human resource development
- Technology know-how
- Production and distribution of program on public welfare, development, health etc.

19. Community Radio's Initiatives

- Be the voice of most under-privileged people
- Mix old and new technology (Internet through Radio)
- Mobilize local resources, talent and knowledge
- Promote and protect local culture and indigenous knowledge



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Increasing ICT Access – Development Paths & Strategies: Ms. Claire Milne and Mr. Suresh Regmi

1. Discussion Summary

- Principles
- Overcoming barriers
- Community development paths
- Outline strategy for Nepal
- Implications for Pilot Project

2. Implications for today

- Today is a small but crucial part of a large project, leading to real-life activity
- We must consider strategy at two levels:
 - for Nepal, medium-term (~5 years)
 - for the project, short-term (~1 year)
- “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. Key findings of sector overview

- Much talent in private sector and enthusiasm among young for ICTs, leading to growing use in towns
- Community radio is working well and needs more resources
- Rural telecom networks are largely absent, and where present are not data-capable
- Existing non-commercial telecentres are few, little used, often not connected
- Internet access rates outside main towns are prohibitively high {Recently NT has announced the facility of POP (real + virtual) in 55 District HQs}.

4. Principles for strategy

- Diversity (Terrain, Climate, Ethnicity, Language, Culture, Economic activity, Education etc.)
- Natural growth (walk, then run)
- Gradual change (learning takes time)
- Feedback from experience
- Oral society
- Start with young people



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5. 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

6. Overcoming barriers

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

7. 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.

8. Community Development Paths

- 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



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9. Community Development Paths

- Rural banks to modernise branch communications, while providing PCO service
- Incentives existing cybercafés to attract wider clientele and set up new branches to serve marginal groups
- Community radio/TV for shared use; later, could record programmes for individual replay
- Link telecommunications upgrade to develop tourism

10. Community Development Paths

- All represent paths to travel along (maybe at different rates), not end points
- Many and various, with different likely effects and requiring different degrees of support
- Still only examples; e.g. for “health centres” could read “agricultural extension offices”
- Many could work well. Do we need to choose?
 - Yes, for providing detailed support
 - Yes, for ease of administering subsidies
 - No, to maximise overall benefits?

11. 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 to support implementation of community plans, where necessary

12. Outline strategy for Nepal (2)

- This project has to propose how to prioritise and meet calls on the RTDF
- 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



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13. Pilot project

- Can't pilot everything at once, so focus on piloting new procedures for proven project types?
- Choose locations where success looks assured, for a positive demonstration effect?
- Experiment with different disbursement approaches? (e.g. upfront, conditional, loans)
- Few large projects vs. many smaller ones?
- How to measure effects of interventions?

14. Fundamental issues for discussion

- Is the outline strategy on the right lines?
- Use of RTDF:
 - What type of project and type of competition?
 - How to prioritise calls on funds?
 - Phasing in relation to market opening
- Tension for pilot between successful demonstration projects, and providing help where it is most needed (and most costly?)

15. Some other issues

- Extra "community development paths"
- Additional central actions
- Ways of raising awareness of ICTs
- What to do with existing telecentres that are not flourishing
- How to ensure that subsidised projects deliver on their promises



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**Subsidy Management for ICT sectors:
Ms. Claire Milne & Mr. Gajendra S. Bora**

1. Summary of presentation

- Why subsidy is needed
- Why this is relevant to our project
- Competing for subsidies for rural infrastructure
- Chile's experience with rural telecoms 1995-2002
- Uganda's experience with rural telecoms and ICTs 2003
- Learning from Nepal's own experience in the Eastern Region

2. Why Subsidy

- Rural Areas where commercial viability of ICT projects exist no subsidy required
- Where commercial viability does not exist- some sort of subsidy will be required
- Allocation of subsidy has two features
 - Allocation on the basis of some criteria which is transparent and has no room for political pressure.
 - Competition for least subsidy,

3. Relevance to this project (1)

- ToR Phase II: prepare bidding documents for the pilot project (for Internet PoPs and Telecentres), which can be considered as an experimental bidding round from the RTDF
- ToR Phase III: support HMG in conducting the competitive bidding process under the pilot project designed in Phase II, and negotiations with the winning bidders

4. Relevance to this project (2)

- Overall objectives relate to ICT access in general, not just to Internet PoPs and telecentres
- Best chances of successful (demonstration) pilot projects may lie elsewhere, eg community radio
- Expert strategy workshop suggested a balance between infrastructure and other ICT-projects
- Also clear that better value infrastructure will be obtained when there are more licensed operators established in Nepal
- Therefore, need to look at different bidding approaches



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5. Different bidding approaches

- Full international private sector competitive tender (open/pre-qualified)
- National private sector competitive tender (open/pre-qualified)
- (Small) application for limited funds – better proposals get funded (often public-private partnership)
- (Small) applications – all qualified bids get funded (cf AEPC) (may be communities only)

6. AEPC: government subsidy policies

- Micro-hydro: 70,000 NR/kw (3kw to 100kw), plus up to 21,000 per kw transportation cost
- Solar: 50% to 75% of costs (below ceilings), higher amounts in more remote areas and for productive uses, reducing by 10% per year
- Biogas: 7,000 to 11,000 NR per family-size installation, depending on size of plant and status of District
- ICS: no direct subsidy, but support for information and development efforts

