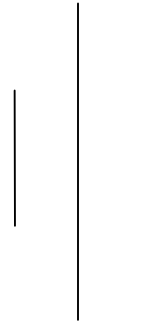


A Project Proposal on  
**RURAL TRANSFORMATION BY THE ESTABLISHMENT OF COMMUNITY  
INFORMATION CENTERS IN THE RURAL AREAS OF NEPAL:  
A PILOT PROJECT**



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## EXECUTIVE SUMMARY

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The proposal has been prepared for the rural transformation by the establishment of community information centers (CICs) in remote villages of Nepal. Vision of NRIDS is to transform the traditional society into the knowledge based society by the maximum uses of Information Communication Technologies (ICTs).

Due to the geographical and topographical variation in Nepal, the remote areas have not been fully integrated into the reach of modern day technology for the rapid socio economic development and bringing it into the national mainstream. A vital need has been felt to adopt the modern Information and Communication Technologies (ICTs) in the global context of Nepal.

Nepal Rural Information Technology Development Society (NRIDS) was established in 2004 with the objective of bringing ICTs awareness and services to people living in rural areas throughout Nepal. The fact that Nepal has failed to embrace the information revolution over the last ten years means that as a country we have fallen further behind the developed world, rather than gaining ground. Everyone would agree that Nepalese people who are involved in agriculture, education, construction, and tourism can benefit greatly from access to the Internet and e-commerce, just as residents of other countries have. If only these people could have their eyes opened to how business and education is carried out in the developed world, business would prosper, women-poor and disadvantaged communities would be empowered and students would flourish. The problem is that much hard work is needed to provide computer access and training to rural areas in Nepal, and, as it stands, very little is being done to rectify the existing information shortage.

This work began with the endorsement of the Syangja District Development Committee; the members of NRIDS have been formulating a blueprint to convert Syangja into the model district for an information revolution in Nepal. With the go of time this movement has been extended in Kaski and Dang District as a good example of Success Case Replication.(SCR) This blueprint is based around the establishment of Community Information Centers(CICs) in villages where there is currently an extreme shortage of information. A Community Information Center with the involvement and support of Mother's Group,local business people, teachers, serviceman, and young people, have been established in different villages; Mayatari, Karendada, Bagalthok, Lampata, Bayatari, Helu,PragatiNagar,Rajasthal,ThuloPadhera, Badkhola and Pokhari Chour in Syangja District; Kaskikot , Astam in Kask District; and Rampur , Laxmipur in Dang district. All the CICs are established with the belief of the notion **For the Community By the Community and With the Community.**

A CIC is a place where anyone can have access to the tools and services of the information society, and receive assistance in making use of them. These include but are not limited to Cyber Cafés, Information Kiosks and all Public Computer Access Points e.g. Public Libraries, Computer Colleges and Computer Laboratories for other Institutions of Learning. These are quickly becoming a tool for economic and social development in the world

It aims at providing the local community with an environment where the people can increase their skills, expertise and professionalism with the help of ICT in their respective field. The primary objective of NRIDS is to create ICT awareness in the grass root level. The major concern of NRIDS is to well acquaint the community in ICT development for the community, by the community and with the community.

As the majority of population of Nepal is living in rural areas, rural communities are the potential creator of new markets, new products, and new technologies provided the access of ICTs to them. NIRDS has been advocating about the importance of ICTs to the Rural Communities and the Local Government such that the urgency is felt by the Government and the marginalized community at the same time before it is too late to start. Our series of Meetings and workshops with the Local Government s of Syangja District has resulted in a common conclusion that ICTs supports government to reach marginalized communities effectively and efficiently such that E-Governance preparedness is also assured. In the present context of Nepal where E-Governance Master plan has also been prepared with little consideration on the datas and facts of the grass root communities and local governments, Information Revolution Initiative of NRIDS is expected to bridge the gap of lack of awareness of E-governance to Local Governments and the marginalized Communities. CICs practice in Syangja has enhanced marginalized communities' ability to access and use relevant knowledge pertaining to key areas of sustainable development such as employment, education, gender and health to some extent as compared to three years before.

