



**Assessing the Feasibility of ICT as a Development Instrument for
Rural-Urban Linkages in Nepal (SP/NEP/02/002)
in collaboration with the Rural-Urban Partnerships Programme
(RUPP) (NEP/01/020), under
Support Services Policy and Programme Development (SPPD).**

Feasibility Study Report



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Background

This document is a component of the project “Assessing the Feasibility of ICT as a Development Instrument for Rural-Urban Linkages in Nepal (SP/NEP/02/002)”¹. The purpose of the project, as stated, is to produce a proven set of operational modalities, procedures and techniques with some successful model examples of the beneficial results of ICT in development. Specifically, the project is to report on the use of ICT as an instrument for facilitating and promoting social and economic development with a particular focus on the poor and on women through an assessment of the use of e-governance and e-commerce in a rural-urban setting.

The chosen approach for achieving this project’s objectives is to partner with the Rural-Urban Partnership Programme (RUPP), which is being nationally executed by the Ministry of Local Development. The SPPD pilot will work in conjunction with RUPP, using its experience with ICTs, its appropriate objectives, outreach and its rural-urban breadth as a springboard to achieve the SPPD pilot objectives.

This Feasibility Report arises from the preceding *Pilot Project Inception Report* and *Fact-Finding Review of ICT in Development in a Rural-Urban Setting*. As required, it reports on the feasibility of using ICT as an instrument for facilitating and promoting social and economic development; with a particular focus on the poor and on women, e-governance and e-commerce in a rural-urban setting.

Development Objective

The development objective for the SPPD-RUPP pilot is articulated in the Inception Report, and its relationship with ICT can be summarised pictorially in figure 1.

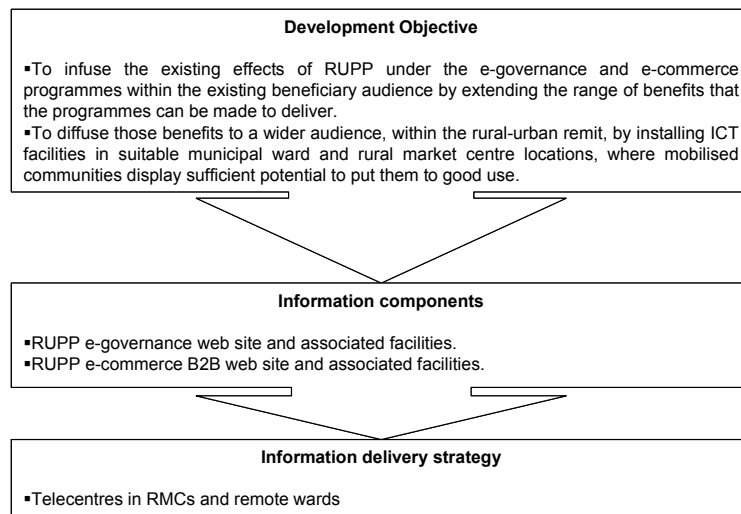


Figure 1. SPPD-RUPP Development Strategy

¹ See United Nations Development Programme, Nepal; Project Document, Assessing the Feasibility of ICT as a Development Instrument for Rural-Urban Linkages in Nepal (SP/NEP/02/002), Executing Agency UN-Habitat; United Nations Human Settlements Programme, Fukuoka Office.

ICTs for Human Development in the SPPD-RUPP Pilot

This section addresses specific questions, as required, with regard to the ability of ICTs to achieve the development objective and how desirable outcomes in terms of human development can be realized.

Question 1.

How can the acquisition of information and skills lead to accelerated and better social and economic development among both rural and urban communities?

The relationship between information and development has been well articulated in recent years. As one leading Asian statesman has pointed out, there is no information rich country that is poor and no information poor country that is rich². Information undermines poverty in many ways, expanding the range of choices open to poor people as well as furnishing the means for acting upon them. The Fact-Finding Review of ICT in Development in a Rural-Urban Setting, one of the SPPD-RUPP project documents, outlines a number of developing country examples that clearly illustrate how ICTs have been used to achieve desirable human development outcomes, emphasizing that whilst the technologies are instrumental in this process, alone they are insufficient. As useful information is introduced into poor communities, a virtuous development cycle revolving around empowerment and accomplishment is set in motion that feeds upon itself and induces increasingly desirable outcomes. ICTs can be used to initiate and accelerate this process.

The SPPD-RUPP project Inception Report testifies to the fact that the RUPP project beneficiaries have enjoyed considerable benefits in terms of community mobilisation, enabling them to accumulate savings for investing in local micro-enterprises. They have also received training in revenue generating skills. All activities have involved information transfer and skill acquisition. Moreover, as communities seek to further leverage their assets, so they become increasingly demanding of more and better information and simultaneously more proficient at exploiting new information sources. For example, as the RUPP-supported micro-enterprises expand their operations, they can utilise the e-commerce facilities to find new markets and expand their customer base. In particular, rural communities that have been consistently isolated from useful information sources can be assisted to overcome their information starvation and to act on their newfound knowledge. Rural trade is characterized by a small number of urban buyers seeking a small range of products from a large number of suppliers, conditions that leave the sellers disadvantaged, and which are the opposite of urban trade. Information in the hands of rural sellers helps to redress this imbalance, leading to opportunities for rural enterprises to organise their production and trade activities in a way that enables them to achieve more favourable commercial terms.

Accordingly, the SPPD-RUPP pilot will increase the delivery of useful information through the deployment of ICTs, which will strengthen the negotiating positions of sellers by providing them accurate and frequently updated information relating to the market prices of their products. In addition, local entrepreneurs will be able to market their products in wider markets and will also gain knowledge regarding the demand for products within those

² Dr. Mahatir Mohammed, Prime Minister of Malaysia.

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markets, enabling them to assess diversification strategies that will arise from market intelligence. Information from within the community, starting with that provided by the local government authorities, will foster social inclusion and social efficiency by facilitating citizen access to government services. Community information that can be shared on-line will be capable of encouraging economic activity and employment opportunities.

Question 2.

What types and range of information and skills are required; and by whom, to achieve the best developmental results?

International experience suggests that the best development results are achieved when information of the following types is made available:

- Content for local relevance
- Disadvantaged and marginal groups
- Local entrepreneurship
- Health
- E-Learning
- E-Commerce
- E-Governance
- Capacity Building
- Cultural enrichment
- Agriculture support
- Employment opportunities
- Social mobilisation

Content for local relevance

Local relevance implies a demand-driven, bottom up approach to the formation of information assets to be deployed in support of human development. It also demands that information is in a language that its users understand and that relates to the concerns and priorities that they themselves have expressed. Processes of requirements elicitation that are genuinely participatory are mandated in order to approach an adequate understanding of what is relevant for any particular community, and this entails considerable facilitation skills on behalf of information purveyors and development workers to ensure that community aspirations are respected and properly catered for. Development practice must also be aware that what works for one village may not be suitable for the next, so institutionalised approaches to information provision must be responsive and flexible and free of blue-print prescriptions.

For the SPPD-RUPP pilot, the extensions proposed for the RUPP e-commerce and e-governance facilities are responding to the community needs for economic development through more and better trade, and for social inclusion through better government-citizen interactions. Whilst the facilities to be provided in the pilot will be capable of achieving these benefits, they will also be capable of achieving further benefits by providing additional information assets of local relevance. It is therefore important for the pilot to contain suitable mechanisms for ensuring that communities are encouraged to express their own aspirations and priorities for development that are based on enhanced information flows, and that they are able to influence the efforts of the pilot towards mobilising the information that their own initiatives will require. One mechanism to assist this is the Community Information System (CIS), which allows a community to electronically share information of interest among itself. It is structured to allow for easy organisation of the information, facilitating administration and access. The system is interactive, allowing community members to contribute information as well as receive it, but it is also moderated, allowing for the filtering out of unwanted or inappropriate information. Access is web-based, making it available from any connection to the Internet.