7. Rural infrastructure subsidies (1)

- Usual approach is first to find which areas are commercially viable by opening to competition, then provide subsidies in unprofitable areas (as recommended for Nepal by PS-2)
- Chile telecom first and most successful. Since then, spread by:
 - sector (telecom->electricity->transport->water)
 - Income level (upper mid->lower mid->low)
- Recognised that competition for subsidies by private sector is not always successful

8. Rural infrastructure subsidies (2)

- Conditions for success of private sector model include:
 - National infrastructure networks already relatively developed
 - Market-oriented regulatory framework in place
 - Several firms qualified to bid for subsidies

9. Chile telecom 1995-2002

- 1998 privatisation, 1994 full competition - 40% hh had phones, 2000 – 74% hh had phones
- 1994 – 15% of Chileans lived in rural places with no payphone, TDF started
- Annual bidding rounds for rural payphone provision
- Subtel collected, grouped, analysed and prioritised requests for rural payphones



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- Maximum subsidy calculated and published for each work package; bidder could set tariffs within regional maxima
- 5 firms bidding, lowest subsidy bidder won

10. Chile - learning

- Private investment per \$ of subsidy: \$0.5 to \$20, average \$6
- Cost-reflective access charges: ~ 9 US cents/minute
- What is a locality? unresolved; selection method left poorer places till later
- Inadequate local participation; implementation delays; outages

11. Uganda 2002

- Country much more like Nepal in income, size, rurality; but telecoms industry already liberalised, competition thriving
- First bidding round from RCDF builds on Latin American experience
- Licensed operators invited to reserve areas for providing service; RCDF to cover rest
- Now adding an ICT component to Energy for Rural Transformation project

12. A payphone everywhere with 5k+ people

- 2 payphones everywhere with 10k+ people
- Internet PoP and public access in every District
- Internet access at one vanguard institution per District
- Support of ICT capacity
- IXP
- Awareness and content creation

13. Uganda - tender procedures

- Payphones/amounts over \$100k – international open tender
- PoPs/amounts under \$100k – national open tender
- Vanguard institutions – within District, open tender on basis of business plan
- Small projects (under \$15k) – direct disbursement on approval of business plan



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14. Using the RTDF (1)

- The most pressing need is usually some connectivity where there is none, and other countries therefore prioritise telephony (a payphone per “village”)
- But this approach doesn’t work without competition (NT history), and is very expensive with only a little competition (Eastern Region)
- So should Nepal:
 - Use most of the available money to meet the greatest need, ie providing some connectivity to remote areas?
 - Wait until there are several new operators before offering rural payphone subsidies? (meanwhile subsidising other initiatives like community radio and computers in schools)

15. Using the RTDF (2)

- Relatively straightforward to adjudicate pre-qualified bids for payphones in certain places – winner is the one wanting least subsidy to do the job
- Much harder to choose among deserving bids for funds to do different things or in different places:
 - ICT for health vs ICT for agriculture
 - Computers in schools in District A vs community radio in District B
- Community involvement reduces scope for competition – if we choose the place and the project type, there is only one community

16. Pilot project

- Can’t pilot everything at once, so focus on piloting new procedures for proven project types?
- Choose locations where success looks assured, for a positive demonstration effect?
- Experiment with different disbursement approaches? (eg upfront, conditional, loans)
- Few large projects vs many smaller ones?
- How measure effects of interventions?
- Local participation in least bids



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Institutional Requirements for Implementation of ICT projects: Mr. Mohan Das Manandhar

1. Types of Institutional Requirements

- Type 1 COMMUNICATION INFRASTRUCTURE FOR RURAL COMMUNITIES: Institutional arrangements to disburse fund for development of communication infrastructure (e.g. Telecom network)
- Type 2 ACCESS TO ICT SERVICES For RURAL COMMUNITIES: Institutional arrangement for promoting demand for ICT services

2. Communication Infrastructure for Rural Communities

- Utilizing Rural Telecom Development Fund (RTDF)
 - Management of Subsidy
 - Competitive Bidding
 - Policy Based
 - Proposal Based
 - Local institutions encouraged
- Institutional Arrangements: Implementing Agency
 - Autonomous body under NTA
 - Board of the body constitute various representatives (such as MOIC, MOST, MOLD) and experts (Telecom, IT,)
 - Lean and efficient management structure with few experts

3. Access to ICT Services for Rural Areas

- Create ICT Rural Access Fund
- HMG/N direct contribution
- 30% of RTDF can be one part of this fund
- Donors (Multilateral, bilateral) contribution
- INGO/NGOs contribution
- Other contribution (private funds...)

4. Access to ICT Services for Rural Areas

- 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,



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- PCOs, Telecenters, & other communication facilities, etc
- Others

5. 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)

6. Access to ICT Services for Rural Areas

- Institutional Arrangements: Implementing Agency
- 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

7. Access to ICT Services for Rural Areas

- Institutional Arrangements: Implementing Agency
- Autonomous body having full authority to develop its own operational policies, including finance
- Board comprising of various individuals (HMG, DDC/VDC, experts, associations)
- Management (staff) hired through open competition with good remuneration

8. Development Boards for Community Services

- 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



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9. Group Work

- Suggest Issues and Elements that need to be considered for establishing Fund and use of fund.
- Alternative institutional arrangements if available.



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