This Project has three phases:

#### **Services Provided in First Phase:**

- Market information of agricultural products to the local people.
- Provides the basic functionalities of library and the meeting point of people for various discussions and decision making.
- Daily newspaper that is published is provided everyday in the center.
- Notice board will be kept for the people searching for products to be purchased or to be sold. So that they can use this board to disseminate information to the huge mass. Best examples practiced may be the notice of a farmer willing to sell a buffalo. He/she would just write the description of his buffalo and allocate the price with his contact address. The person willing to buy it can contact him/her.
- Wall newspaper will be published by the community students so that CIC can be computerized in its next phase.
- Data collection about the community will be carried out for publishing the Village profile and Senior Citizen Experience Book which can aid in the Tourism sector of that community.
- For the sustainability, as an example, local people can submit their electricity bills in CIC, and later on it makes the payments to the electricity offices. It's aiming at providing social services and income generating activities for the CICS.

#### **Services Provided in Second Phase:**

The second phase implementation includes providing training to the people about computers. This CIC concept is running on the link concept first information then Communication and finally technology. The second phase will be implemented in the following way.

- There will be around 5-10 computers in each CICs .These computers will be connected to the internet. If no proper infrastructure is found in school then the possible alternatives will be searched such as Youth Club, Amma Group. Location of the CICs will be entirely

based on the community decision. After all, CICs are for the community, by the community and with the Community.

- There will be two phone lines in each CIC one for the PCO and other for the Internet Connection.
- The main aim of CIC is the concept of “IT Chautari” where local people can get each and every details of the information required making it a model community information center (CIC).
- It will provide real time applications, Computer related documentaries and the entire information about all the necessary fields such as Agriculture etc.
- It will act as an inquiry system in a Community. Information on Health, Education and Industry will be comprised.
- All the Desktop work will be provided by CICs in fare prices to the community such as printing, Scanning etc.
- CIC will also serve as the computer training institute to train the local Community.

#### **Services Provided in Third Phase:**

Effective Connectivity with the outside world and the internal connectivity between the CICs with the help of Community Web Portal would be the third phase.

After the successful implementation of third phase Government-to-Citizen (G2C) services can be made online instead of traditional inline system such that the e-Governance implementation would also get real momentum. In addition to G2C Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G) is possible by the regular ICTs awareness in Government, Business etc which would ultimately function as the complete e-Governance. The whole idea is to support the Government for the Implementation of e-Governance. But for that the utmost necessity is to empower the Rural Communities, aware them with the importance of ICTs and e-Governance.

#### **NRIDS activities in Syangja can be generalized as follows:**

- 1> To empower the disadvantaged and poor communities with ICTs. Existing Mother’s Group, Youth clubs and libraries are gradually following the Community Information Centers (CICs) model. We closely work with them to establish the existing infrastructure as CICs/telecenter
- 2> To conduct ICTs related workshops, meetings, seminars and training with the local government for the E-Governance preparedness.
- 3> To Conduct ICTs and e-Governance interaction program with the Grass root NGOs. More than half of the total numbers of NGOs have their own Blogs sites to update their day to day organizational activities.
- 4> Lobbying with the Government/ INGOS/other Donor agencies for further growth is also in some cases comes as the responsibility of NRIDS.
- 5> To conduct the yearly progress Evaluation and Monitoring of the CICs.
- 6> Exchange Programs /Interaction programs of Grass roots are also conducted by NRIDS such that the Success Case Replication (SCR) is possible. SCR has become the NRIDS key method to empower the marginalized Communities with ICTs.
- 7> As there is no local FM in Syangja District till date. NRIDS in association with the various means of Mass Communication conducts the ICTs awareness programs highlighting the importance of CICs to support for the E-Governance .Annapurna

FM-Pokhara, Regional Radio Nepal-Pokhara are supporting us to reach to the mass communities.

### **Women Participation in Community Information Center(CICs) Program:**

- 40% participation is seen in most of CIC
- 100% participation in Rajasthal CIC
- Aama Groups are the first priority to discuss for CICs Establishment and new activities of CICs Matters
- Email/Photo transfer/Webcam chat with relatives
- Telemedicine would attract women
- Applications designed for Illiterate users would also attract more participation
- e-Agriculture would attract participation

### **Sharing, accessing and using relevant knowledge pertaining to key areas of sustainable development such as employment, education, gender and health**

- **Challenges**
  - Language Problem(Most of them do not know at least basic of English Language)
  - Internet Bandwidth (CDMA Technology-NTC)
  - Intermittent Power Supply Electricity
- **Opportunities**
  - Most of the CICs are governed by Amma Group(Mother Group).This assure Women Participation.
  - Unemployed youths goes to Golf Country for Employment without the much prior information about the working atmosphere and the salary.
  - NRIDS is Currently researching on the Wireless Implementation to connect the existing and the new CICs for Telemedicine and Distance Learning Implementation
  - Optimum Awareness is created by NRIDS. Only the targeted Training would be necessary.
  - Recognized by the Local Government.
  - Group of IT Engineers working as a volunteer.
  - Most of the Government and Non Governmental offices first approach CICs at first for any related work in particular Village.
  - 8 CICs are preparing their Village Profile and Senior Citizen Experience Book which would also help us understanding the Villages situation better