Disadvantaged and marginal groups

The default condition with ICTs is that they will benefit those who are already advantaged; the educated and better off who are more likely to have the skills and resources to use

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technology as soon as it is introduced. This is why ICTs are often perceived as a reward for development rather than as a tool to achieve it. In such cases, it is erroneously imagined that technology alone delivers developmental benefits, rather than the actions of the people to whom technology makes opportunities available. Accordingly, it is essential to fashion mechanisms that will be put into effect alongside the technology that will ensure the equitable distribution of its benefits. Measures that are pro-poor and gender sensitive will vary according to the contextual circumstances of the implementation and they may conflict with the cultural norms of the community, but in order to ensure their effectiveness, they must be capable of differentiating between information that is useful for different sections of the community. Women's information, for example, typically relates to family and child health, or it fosters women's economic advancement through micro-enterprises as a way of making them less vulnerable to domestic violence and other forms of abuse. Specific occupational opportunities might be encouraged where particular caste groups exist, in order to ensure they are able to benefit from enhanced access to information. Opportunities for disabled people serve the same purpose and have special relevance for some who may be physically disabled, yet capable of being trained to use a computer. The lack of skills need not be a barrier to such groups provided they are made aware of the types of information available to them and are assisted in obtaining and using it. The SPPD-RUPP pilot will partner with organisations that support women's groups and ethnic minorities, enabling them to engage in e-commerce activities.

Local entrepreneurship

Entrepreneurs depend on information for many aspects of their activities. They need to understand the demand patterns within their markets in order to decide what types of economic activity to engage in; what products or services they will be able to find a market for. They also need information on how to start, operate and manage a business, and they need training in a variety of trade and management skills in order to be productive and efficient. They need to be able to find markets for their products and they need to be able to arrange transportation for them and to collect payment from their customers. ICTs are capable of contributing significantly to all these information requirements, as long as information providers are mobilised to make their resources available in a format that will be useful and useable. The SPPD-RUPP pilot can be used to incorporate entrepreneur-training materials into digital format, for wider distribution and repeated use that is not dependent on having human instructors available.

Health

Information relating to disease prevention is critical for public health and for stemming the spread of pandemics such as HIV/AIDS. The most effective strategies will target specific high-risk or vulnerable groups; e.g., prostitutes, drug abusers, migrant workers and truck drivers in the case of HIV/AIDS, pre-natal mothers in the case of under-five infant mortality, and particular groups of employers and workers who are exposed to occupational hazards. Public health campaigns always involve communication and education and ICTs are well suited to making these processes more efficient and effective. As a public service, government health authorities have a role to play in raising awareness in the course of eliminating preventable diseases. Institutions concerned with treatment also have the potential for tapping distant expertise through the use of ICTs, as examples in the fact-finding review testify. In most developing countries, most qualified doctors pursue careers that are overwhelmingly urban-based, starving rural populations of access to high quality treatment. Using ICTs, rural clinics and bare-foot health technicians can communicate with urban hospitals for diagnostic and treatment advice, going some way to redressing the imbalance. Health care is not yet a feature of the SPPD-RUPP pilot, but the ICT facilities that are being implemented make it possible to become so. Pilot implementers at the

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community level should be alerted to the potential for ICTs to generate health benefits in cases where they are expressed as a priority.

E-Learning

The potential for utilising ICTs as a delivery mechanism for education is causing a worldwide re-think of the traditional “chalk and talk” approach to teaching. Although yet to deliver in full on its promise, e-learning is a worthy response to policy level pronouncements relating to the transformation of national economies from being based on natural and physical assets to becoming “knowledge societies” based on information assets. Strategies for continuing education and life-long learning often feature in such efforts and they nearly always include a vital role for ICTs. The SPPD-RUPP pilot is planning to make educational material available in the form of computer-based training (CBT) in support of the RUPP training activities for skills development and enterprise management. Hard copy materials for these programmes are well established, tried and tested, facilitating their conversion into CBT format, although effective CBT has to take proper account of the pedagogical aspects of the teaching-learning experience, so that it does not become merely an electronic version of the existing material. Revenue-generating opportunities will become available to the SPPD-RUPP installations through computer training and sub-letting facilities to local teachers for extra-curriculum courses.

E-Commerce

E-commerce relates to the use of ICTs to facilitate trade, implying the exchange of trade information between buyers and sellers. Using the Internet, buyers are able to increase their search domain when seeking products and sellers are able to present their goods to a wider market. However, the real benefits of e-commerce are experienced when value added functions are also facilitated electronically. These include primarily arrangements for financial and logistical transactions, so that deals can be closed completely electronically. Other electronically enabled value added activities include insurance facilitation, auctions, Electronic Data Interchange (EDI), vendor performance rating, customs and excise documentation, trade skills training, just-in-time inventory management and digital trade in digital goods. The RUPP business-to-business (B2B) web site represents an important beginning, as an on-line catalogue, but it must go further in order to merit the label of e-commerce in its fullest meaning. In particular, without the ability to complete financial transactions, the present B2B web site is severely limited in its capacity to encourage trade. In the absence of an appropriate regulatory, legal and banking environment, e-commerce will be slow to spread in Nepal beyond the present embryonic state. The SPPD-RUPP pilot will define a development trajectory for the current B2B initiative with a view to evolving it into a fully-fledged e-market place with vertical as well as horizontal integration models.

E-Governance

E-governance uses ICTs to improve the government-citizen relationship in terms of; service quality, involving efficiency and effectiveness, as well as transparency, accountability and responsiveness. Governments have to commit to such improvements before they can expect to use ICTs to deliver them, and they must make specific arrangements to ensure inclusion of all sections of society in the benefits that are made possible. The most effective improvements will occur in those areas that are of most concern to the citizenry, so that top down, supply driven approaches run the risk of becoming irrelevant to their audience. On the other hand, evidence indicates that political and administrative will is crucial to the delivery of better government services, and this makes it hard to implement e-governance in a bottom up fashion. Where genuine accountability is in place, and the wishes of the people can be represented in the design of government services, and imposed upon those who deliver them, then e-governance can become a powerful tool for social development. The

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municipalities that RUPP works with exhibit strong indicators towards using e-governance for social development, despite not being representative or directly accountable to voters. Whilst the preliminary steps towards increased openness and quality of service have been taken, considerable scope remains for further activities in the same direction. However, significant barriers include the inadequacy of the regulatory and legal environment that has yet to provide for electronic identity verification, or digital signatures, which are necessary for the completion of transactions completely on-line. The banking environment also inhibits electronic payments, which would be capable of increasing the efficiency of financial transactions between government and citizens. The SPPD-RUPP pilot will adopt a two pronged strategy to build on RUPP's e-governance initiative which will generate important feedback in line with the objectives of the project. First, based on an analysis of the impact of the current e-governance initiatives, it will carry out the requisite enhancements in the existing e-governance portals. Second, it will look at ways of enhancing their resourcefulness by widening their scope in terms of accommodating a range of information and services of public value even outside the jurisdictional scope of municipalities. This marks a slight departure from RUPP's current e-governance initiative, which has a decidedly urban-governance (non-rural) orientation and as such is quite limited in scope.

The proposed integrated e-governance model to be implemented in three of the eight partner municipalities of RUPP will include public information from some of the district level government line agencies. The intention is to create a demonstration model of the beginning of an integrated one-stop solution for providing public information and services to the citizens of the municipalities and Rural Market Centres.

Capacity Building

Desirable development outcomes and improvements in social efficiency often occur as the result of individuals expanding their social capital by using ICTs, often as part of pre-existing social groupings that have become further empowered through the use of ICTs. Organisations and associations that represent the interests of poor and disadvantaged groups are often able to exploit ICTs in ways that go beyond what was envisaged by those who introduced them to the technology. Virtual communities with common interests can quickly emerge in cyberspace, sometimes transcending international boundaries, providing mutual strengthening of each other's capacities. Network effects come into play here, as more people join the community, so its usefulness grows exponentially. The RUPP e-governance facilities help municipal authorities that have already committed themselves to openness and improved service, and it is now possible to extend these values further into civil society by extending the facilities to include more features and by allowing more citizens and their representative bodies to make use of them.

Cultural enrichment

Cultural expression is often found to feature in community-derived development aspirations and activities, such as the erection of a statue of a famous poetess in Ardasha TLO, Hetauda. Ethnic minorities frequently voice concern over the preservation and representation of the distinctive characteristics of their culture, and this usually spills over into plans for the use of ICTs when they are made available to them. One common use to which cultural distinctiveness is put is in support of e-commerce in cultural artefacts and handicrafts, which usually find markets with tourists and with the ethnic diaspora who live in distant locations and for who e-commerce provides the most effective means of obtaining such products. The RUPP e-commerce web site has the capability to promote trade in cultural artefacts and handicrafts, whether B2B or business-to-consumer (B2C), but it is not yet capable of leveraging the cultural distinctiveness of such products in a way that would assist with their trade. Buyers, especially foreigners, welcome information about the artisan, the meaning of the product and its place in the culture it represents.

Agriculture support

Farmers' information is crucial to rural development. Most developing countries depend on agriculture; most of their populations live in rural settings, which contain the largest numbers of the poor, and most livelihoods are directly or indirectly regulated by farm efficiency and effectiveness. Increased farm productivity even benefits the landless ultra-poor by increasing job opportunities. In many cases, farmers can be found who are being assisted and encouraged to grow produce that they cannot sell. The RUPP e-commerce web site exposes farmers to market opportunities, thereby assisting in the formulation of diversification strategies. However, the effect so far is to expose farmers to the opportunities and the potential exists for further facilities that could be made available to help farmers act on such opportunities, such as the skills required for producing certain products.

Employment opportunities

Employers need to locate suitable employees and unemployed people need to find jobs. Matching job opportunities with job seekers is an informational affair, something that ICTs can do well. Even day-labourers and migratory workers can access information in employment databases in order to locate job opportunities. Neither of the RUPP e-commerce or e-governance web facilities contain employment exchanges, but they could do. They could be linked to overseas employers of Nepali workers, a major source of income for the Nation.

Social mobilisation

Social mobilisation has been used by RUPP to help communities achieve considerable development outcomes. In doing so, the process has prepared them to make good use of ICTs, not in the sense of becoming computer literate, but more in the sense of empowering them to devise and implement their own development objectives. This is an important step towards the social appropriation of ICTs, by which communities take control of technology and use it for their own purposes. As RUPP evolves and its processes are internalised by municipalities and VDCs, ICTs can be used to support some of the activities of social mobilisation, and even to spread them beyond the RUPP-supported communities. For example, the training and awareness programmes could be converted to computer-based training, a mobilisation manual could be published and a virtual help desk and support centre established on-line, linking mobilisers and communities in a common forum for problem solving and experience sharing.

Question 3.

Given this context, and based on recent experience, both national and international, how can ICT be harnessed for use in facilitating and promoting human development and poverty eradication?

Based on recent experience, ICTs are best harnessed for use in facilitating and promoting human development and poverty eradication by communities appropriating them for their own purposes. This requires promoters of ICTs to empower communities so that they are able to appropriate the technology and to sensitise and mobilise information providers, government institutions, NGOs and private organisations, towards making their information accessible.

In the context of the SPPD-RUPP pilot and taking account of the opportunities described above for applying ICTs to development problems, the development objective outlined

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earlier indicates further strengthening of the e-commerce and e-governance facilities. Specifically, the proposal contains three components:

- establishing telecentres in Municipal Wards and Rural Market Centres that will expand community access to ICTs,
- enhancing the two web sites with additional facilities,
- extending the community mobilization process into one of *Infomobilisation*, as described in the Inception Report.

Further details follow in the next section.

Question 4.

How can ICT best be used and made effective for e-governance and e-commerce in a rural-urban setting?

Rural areas are typified by scattered settlements, villages and small towns, which may be a long way from the nearest major urban centre. Rural and remote areas share some or all of the following characteristics:

- Shortage or absence of public services and health and education services.
- Shortage of qualified technical staff.
- Geographical or topological features that militate against the establishment of a telecommunication network at affordable cost.
- Harsh climatic conditions which impose severe equipment constraints.
- Limited economic activity, centred primarily on agriculture, fishing and cottage industries.
- Low per capita incomes, generally well below those in urban areas.
- Low population density.
- High levels of traffic per telephone line due to the inadequacy of telecommunication services and the large numbers of users per line.

In the majority of developing countries, teledensity (expressed as the number of lines per 100 inhabitants) is low and in some cases very low in rural remote and poorly served areas. One of the prime causes of low teledensity is the high cost of installing equipment in return for low usage. However, new technologies already available or in an advanced stage of development offer scope for marked improvement. Benefits to be derived from the improvement of rural teledensity include the following:

- Integration of the rural population into national economic, social and political life.
- Regional decentralisation.
- Improved effectiveness of government programmes.
- Improvements in social welfare.

ICTs can moderate the negative effects of many of the characteristics of rural life that differentiate it from urban life. E-governance and e-commerce together can; improve public services, overcome the absence of technical staff, promote economic activity, and raise incomes. There are many ways in which urban resources can be extended to rural locations through the use of ICTs. Equally, urban centres can more easily gain access to rural resources, but the balance of the relationship is generally more in favour of the rural locations in terms of the provision of public services and the availability of economic opportunity. ICTs do hold out a certain promise in curbing the overall drift of urban migration.

The quality of public services can be improved by using ICTs and the resulting net benefit to rural populations is generally higher than it is to their urban compatriots who are closer to the

source of the service and who therefore probably enjoy easier access. People appreciate communication facilities that save them long, costly and sometimes arduous journeys to urban centres. They will even pay more for the service if they are able to avoid the expenses of travel and the loss of wages associated with a trip to the city. Typically, urban centres are consumers of rural products, but for a variety of reasons, the rural producers don't seem to get the best returns available for their produce. ICTs can swing the balance of trade more into their favour, by opening up access to better market information that producers can act on.

Question 5.

What other enabling conditions, in addition to information availability and effective access, need to be in place, or put in place, in order to ensure that the acquisition of information and skills can lead to social and economic development (for example, policies and regulations, adequate physical, social, and economic infrastructure, market opportunities, credit facilities, etc.)?

Policies and Regulations

In addition to the policies and regulations that lead to effective access, such as those concerning telecommunications liberalisation and universal service obligation, certain other conditions contribute towards the enabling environment that is necessary for effective use of ICTs in achieving social and economic development. They include a set of cyber laws that bring the existing regulatory backdrop up to date to make it relevant to the use of ICTs. For example, Malaysia has enacted the following set of cyber laws;

Law	Description
Digital Signature Act 1997	Provides for the creation of Certification Authorities to issue digital signatures. Makes digital signatures legally binding.
Computer Crime Act 1997	Makes the misuse of computers illegal.
Copyright (Amendment Act) 1997	Extended the existing 1987 Copyright Act to include multimedia, e.g., making it illegal to transmit copyrighted works over the Internet.
Communications and Multimedia Act 1998	Unites and defines regulations for different communication industries (telecommunications, broadcasting and computing).