### **Challenges and opportunities in joining a regional network of telecentres**

- **Challenges**
  - Language Problem- English language is not understood by all (Most of them know at only very basic of English Language)
  - Internet Bandwidth very low in rural areas 56 kbps only
  - Intermittent Power Supply Electricity
  - Investment in training the Local people
  - Local Content Creation
  - Lack of Technical Manpower in Rural Areas
- **Opportunities**
  - Hands on Experience sharing
  - Online jobs/bidding

- E-Marketing
- Online Communities of similar people
- Tourism Promotion
- Cultural Exchange
- Common problems have Common Solution no further research required
- Have the possession of a huge Human Resource for the Rural ICTs
- Possibility of prompt Success Case Replication (SCR)
- Resource Sharing
- Easy Monitoring

## TABLE OF CONTENTS

I. EXECUTIVE SUMMARY	2
1. PROJECT DESCRIPTION.....	8
2. BACKGROUND INFORMATION/STATEMENT OF PROBLEM.....	8
3. GOALS AND OBJECTIVES .....	9
3.1. Goal # 1 Rural Transformation through ICT.....	9
3.2. Objective 1- Develop institutional and individual ICT capacity.....	11
3.3. Objective 2 - Demonstrate innovative ICT applications.....	11
3.4. Objective 3- Encouraging Policy Reform.....	11
3.5. Objective 4- Enabling Businesses to succeed.....	11
3.6. Objective 5- Using ICT to Improve Approaches to Development.....	12
4. METHOD.....	12
4.1. Classification of CICs.....	12
4.2. Working Modalities	14
4.3. Solving the Electricity Problems.....	15
4.3.1 Power estimation.....	17
5. CIC APPLICATIONS .....	19
6. RESOURCES TO RUN CICs	19
6.1 Projected Monthly Cashflows for a Small CIC	20
6.2 Projected Setup Costs for a big CIC	22
7. IMPLEMENTATION OF CICs	24
7.1 First Phase Implementation of CICs	24
7.2 Second Phase Implementation of CICs	24
7.3 Third Phase Implementation of CICs	27
7.4 Government Role to Encourage the Establishment of CICs initially	29
8. STAFF / ADMINISTRATION.....	31
9. AVAILABLE RESOURCES.....	31
10. EVALUATION PLAN.....	31
10. CONCLUSION.....	32
11. APPENDIX	34
11. APPENDIX A - TIME LINE (First Year).....	34
12. APPENDIX B - Resume of Sudip Aryal (Project Director).....	35
13. APPENDIX C - PERSONAL PERSPECTIVE.....	37
14. CONSULTATIVE MEETING-UNESCAP.....	38

# **RURAL TRANSFORMATION OF NEPAL BY THE ESTABLISHMENT OF COMMUNITY INFORMATION CENTERS - A PILOT PROJECT**

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## **1. PROJECT DESCRIPTION**

Nepal Rural Information Technology Development Society (NRIDS) was established in 2004 with the objective of bringing IT awareness and services to people living in rural areas throughout Nepal. The fact that Nepal has failed to embrace the information revolution over the last ten years means that as a country we have fallen further behind the developed world, rather than gaining ground. Everyone would agree that Nepalese people who are involved in agriculture, education, construction, and tourism can benefit greatly from access to the Internet and web technologies, just as residents of other countries have. If only these people could have their eyes opened to how business and education is carried out in the developed world, business would prosper, and students would be benefited. The problem is that much hard work is needed to provide computer access and training to rural areas in Nepal, and, as it stands, very little is being done to rectify the shortcomings in ICTs

This work began with the endorsement of the Syangja District Development Committee; the members of NRIDS have been formulating a blueprint to convert Syangja into the model district for an information revolution in Nepal. With the go of time this movement has been extended in Kaski and Dang District as well. The Members of NRIDS are working now for the formulation of Strategies throughout the Rural Nepal. This blueprint is based around the establishment of Community Information Centers (CICs) in villages where there is currently an extreme shortage of information and information processing mechanism. A CIC, with the involvement and support of local business people, teachers, serviceman, and young people, have been established in different villages; Mayatari, Karendada, Bagalthok, Lampata, Bayatari, Helu, PragatiNagar, Rajasthal, ThuloPadhera, Badkhola, Pokhari Chour in Syangja; Kaskikot , Astam in Kaski; and Rampur , Laxmipur in Dang district.