Other e-commerce regulatory issues include;

- Tax; whether to tax goods and services sold over the Internet.
- Intellectual Property Rights (IPRs); e.g., unlicensed copying of copyrighted material
- Security; encryption and authentication bringing the same level of assurance to buyers as if the transaction had occurred in the physical world
- Payment Mechanisms; secure electronic payment mechanisms.
- Participation in International Standards; e.g., World Trade Organisation

The policy environment in Nepal is favourable for further elaboration of the necessary regulatory conditions for diffusing ICTs and infusing them more deeply into the social and economic fabric of the Nation, but this is proving to be a slow process, and more progress is likely to be hindered by the adverse political and security climate. The National Information

and Communication Technology Board (NICTB), under the chairmanship of the Prime Minister, is the apex body for providing broad guidelines and directives for the nation's development and use of ICT. The Ministry of Science and Technology (MoST) is the lead ministry entrusted with the overall responsibility for implementing ICT development in Nepal. The Minister chairs the National Information Technology Coordination Committee (NITCC). The National Information Technology Centre, under MoST acts as the secretariat for the NICTB. The National Planning Commission (NPC) formulates and promotes policies and strategies for national development through ICTs.

His Majesty's Government of Nepal published the Information Technology Policy in 2000. The policy was developed to attain the following objectives:

- Make information technology accessible to the general public and increase employment through this means.
- Build a knowledge-based society.
- Establish knowledge-based industries.

The policies to be pursued include actions as follows:

- To create a conducive environment that will attract investment in the private sector
- To provide Internet facilities to all Village Development Committees of the country in phases.
- To render assistance to educational institutions and encourage native and foreign training
- To computerise the records of each governmental office and build websites for them
- To increase the use of computers in the private sector.
- To develop a physical and virtual information technology park
- To promote e-commerce, e-education, e-health, among others
- To transfer technology in rural areas.
- To establish a National Information Technology Centre.
- To establish a national level fund to contribute to research and development
- To include computer education in the curriculum from the school level
- To establish Nepal in the global market through the use of information technology.
- To draft necessary laws that provide legal sanctions to the use of information technology.

The National Communications Policy was initiated in 1992 and resulted in the 1997 Telecommunications Act, which established the Nepal Telecommunications Authority as an autonomous corporate body to manage and regularise the telecommunications service. The Nepal Telecommunications Corporations (NTC) is the national public telecommunications operator and until recently held a monopoly over all aspects of telecommunications. NTC is essentially a government corporation. Under the 1997 Act, the Internet Service Provider (ISP) market was liberalised, along with radio paging and data communications via Very Small Aperture (VSAT) terminals.

Physical Infrastructure

Expansion of the physical infrastructure usually implies some form of obligation or commitment to the provision of universal access to telecommunications services. According to the World Bank, two related issues need to be addressed when designing strategies to promote universal access to information and communications services: the first relates to the 'market efficiency gap', and the second to the actual 'access gap'. The market efficiency gap denotes the difference between the current level of service penetration and the level achievable in a liberalized market, under a stable regulatory environment. The access gap, on the other hand, denotes those situations where a gap between urban and rural areas continues to exist even under efficient market conditions, since a proportion of the population

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(relatively large in developing countries), cannot afford the market prices at which the service is offered.

The market efficiency gap can be closed with a well-known set of policy and regulatory measures. These include the introduction of competition in all service segments and geographic areas, private provision of service (including privatization of the incumbent), developing a transparent and nondiscriminatory regulatory environment and supporting the creation of independent regulatory authorities, capable of promoting a level playing field and enforcing the service commitments of both incumbents and new operators alike. However, in order to close the 'access gap' in the challenging, uneconomic areas or to reach isolated poor customers typically experienced in Nepal, governments may need to employ a mix of several possible approaches. Experience shows that many of these areas can be profitable in the medium term, when private operators are involved and given a fair and transparent regulatory regime. Regulatory incentives to attract investors to high cost or challenging areas can be created through specific universal access policies and public investment subsidy schemes.

Support for universal access policies can therefore be aimed at the design and implementation of universal access regulatory and funding mechanisms. Such a strategy would focus on achieving universal access through a mix of policy reform and targeted pro-poor investment instruments along the following four major strategic directions:

- Design and implement the most appropriate policies and regulatory instruments to promote universal access, addressing both the market efficiency gap and the access gap.
- Mobilize financing for investments and transactions in access facilities and networks, both from the government subsidy perspective, as well as from the private operator perspective.
- Build institutions and human capacity to adapt, implement, and make best use of ICTs.
- Pilot new approaches, create and disseminate knowledge, and raise awareness within institutions, partners, and the public in general.

The SPPD-RUPP pilot is addressing aspects of all of these strategic directions; developing policy advisory resources for closing the access gap, implementing networks and access facilities, extending human capacity at the institutional and grassroots levels, and piloting new approaches (for Nepal) whilst raising awareness and disseminating knowledge.

Social Infrastructure

Two dimensions of the social infrastructure are applicable to ensuring that the acquisition of information and skills can lead to social and economic development. Firstly, individuals and communities need to be alerted to the potential for development opportunities that are based on information assets, and they need to be provided with opportunities for acquiring the skills they will need to make the most of such opportunities. To do this in a sustainable manner, they need to appropriate the technologies that facilitate information flows and to become empowered with the ability to take greater responsibility for their own development. Infomobilisation, described in the SPPD-RUPP Inception Report, builds on social and community mobilisation to empower communities to exploit development opportunities that take advantage of information assets as opposed to physical assets. As part of this process, communities appropriate ICTs for their own uses. The SPPD-RUPP pilot will deploy the RUPP community mobilisation skill resource set within its pilot implementations as a natural extension of the preceding work of the Programme.

The second dimension of the social infrastructure relates to the institutional reform that will be required by government agencies, NGOs and the private sector in adopting ICTs and

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converting to the new methods of working and by adjusting their conventional patterns of behaviour, responsibilities and relationships so that ICTs can achieve their full potential. In corporate life, such adaptations are often referred to as re-engineering, in which basic assumptions and traditional patterns of behaviour are re-examined within a framework of creating new opportunities out of an ICT-enabled operating environment, such that work improvement of many orders of magnitude can be realised. One example is the Bhoomi project of online delivery of land titles in Karnataka, India, described in the SPPD-RUPP Fact-finding Report.

Economic Infrastructure

Nepal's economic infrastructure is characterised by low GDP per capita (around US\$220) and high economic disparity, especially between urban and rural areas. GDP directly correlates with teledensity (the number of telephone lines per 100 inhabitants) worldwide, and in Nepal, rural populations are 100 times less likely to have access to a telephone than are their urban counterparts. In fact, GDP correlates with almost all social indicators, meaning that poor people are the least able to acquire information and skills, and are in the greatest need of assistance to help them do so. The effects of teledensity are exacerbated by geographical conditions of remoteness and difficult terrain, which are at their most challenging in Nepal. As the default condition with ICTs is that they will always benefit the advantaged sections of society, specific pro-poor measures are required to make them capable of contributing to poverty alleviation. The SPPD-RUPP pilot incorporates pro-poor measures within the process of Infomobilisation, but they are dependent on the willingness of the community to implement such measures. Nevertheless, the Programme has already demonstrated effectiveness in assisting poor people, and the introduction of ICTs will strengthen these activities.

Market Opportunities

Alongside the distribution of access to ICTs, it is necessary to create electronic market places that reflect the trading opportunities available to users and to the products that they wish to trade. One approach is the vertical industry portal, a web site that describes and indexes the vendors of a given good or service, and provides links for them for interested customers. The transaction is then negotiated independent of the electronic marketplace. Government can facilitate the creation of the site if the private sector does not do so, but responsibility for the content would be decentralised and the organisations offering goods and services would provide and maintain their own material. Three industries are immediately suitable for vertical portals in Nepal; agriculture, tourism and handicrafts. RUPP is already operating a rudimentary vertical portal in agricultural products, but tourism, especially trekking, represents another good candidate. Also, the handicraft industry, a significant component of the rural economy employing 300,000 people, has been growing steadily and can be made accessible to expatriate Nepalis wishing to purchase local items from overseas, either for exporting to themselves or for delivery to family and friends at home. Industry portals should be comprehensive; providing extensive background material on products, terms, customs procedures, shipping and warehousing options, sales volumes etc. The web-based catalogue only represents the tip of the e-commerce iceberg; payment and fulfilment must also be catered for. Other useful facilities include inventory queries, delivery scheduling and shipments.

Credit Facilities

B2B e-commerce is not typically accompanied by credit card payments, but the banks need to be involved if electronic fund transfers are to become reality. Low-cost local community banks can capitalize on the growth of e-commerce by facilitating simple payment systems. Without such arrangements, e-commerce remains in the first generation of electronic brochures, and fails to achieve the full potential of the technology.

Question 6.

What social imperatives need to be in place, or put in place (for example, sufficient education or other skills), to access or make use of the information available through ICT and other means of communication?

The most effective model of information delivery involving rural telecentres in developing countries is through the process known as *infomediation*. Telecentres are staffed by people who are, ideally, drawn from the local community and who are computer literate. They are able to surf the Internet to find information and to send and receive e-mails, download files and so on. They perform functions on computers on request from community members who are not able to do it themselves, for whatever reason. An important part of the role is to proactively seek information that their position as a community member tells them will be of interest to the rest of the community. For example, an infomediator working in a fishing village would be on the look out for weather information, about fishing technology as well as potential markets for the local fishermen's catch. S/he would disseminate such information as effectively as possible, using notice boards, leaflets, newsletters, etc. In so doing they act as mediators between information resources and the people who can use the information. Often, infomediators act as volunteers, sometimes in return for access to the Internet. This is often appealing to schoolchildren, teachers and NGO representatives. Overall, the extent to which a community can organise itself and act independently as a group is an important indicator of their likelihood of achieving desirable outcomes with ICTs. Telecentres should be established and operated in full and equal participation with recipient communities. The following community characteristics have been shown to be influential in determining telecentre outcomes:

- Their development aspirations.
- Their capacity for getting things done.
- Their ability and willingness to learn new things.
- Their ability to organise.
- Their sense of unity.
- The level of joint participation.
- The strength of their relationships, internal and external.
- The presence of strong personalities, or champions.

Question 7.

What is the current developmental context in Nepal, the nature and status of information and skill transfer, the standard and condition of communications for development; and the present status and use of ICT skills and facilities?

The current developmental context in Nepal

Nepal ranks as one of the world's poorest countries with a per capita gross national product of \$220 a year. The incidence of poverty is estimated to be about 42 per cent, with 17 per

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cent of the population estimated to be “very poor” while another 25 per cent are considered to be “moderately poor”. In 2000, Nepal was ranked 144 among 174 countries in the Human Development Index. Major variations in the incidence of poverty among the 75 districts of the country can be clearly observed. There is greater poverty in rural areas as compared to urban areas – 44 per cent to 23 per cent. The mid and far-western development regions are significantly poorer than the central and eastern regions. Nepal’s rural areas are confronted with acute and serious forms of land degradation, deforestation, loss of biodiversity, and scarcity of fuel wood. However, significant advances have been made in promoting human development in the last decade. Public expenditures in the social sectors increased from 22 per cent to 36 per cent of total government expenditures. The number of primary and secondary schools has grown by 57 per cent. More people have access to education and health now than a decade ago. The number of health workers has tripled in 10 years. More than 7 million people have been provided with access to piped water. Average life expectancy has increased by nearly 10 years. The road network has doubled, enabling a large number of towns and villages in peripheral areas to participate more fully in the country’s economic and social life.

The nature and status of information and skill transfer

The overall adult literacy rate is estimated at about 40 per cent, but for women it is less than 30 per cent. The ratio of girls to boys in primary education is 74 per cent, but this declines to 51 per cent at the secondary level. Unequal practices, primarily related to property rights and access to resources, health and education, have led to greater poverty among women. There are four universities in the country. Distribution of newspapers is heavily skewed in favour of the Kathmandu Valley and Terai. Nepal was one of the last nations to begin TV broadcasting and international email. Most Nepalese have no access or poor access to mass media, which is not used by a substantial portion of the population. Radio has been broadcast since 1951, now reaching 80-90% of the population. Satellite radio, which is indifferent to terrain, is being introduced on an experimental basis for development-oriented broadcasting. TV began in 1985, with Nepal TV and by 2000 was within reach of 42% of the population, with 10% actually watching, and 32% of the land area. Cable television is now widespread, with around 80 cable TV companies operating in the country.

The standard and condition of communications for development

Despite rapid growth in the telecommunications sector, Nepal is yet to catch up with the global trend, due in large part to difficult terrain and lack of an adequate transport network. A government survey for fiscal 2002-03 reports that the biggest challenges for establishing a viable and efficient telecommunications network is the unavailability of modern technology and a lack of adequate infrastructure. Of the total 3,914 Village Development Committees (VDCs) across the country, 1,761 or only 45% had access to telephone services by mid February 2002. This number could not be increased, said the government, due to the adverse security situation. Some district headquarters have no access to telecommunication services. There have been developments though. The policy for using the Global System for Mobile Communications (GSM) technology for cellular mobile services provided by the private sector is now in place. The number of mobile telephones in place reached 29,039 by the first quarter of 2003. Nepal Telecommunication Authority has issued licenses to 83 services providers, including Internet with email, radio paging networks, and videoconferencing. The Special Rural Telecommunications Programme aims at extending Wireless Local Loop (WLL) technology based services to 99 VDCs, and the World Bank is assisting with the connection of 534 VDCs in Eastern Development Region to the telephone network. In 2002-03, the incumbent government telecommunications provider, the National Telecommunications Corporation (NTC), has been operating telephone services through 159 exchanges within the country, which is an increase of 17 exchanges over the previous year.

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The installed exchange capacity amounts to 409,833 telephone lines. International circuit capacity is now capable of directly reaching 131 countries.

In 2000 the government signed a US\$9 million contract to purchase 1,000 Very Small Aperture Terminals (VSAT) for satellite-based voice communications for the purpose of providing every VDC in the country (except the Eastern Development Region) with at least two telephone lines. By July 2003, 200 units had been delivered to Nepal, and 60 installed, most of which were not working, as, it was claimed by NTC, the devices had not been field-proven. There are also problems with the quality of the WLL services, with users waiting for a dial tone and suffering lack of clarity, dropped connections and unreliable equipment. By July 2003, after nine months of operation, 128 lines had been distributed, but new connections have been stopped due to the complaints, according to NTC.

The present status and use of ICT skills and facilities

The urban telephone density is about 15%, but the rural telephone density is only 0.127%, resulting in a national telephone density of 1.42%. Whilst all municipalities have digital transmission and exchange services, only about six percent of VDCs are estimated to be using a telecom system that could sustain Internet services. In 1999, the government allowed Internet Service Providers (ISPs) to have their own international connectivity using VSATs. This increased the international Internet bandwidth by thirty times within one year, and it transformed the market as Internet charges fell dramatically. Leased lines from PSTN, radio links and VSATs constitute data communication networks. At present, there are four private VSAT network providers and 18 ISPs with a cumulative bandwidth of more than 20 megabits per second (Mbps).

The four universities in Nepal receive an annual intake of 5,000 students in IT subjects alone. Eight thousand students appear in the national school leaving certificate examinations with computer science courses offered in two hundred schools. The government has appropriated an annual budget for IT education at colleges, and for training middle level IT professionals, with the goal of training 50,000 professionals in three years. The government has also completed the preparatory processes for the establishment of two new institutes of technology, which will be developed as centres of excellence for undergraduate and postgraduate education in ICT. Financial resources remain a challenge and plans are under way for starting the IT Development Fund to solicit funds from the government, private sector and the donor agencies for human resources development.