A CIC is a place where anyone can have access to the tools and services of the information society, and receive assistance in making use of them. These include but are not limited to Cyber Cafés, Information Kiosks and all Public Computer Access Points e.g. Public Libraries, Computer Colleges and Computer Laboratories for other Institutions of Learning. These are quickly becoming a tool for economic and social development in the world.

CIC is designed not for the big talks of ICT but to make the local people aware what ICT is. It is concerned with how the local people can get benefited from the ICT such as how can even a farmer get benefits from it. NRIDS is carrying its activities with belief that the one and only alternative that Nepal can compete in the today's global world is through ICTs.

It aims at providing the local community with an environment where the people can increase their skills, expertise and professionalism with the help of ICT in their respective field. The primary objective of NRIDS is to create ICT awareness in the grass root level. The major concern of NRIDS is to well acquaint the community in ICT development for the community, by the community and with the community.

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## **2. BACKGROUND INFORMATION/STATEMENT OF PROBLEM**

Due to the geographical and topographical variation in Nepal, the remote areas have not been fully integrated into the reach of modern day technology for the rapid socio economic

development and bringing it into the national mainstream. A vital need have been felt to adopt the modern ICT perspectives in the global context.

The basic motivation behind the development of this framework is to exhibit how the power of ICTs can be used for the betterment of the society. Establishment of the community centers (CICs) in different parts of the rural areas can aid in achievement of the major goals of the government for the overall development using the ICTs.

The survey conducted by NRIDS came up with the fact that there are teachers and students of many rural communities in Syangja who haven't even seen Computer. In this current scenario, CICs can play a vital role in making people aware of the latest Technology.

Access to telephones and the Internet is very low in Nepal compared to most of other countries. Preliminary survey shows about two people out of 100 have access to a telephone and in less than one person out of 100 have access to the Internet facility. For those lucky few with access to information and communications, they use them to research products to get fair prices; for online government services to avoid long-travel distances in developed countries like US but still not in general practice in Nepal. Expanding access to communications technology for people, businesses and the government in Nepal will make a positive difference in people's quality of life, strength of the economy and governments' ability to govern effectively. To reach these goals, IT task force must invest in policy reform, private sector entrepreneurship, and people through innovative and development appropriate applications of information technology both on the urban as well as rural areas of Nepal.

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### **3 Goals and Objectives**

#### **3.1. Goal # 1 Rural Transformation through ICT**

As Compared to the past two three decades a there is no significant change in rural areas of Nepal. There are schools, Campus and but they lack the essential resources to teach the students effectively. There is a lack of good teachers also. There are phone lines and mobiles in selective villages; getting a dial tone and tower signal is still a good luck. Electricity supply is also one of the lacking services in many rural areas of Nepal. In Syangja District only there are about 55% of the villages which do not have electricity services. Big Hospitals are concentrated in the Urban Areas and Health Post in many villages are non functional and if exists also lack the doctors/Helath Assistant/ Medicines and Equipments. Rural Nepal is dependent more on agriculture or foreign employment in counties like United Arab Emirates/Malayasia In the present context all most 60% of the Village youths are outside the country in for employment. Educated youths are concentrated in Capital city of Nepal-Kathmandu for further studies. Natural calamities like landslides, floods or drought are common occurrence across Nepal. As a result, villagers, for the most part, remain a poor lot - the per capita income of Nepal's villages is perhaps much less than USD 200 per annum.

Most important, the opportunities available to the people in villages are not dramatically different from what they were many years ago. Villages in Nepal are where we live if we have no other option at all. And yet, Nepal is in its villages. Almost 80% of Nepalese live outside of the urban areas. Even as there is one Nepal which is racing ahead with optimism towards the future, there is another Nepal which seems to be stuck in the past. If Nepal has to progress, there is little doubt that Nepal's villages have to progress first.

Transforming Rural Nepal is a challenge that should focus to the best of Nepalese minds - it is perhaps the single biggest barrier to making Nepal a developed country. Nepal's villages need disruptive innovations to make the giant leap forward. While exploring the role that technology can play in transforming Rural Nepal, one can argue that what the poor need is food, water and energy, more than technology. It is an argument we have been making since a long time.