The MOSAIC Group³, is one of several organisations that assesses national e-readiness. It uses six dimensions, each of which has five ordinal values ranging from zero (non-existent) to four (highly developed), for assessing the state of the Internet in a country. Using the MOSAIC framework, a team from the International Telecommunication Union assessed the situation in Nepal in January 2000, with the following results;

The State of the Internet in Nepal, 2000.		
Measure	Description	Score from 0 (low) to 5 (high)
Pervasiveness	The number of users per capita of population, and the degree to which non-technicians are using the Internet.	1
Geographic Dispersion	The concentration of the Internet within a nation, from none or a single city to nationwide availability.	1.5
Sectoral	The degree of utilization of the Internet in education,	1

³ mosaic.unomaha.edu/gdi.html

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Absorption	commercial, health care and public sectors.	
Connectivity Infrastructure	International and intra-national backbone bandwidth, exchange points and last-mile access methods.	1
Organizational Infrastructure	The state of the Internet Service Providers industry and market conditions.	2.5
Sophistication of Use	Characterises usage from conventional to highly sophisticated and driving innovation.	1
Total Score		8

Country Comparisons of the State of the Internet		
Country	Score	Date of Rating
Nepal	8	January 2000
China	14.5	May 2000
India	13.5	December 1999
Pakistan	11.5	November 1999
Sri Lanka	11	August 1999
Bangladesh	6	March 1999

Question 8.

Given the context provided by the foregoing background, recommendations for the improvement of information and skill dissemination, what will be the intended and likely development impact, how and in what way(s) can ICT best be used strategically to enhance not only information and skill acquisition, but accelerated, equitable, sustainable, and better quality rural-urban development?

Intended and likely development impact

The SPPD-RUPP pilot has the following intended development impacts:

- To make information technology accessible to the general public and by this means stimulate local business and economic development, and increase employment opportunities.
- To ascertain the potentials of ICT as an instrument for effecting human development, and e-governance and e-commerce in particular.
- To further the on-going efforts of the Rural-Urban Partnerships Programme (RUPP) in demonstrating the benefits and use of ICT in practice.
- To develop a proven set of operational modalities, procedures, and techniques: with some successful model examples of the beneficial results of ICT in development.
- An additional result will be a set of policy recommendations that will contribute to upstream development efforts in Nepal.
- To facilitate e-governance and e-commerce to stimulate pro-poor rural-urban linkages.

In the light of the foregoing background, the SPPD-RUPP pilot will have the following likely development impacts:

- Increase the incomes of small-scale enterprises arising from the delivery of better information relating to market prices and market opportunities.
- Increase the incomes of small-scale enterprises arising from the easier access to training resources in enterprise management and trade skills.

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- Increased development activity among communities, which is based on their own choices and priorities and on the exploitation of information assets.
- Increased incomes and participation in development activities for women and minority groups.
- Increased ability to utilise ICTs for achieving development goals as a result of greater awareness of the capability of ICTs as well as more widespread computer literacy.
- Increased incomes from additional opportunities for trade across market zones.
- More efficient and responsive local government services.
- Increased incomes arising from wider exposure to employment opportunities.

How can ICT enhance information and skill acquisition, and accelerate rural-urban development?

ICT will enhance information acquisition by delivering useful information to community-based public access shared facilities in the form of telecentres. The information to be provided is outlined in the SPPD-RUPP Inception Report, and it is based on the existing RUPP initiated facilities for e-commerce and e-governance. The information will accelerate rural-urban development by:

- Making market information from urban markets more quickly and easily accessible to rural producers.
- Promoting trade across market zones and regions by making it possible for buyers in more distant urban centres to purchase rural products.

Proposed Implementations

Site Selection

The selection of sites for implementing telecentres in the SPPD-RUPP pilot is driven by the selection criteria outlined in the Inception Report. A scoring and ranking exercise was conducted, using these criteria, and the results are shown in annex 1. Applying the criteria to the sites visited during the consultations results in the following ranking:

Site	Score	Rank
Bhimphedi RMC	100%	1
Dulegaunda RMC	93%	2
Pokhara Ward18	92%	3
Khaireni RMC	87%	4
Nepalgunj Ward 1 Ardasha 'A' TLO	84%	5
Adarsha TLO Hetauda	76%	6
Madan Pokhara Ward 14 Tansen	74%	7
Butwal Ward 15	74%	8
Narayanpur RMC	73%	9
Rajahar RMC	60%	10
Baluwang RMC	60%	11
Lamahi RMC	60%	12
Pokhara Ward 17	53%	13

Not all potential sites were visited during the consultations. In Bharatpur, Tulsipur and TribhuvanNagar, specific wards were not singled out for consideration. Also, no visit was

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made to Biratnagar owing to bad weather and resultant inaccessibility of Rangeli, the nearby RMC. Accordingly the following strategy is adopted for site selection:

- From the sites visited, select the top 12, arbitrarily setting a cut-off score of 60%, as Pokhara Ward 17 seemed a particularly unattractive location in terms of achieving the pilot objectives.
- Select two wards from each of Bharatpur, Tulsipur and TribhuwanNagar, according to local advice.
- Select a ward in Biratnagar, in order to include it, and according to local advice.
- Select Rangeli in order to include an RMC in conjunction with Biratnagar.

The SPPD-RUPP pilot will therefore establish 17 telecentres in RMCs and Municipal Wards as shown in table 1

Table 1. Site Locations for Telecentres		
Municipality	Ward	RMC
Bharatpur	Ward #7	Rajahar RMC
Hetauda	Adarsha TLO	Bhimpheedi RMC
Pokhara	Ward #18	Dulegaunda RMC
Tansen	Ward #14	
Butwal	Ward #15	Khaireni RMC
Nepalgunj	Ward #1 Ardasha 'A' TLO	
Tulsipur	Ward #9	Narayanpur RMC
TribhuwanNagar	Ward #10	Lamahi RMC
		Baluwang RMC
Biratnagar	Ward #11	Rangeli
	9 wards	8 RMCs
	17 telecentres	

Software

The following software development will be required:

E-commerce

The SPPD pilot will focus on building upon the current B2B initiatives of RUPP. This will have four components:

- vertical integration model in a specific product category to be decided by the SPPD pilot in conjunction with RUPP
- mapping out its development trajectory in the form of an e-marketplace with integrated value chains
- defining the roles and responsibilities of key stakeholders in the initiative (AEC, WEAN, CCI, RUPP) and
- technical refinement of the user interface

E-governance

Whilst e-governance in Nepal will remain inhibited by the absence of a suitable legal framework for on-line transactions that allows for the verification of a citizen's identity, that does not mean that further advancements cannot be made, based on the foundation already in place. Some or all of the opportunities identified in the Inception Report, repeated in table

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2 can be implemented as part of the SPPD-RUPP pilot. In addition, it will be possible to implement and test Community Information Systems.

Table 2. Measures to extend e-governance

Recommended measure	Description	Relevant Clause in the Local Government Act
1. Statement of Property	Public declaration of the moveable and immovable property of the Member of the municipality and his/her family.	87
2. Performance Opinion Poll (W)	Continuous public rating of the ward committee's performance against its statutory functions and duties.	93
3. Audit Report	On-line publication of the audit report	94(d)
4. Municipal Payroll	Public on-line declaration of employees and their ranks and duties with associated pay scales.	94(e)
5. Municipal Byelaws	On-line publication of byelaws	94(h)
6. Performance Opinion Poll (M)	Continuous public rating of the municipality performance against its statutory functions and duties.	96
7. Inventory of Helpless Children	Public list of helpless, orphan or disabled children.	96j(10)
8. Distinguished Persons	Public commendation of distinguished persons.	96j(20)
9. Literacy Programme	To eradicate literacy from the municipality area.	96.2(b)
10. Library Catalogue	On-line catalogue of library materials	96.2(c)
11. Unemployment and Job Register	Collect data of unemployed persons and match to job vacancies. On line register of skills of unemployed persons.	96.2(i)
12. NGO Web Sites	Help consumer groups and other NGOs by providing space for their web sites.	99(b)
13. Development Plans (M)	Municipality development plans on-line	111(1)
14. Development Plans (W)	Ward development plans on-line	111(5)(b)
15. Implemented Projects	On-line information on projects selected for implementation.	114(5)
16. Statements of Expenditures	The municipality has to publicly inform on its incomes and expenditures in all of its wards.	126(5)
17. Tax Submissions	On-line submission forms for various taxes.	136-146
18. Public Forum	Interactive web site for public submission of complaints, with their associated responses.	167
19. Municipal Procurement	On-line tenders, bids, quotations and pre-qualification submissions. Use of the B2B e-commerce web site for procurement from preferred suppliers, especially cottage and small industries in the municipal area.	96(a)(3) 96(i)(1)
20. Cultural Inventory	On-line inventory of the culturally and religiously important places within the municipality area	96(e)(a)
21. Public Health Programmes	On-line programmes for family planning, mother and child welfare, vaccination, nutrition, population education and public health.	96(g)(3)
22. Cooperative	On-line assistance for the development of	96(j)(22,24,25)

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Assistance Programme	cooperatives.	
23. RUPP Internalisation	On-line materials in support of RUPP internalisation, for community mobilisation; TLO formation, savings and loans, obtaining training and other inputs.	

Staffing

There are three components to staffing the telecentres, control and direction, management and operations.

Control and Direction

It is necessary to ensure the telecentres are accountable and responsive to community needs. Some form of Steering Committee, or Board of Directors will be required, with the following tasks:

- appoint and oversee the telecentre management
- ensure the community derives benefit from telecentre operations
- monitor operations
- supervise financial arrangements.

Management

Effective day-to-day management is a key determinant of telecentre success. The role of a telecentre manager is described in the Inception Report. Effective managers are often drawn from the community and are familiar with its information requirements.

Operations

Staff are required to operate the telecentre, acting as *infomediaries* for the community. Existing community-based organisations, self-help groups, school children and students are often effective at this role, sometimes as volunteers in return for computer time.

Technology Specifications

Hardware and software specifications are as follows:

TYPE A - Rural Market Centres

Hardware

1 x PC

Intel P4/ 1.8GHz

Min. 128 MB SDRAM

256KB Standard Cache

40GB HDD

1x 1,44 Mb FDD

52X CD-ROM Drive

1 x NIC Card with RJ 45 connector for p-to-p networking

I/O – 3 PCI / 1 AGP

Full Duplex Sound Card

15" Monitor

TYPE B - Municipal wards

Hardware

1 x PC

Intel P4/ 1.8GHz

Min. 128 MB SDRAM

256KB Standard Cache

40GB HDD

1x 1,44 Mb FDD

52X CD-ROM Drive

1 x NIC Card with RJ 45 connector for p-to-p networking

I/O – 3 PCI / 1 AGP

Full Duplex Sound Card

15" Monitor

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Dust cover

Dust cover

- 1 x Laser printer HP LJ 1200
- 1 x External modem with error connection (ISO certified)
- 1 x UPS with surge and spike protection
- 1 x Scanner
- 1 x web camera
- 1 x Telephone with STD/ISD facilities and dial-up connectivity

- 1 x Laser Printer
- 1 x UPS
- 1 x Telephone with STD/ISD facilities with dial-up connectivity

Software - (Community use)

- 1 x MS-OFFICE suite
- 1 x Windows XP (with documentation)
- 1 x Frontpage and/or
- 1 x Dream weaver
- 1 x Arcview GIS (run time module)
- 1 x Norton Antivirus
- 1 x Norton Utilities

Software (System)

- 1 x MS-OFFICE suite
- 1 x Windows XP (with documentation)
- 1 x Frontpage and/or
- 1 x Dream weaver
- 1 x Arcview GIS (client module)
- 1 x Norton Antivirus
- 1 x Norton Utilities

Institutional Strengthening

Chambers of Commerce and Industries

The local chapters of Chambers of Commerce and Industries are important institutions representing the private sector. The role of CCI's under a proactive strategic framework in the promotion of e-commerce based business models and their sustainability are therefore quite significant given a scenario where awareness about the potential of ICTs and knowledge that is required to translate this potential into productive business models is low among entrepreneurs.

The SPPD pilot will work closely with CCI's in ensuring that the current e-commerce based initiatives undertaken by RUPP are grounded increasingly on the needs and aspirations of business communities. Along these lines, the SPPD pilot in conjunction with local chapters of the CCI will work in the following areas with the CCI's of municipalities selected for pilot implementation:

- assessing of the impact of current B2B initiatives through the development and refinement of evaluation and monitoring tools
- identification and development of business models based on the conceptual premise of rural-urban linkages. This will include development of at least one vertically integrated business model specifically in the herbs sector in partnership with RUPP, Nepalgunj and Tulsipur CCI's, AEC, and WEAN.

Given that CCI's are key institutions with important roles to play in helping create conditions for harnessing ICTs to enhance business processes, it will be necessary to build their institutional capacities so that they can respond effectively to the new opportunities offered by these technologies. The SPPD pilot in conjunction with RUPP will undertake the following activities towards this end:

- supporting CCI's in organizing workshops, seminars and interaction programmes for their members to raise their level of awareness about the potential of e-commerce and internet based business models

Comment: Outstanding for Feasibility

Software
e-commerce

re-design interface for usability

Institutional Strengthening

Capacity gap analysis
Chambers of Commerce and Industries
Municipalities

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- providing technical training to CCI officials in charge of supporting the B2B/ e-Marketplace portal.

Municipalities

Since e-Governance and e-Commerce are relatively new additions to RUPP's strategic orientations, it appears that RUPP capacity development initiatives in municipalities so far have not been able to adequately address these sectors. More so on the area of e-Governance where municipalities play a central role. It is therefore important from this perspective to ensure that additional capacity development activities are taken as part of the pilot.

The SPPD pilot will undertake the following activities aimed at raising the level of awareness on e-governance among the municipal staff, TLO and ward representatives and outlining the framework of institutional provisions that must be in place to implement e-governance on a sustained basis:

- conducting orientation programmes on e-Governance to municipal staff, members of TLO's and Non-government organizations
- enhancing technical skills of municipal staff assigned to maintain and manage e-Governance web sites
- helping fine-tune the evaluation and monitoring mechanism that is in place

Communities

Communities will be empowered with the capability to expand their enterprise development opportunities as well as their marketing capability through the use of the e-commerce web site. They will be empowered to engage more directly with government services through their use of the e-governance web site. Finally, they will be empowered to use information more intensely for their own development priorities through the process of Infomobilisation, which will be implemented by the RUPP staff in charge of the telecentres. Infomobilisation is a collection of participative activities that ensure ICTs have optimal impacts for development within given communities. It provides a methodology to design technology and social systems simultaneously through a participative and incremental process that does not require coercion and creates no resistance to change. It is based on community mobilisation, which it extends into the use of ICTs for promoting development activities that are based on information assets, as opposed to physical assets.

Monitoring and Evaluation

Monitoring and evaluation in the SPPD-RUPP pilot has two aspects; monitoring the activities required to achieve the pilot outputs, and evaluation of the pilot outcomes. Outputs relate to the physical and human facilities that are required to be in place for the pilot beneficiaries to enjoy the pilot outcomes, in terms of the human development enhancements that the pilot targets. Monitoring activities are concerned with the following;

- establishing the telecentres,
- operating the telecentres
- conducting training of telecentre personnel,
- developing software.

Evaluation is concerned with establishing appropriate indicators for the defined pilot outcomes, and then designing instruments for measuring the indicators. Indicators can be hard (i.e. numbers) or soft (e.g., attitudes, opinions and perceptions). Both are desirable.

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Soft indicators can be expressed in hard terms if necessary, and vice-versa. Soft indicators are equally approachable as hard indicators. Proposed outcome indicators for the pilot's development impact are shown in table 3.