Nepal's solution so far has been myriad poverty alleviation programs and employment schemes. Corruption and insurgency of Maoists is not the only reason they have met with limited success. The question to ask is have they changed or enhanced people's skills, and exposed them to new world? To that, the answer is a resounding no! The time for incremental innovation is over. Nepal needs creative solutions to start a revolution which can take its villages fast forward in time - creating them economically viable units and growth engines, harnessing the power of the villagers, and opening up new horizons with the promise of a better tomorrow.

NRIDS is working on promoting ICTs in the rural sector for more than three years. Initially we have started in Syangja, a remote part of Nepal. There were a lot of comments associated with the DO'S and DON'T'S in the present context of instability of the country. However we just marched forward toward our mission. It was not easy to establish community information centers (CICs) in the rural areas of Nepal. Yet it was also challenging to gather a mass of people and share our knowledge with the people in that situation.

NRIDS members experienced a very tough time to make the government authority to convince about the work we were going to do. As the matter of fact they really didn't know What ICT is? We are in a country where the senior level government staffs don't know the most powerful and the foremost technology of twenty first century. *[Note: this is our experience with Local Government officials 3 years ago in Syangja District]*

Its not that we remain pessimistic due to these kinds of situations, it's not still too late to start! We must be Promoting ICT in Nepal from various walks of life. Mere conducting conferences and having the big talks of ICT is not only the need. The concerned authority should work with grass root level where there is actual need of the ICT.

Rural transformation will make the lives of rural people comfortable, secured, independent and respectful state. This impact of transformation will insure that the rural people are feeling better than the prevailing conditions. It is the most important matter which needs a lot of homework from each and every elements of the Community. The goal is not only about transforming a single community but the community through out the nation. So the government also needs to take this matter seriously for the achievement of this goal. NRIDS will strive for stimulating and awakening the rural public, government authorities and all the concerned bodies. NRIDS is currently working on Rural Transformation by establishing CICs in the remote villages having its core focus in Syangja District. This initiative will surely help for the achievement of international and national goals such as Millennium Development Goals (MDGs) also .Implementing this initiative is to make people look at things differently and in line with the technological advancement such that they gets their jobs done faster and easily. However, this is a slow and steady process. According to the NRIDS experience, this initiative is rather a kind of *experience and share experience process*. There are so many communities willing to establish CICs in their areas as a result of the transformation of the nearby communities by CICs practices. It is obvious that Rural transformation is the demand of time .So all the Concerned authorities and the general public should support this

movement. NRIDS has priorities it's Focus on the establishment of (CICs) in the Rural Areas of Nepal for the Rural Transformation.

### **3.2 Objective 1: Develop institutional and individual ICT capacity**

The ICT sector is important for developing country like Nepal, but it is also a critical ingredient for growth of many, if not most, other sectors where the use of ICT has become a prerequisite for competitive operations and expansion. Not surprisingly, the gap between the haves and have-nots that exists in access to information and communication technology persists in the ICT sector itself. We should place a high priority on narrowing the gap. To do this, Nepal must develop an educated ICT-knowledgeable workforce as well as ICT private sector businesses able to compete locally, regionally and sometimes globally.

We should work together to have a multi-pronged approach to help rural and urban communities to build ICT sectors, working with both public and private sector partners. Areas of focus are:

- Supporting innovative ICT workforce development opportunities for students, out-of-school youth and adults.
- Increasing ICT knowledge for policy makers and government officials in order to understand the impact and implications of ICT in society
- Building management and operational capacity of individual private sector firms in the ICT sector.
- Supporting efforts to increase the regional and global competitiveness of the entire ICT sector or sub-sets of it (e.g., the software industry).
- Fostering ICT sector business associations focusing on strengthening the industry.

### **3.3 Objective 2 - Demonstrate innovative ICT applications**

NRIDS has been extending ICT activities in development programs including: employment, education, gender and health with the highest priority.

NRIDS is also working on areas such as:

- Agriculture
- Tourism
- Energy
- Environment

### **3.4 Objective 3- Encouraging Policy Reform**

In few cities of Nepal, e-commerce transactions and Internet use are slowly increasing , but they are not yet used in everyday business practices. Information and communications technologies (ICT) must be high quality and available to a large percentage of the population for them to be used successfully. NRIDS is in the process to create an ICT task force which is aimed to work with governments and businesses to reduce barriers to ICTs in Syangja District..