Strategic Plan of Action

The Strategic Plan of Action covers the following topics:

- Implementing ICTs for Social and Economic Development
- Capacities
- Content Development
- Institutional Ownership
- Partnerships
- Telecentre Operational Modalities
- Financial Sustainability
- Work Schedule for Pilot Activities
- Budget
- Project Web Site
- Refined Strategic Plan of Action
- Infomobilisation

Table 3. Outcome Indicators

Development Impact	Indicator
1. Increase the incomes of small-scale enterprises arising from the delivery of better information relating to market prices and market opportunities.	The income earned by enterprises as a result of their participating in the e-commerce web site should increase above that which they earned prior to participating. And/or, enterprises that participate in the e-commerce web site should earn significantly more than those that don't, other things being equal.
2. Increase the incomes of small-scale enterprises arising from the easier access to training resources in enterprise management and trade skills.	The income earned by enterprises as a result of their receiving computer-based training associated with the e-commerce web site should increase above that which they earned prior to receiving the training. And/or, enterprises that receiving the training should earn significantly more than those that don't, other things being equal.
3. Increased development activity among communities, which is based on their own choices and priorities and on the exploitation of information assets.	Communities in which telecentres are established undertake significantly more development activity, in terms of defining, planning prioritising and implementing activities, after they begin making full use of the telecentre, than before they had the use of the telecentre. And/or, communities in which telecentres are established undertake significantly more development activity, in terms of defining, planning prioritising and implementing activities, than communities in which telecentres have not been established.
4. Increased incomes and participation in development activities for women and minority groups.	The income earned by women and minority groups as a result of their participating in the e-commerce web site should increase above that which they earned prior to participating. And/or, women and minority groups that participate in the e-commerce web site should earn significantly more than those that don't, other things being equal.
5. Increased ability to utilise ICTs for achieving development goals as a result of greater awareness of the capability of ICTs as well as more widespread computer literacy.	The computer awareness, computer literacy and information literacy of community members increases after the implementation of a telecentre. And/or, the computer awareness, computer literacy and information literacy of community members after the implementation of a telecentre is significantly greater than that of a community without a telecentre, other things being equal.
6. Increased incomes from additional opportunities for trade across market zones.	The income earned by enterprises as a result of their participating in the e-commerce web site increases above that which they earned prior to participating, and as a result of trade across market zones which they did not carry out before using the web site.
7. More efficient and responsive local government services.	Citizens feel their local government services have become more efficient and responsive since opening the e-governance web site, and/or citizens whose local government uses the e-governance web site feel their local government services are more efficient and responsive than citizens whose local government does not use the e-governance web site.
8. Increased incomes arising from wider exposure to employment opportunities.	The income earned by individuals as a result of their finding employment from the e-governance web site.

Annex 1. Site Selection Scoring and Ranking

Score		
Priority	Yes	No
High	3	0
Medium	2	0
Low	1	0

R = Rating

S = Score

Criteria	Description	Priority	Rajahar RMC		Adarsha TLO Hetauda		Bhimphedi RMC		Pokhara Ward 17		Pokhara Ward 18		Dulegaunda RMC		Madan Pokhara Ward 14 Tansen		Butwal Ward 15		Khaireni RMC		Nepalgunj Ward 1 Ardasha 'A' TLO		Lamahi RMC		Baluwang RMC		Narayanpur RMC	
			R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S	R	S
1. ISP presence	To facilitate access to the Internet	High	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	No	0	Yes	3	Yes	3	Yes	3	No	0	No	0	No	0
2. RUPP e-commerce web site in place	To allow for the immediate delivery of e-commerce applications at centres that are located within a Rural Market Centre	High	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3
3. Suitable premises available	A suitable location for the telecentre; accessible, visible, open to the public, non-threatening, safe, secure, clean, access to electricity and telecommunications, within existing community centre location, within easy reach of its constituents.	High	Yes	3	Yes	3	Yes	3	No	0	Yes	3	Yes	3	Yes	3	Yes	3	0	0	Yes	3	Yes	3	No	0	Yes	3
4. Telecommunication infrastructure	Availability and adequacy of the telephone system, to facilitate data communications	High	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	No	0	Yes	3	Yes	3	Yes	3	No	0	No	0	Yes	3
5. Pro-poor focus	The potential for delivering benefits to poorer sections of a community.	High	No	0	No	0	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	No	0	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3
6. Gender sensitive focus	The potential for delivering benefits to women.	High	No	0	Yes	3	Yes	3	No	0	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	Yes	3	No	0	No	0	No	0
7. Chamber of Commerce and Industry	Demonstrated willingness of the CCI to participate.	High	N/A	0	Yes	3	N/A	0	Yes	3	Yes	3	N/A	0	Yes	3	Yes	3	N/A	0	Yes	3	N/A	0	N/A	0	N/A	0

SPPD-RUPP. Feasibility Study

			Rajaha r RMC		Adarsha TLO Hetauda		Bhimphedi RMC		Pokhara Ward 17		Pokhara Ward18		Dulegaunda RMC		Madan Pokhara Ward 14 Tansen		Butwal Ward 15		Khaireni RMC		Nepalgunj Ward 1 Ardasha 'A' TLO		Lamahi RMC		Baluwang RMC		Narayanpur RMC	
8. Catchment area	The centre serves a hinterland with a demonstrable demand for development information, where alternative sources are scarce and from which the centre is accessible.	High	Yes	3	No	0	Yes	3	No	0	Yes	3	Yes	3	No	0	No	0	Yes	3	No	0	Yes	3	Yes	3	Yes	3
9. Municipal ward is 'rural remote'	Municipal wards are distant from existing sources of information and ICTs.	High	N/A	0	No	0	N/A	0	Yes	3	No	0	N/A	0	Yes	3	No	0	N/A	0	No	0	N/A	0	N/A	0	N/A	0
10. Enthusiastic community	A community that has demonstrated it is willing to contribute its own resources towards establishing a telecentre; e.g., funds, premises, staff, equipment.	Medium	No	0	Yes	2	Yes	2	No	0	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2
11. RUPP e-governance web site in place	To allow for the immediate delivery of e-governance applications at centres that are located within a municipality	Medium	N/A	0	Yes	2	N/A	0	Yes	2	Yes	2	N/A	0	Yes	2	Yes	2	N/A	0	Yes	2	N/A	0	N/A	0	N/A	0
12. Capable community	Shows signs of being capable of appropriating the centre for its own use. Demonstrates the ability to organise and get things done.	Medium	Yes	2	Yes	2	Yes	2	No	0	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	No	0	Yes	2	Yes	2
13. Amenable authorities	Local authorities are willing and capable to contribute to project implementation, to assume some important responsibilities and to generally help make it work.	Medium	No	0	Yes	2	Yes	2	No	0	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2	Yes	2
14. Trained personnel	Locally recruitable and trainable people to staff the centre; manager, technical support, community relations, volunteers.	Low	No	0	Yes	1	Yes	1	No	0	Yes	1	No	0	No	0	No	0	No	0	Yes	1	No	0	Yes	1	No	0

SPPD-RUPP. Feasibility Study

			Rajahar RMC		Adarsha TLO Hetauda		Bhimphedi RMC		Pokhara Ward 17		Pokhara Ward 18		Dulegaunda RMC		Madan Pokhara Ward 14 Tansen		Butwal Ward 15		Khaireni RMC		Nepalgunj Ward 1 Ardasha 'A' TLO		Lamahi RMC		Baluwang RMC		Narayanpur RMC	
15. Partners	The presence of willing partners for potentially operating the centre and providing mutually beneficial services and/or information; entrepreneurs, school, college, library, CCI, development NGOs, other development organisations/projects.	Low	No	0	Yes	1	Yes	1	No	0	Yes	1	No	0	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	No	0
16. Accessible	The centre is easily accessible for the project staff. In view of the limited time available for pilot implementation, serving remote locations will jeopardise project completion.	Low	Yes	1	Yes	1	Yes	1	No	0	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1	Yes	1
	Total Score			18		29		30		20		35		28		28		28		26		32		18		18		22
	Percentage (RMC max = 30; Ward max = 38)			60%		76%		100%		53%		92%		93%		74%		74%		87%		84%		60%		60%		73%