### **3.5. Objective 4- Enabling Businesses to succeed**

### **3.6. Objective 5- Using ICT to Improve Approaches to Development**

The Internet strengthens communications with projects and central offices, strengthening quality control and delivery of services. Increased use of these technologies in development itself is a critical part of building a foundation for expanding ICT use in rural Nepal. NRIDS is currently conducting a research on using ICT to improve Approaches to Development.

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## **4. METHODS**

The primary methods for achieving the goals and objectives of the Project will be the establishment of a Community Information Centers (CICs) in the villages that will become a focal point for providing information on Agriculture, Conflict Management, Democracy and Governance, Economic Growth, Education, Energy, Environment, Health, Humanitarian Assistance, Natural Resources Management, Population and reproductive Health, Poverty Reduction, Urban Programs, Women in Development and the latest world Technological Developments in the respective fields.

It would be wise to start by outlining our vision for the solution that we want to offer at the village-level from the viewpoints of the four stakeholders: the villagers, the village administration, the district administration and rural marketing organizations.

Today, the village is singularly isolated. It is not part of a larger community. Its interaction with the external world is quite limited. In a sense, it is an idyllic world, unspoiled by modernity. It's true that villages can now watch TV, talk on phones, and get newspapers and magazines. But by and large, the village voice is silent, except when it comes to the ballot box. What is needed is an interactive solution, with the villagers having a say in what they do and how they grow.

What is needed is for the village and its people to have greater access to new opportunities. Even as the nation moves ahead, the village for the most part has remained an island of its own. This is what has to change. The villages need to become self-sustaining unit, and at the same time integrated with the rest of the ecosystem. The underlying idea is to use the solution to put more power and responsibility into the hands of the local community at the village, by providing them with the right technology and information they need to make decisions.

### **4.1. Classification of CICs**

The Community Information Centers (CICs) can be established at various levels and may be classified as:

- a) Rural Community Information Center- RCIC
- b) Village Community Information Center- VCIC
- c) District Community Information Center- DCIC
- d) Zonal Community Information Center- ZCIC
- e) Regional Community Information Center- CICR
- f) Central Community Information Center- CCIC

*What a General Community Member(Villager) would like to have in CIC?*

- A connected computer which provides access to computing resources and the Internet.
- A program to ensure that he and his family can be made literate and e-literate. At the minimum, there should be at least one person in the family who can use a computer. An email ID, ensuring that he can be reached electronically. Storage Space for keeping electronic copies of key official documents (e.g. land records, certificates) and other information (e.g. medical records).
- Access to various eServices for government interactions from accessing information to doing transactions. This should be combined with service-level guarantees from the government departments.
- Computer-enabled education for the children in schools, so they are comfortable with technology from an early age.
- Access to electronic markets where they can sell their products directly without being dependent on middlemen who take away much of the profit.
- Programs to upgrade ones family's skill sets, so they can become better at what they are doing and learn new skills.
- Protection of data, so that unauthorized access does not happen.
- All of this to be available for a monthly basic fee of no more than Rs 25 per family.

*What is the Expectation of the Village Administration from the CICs?*

- Help in village planning and monitoring. It should assist in identifying and tracking the resources that a village has. In case any of these resources has a problem, there should be a way the village can notify the appropriate agency for necessary action.
- Share and discuss best practices with other village administrators. This is a peer-to-peer interaction model which is not possible today, except for sporadic gatherings. Think of this as a community web blogs (like Slashdot.org) which helps bring out good ideas and success stories from what others are doing.
- Provide a micro-credit facility to enable villagers to save money and get loans when required.

*What would be the district administration expectation from the solution?*

- Two-way information flows: the administration can update the village and its residents on various government programs and schemes (this is typically done through the publishing of gazettes), and in turn get regular updates from the village on progress on key parameters reflecting the health of the village (this is typically done by sending government officials for periodic visits to the village).

- Electronic accounting for the funds which are disseminated by the state/district administration for village activities.
- Ability to provide better services to the citizens (for example, telemedicine).
- Provide comparisons across villages on various parameters, to be able to identify success stories and enable their replication across other villages. [In a way, this is akin to how Walmart uses business intelligence from its various stores to identify consumer purchase trends.

What the Rural Marketing Organization Expect from the Solution?

- Use a medium by which they can reach out to villagers for their products and services.
- Get a distribution point for eCommerce (delivery could take place through the postal system).
- Have a mechanism by which they can collect payments for their offerings.

One can think of district as managing an enterprise with multiple branch offices (the villages). To ensure a successful and profitable business, there needs to be a right mix of centralization and decentralization. This is what the solution will have to offer. This is the first step towards the transformation of the rural economy and its people.

#### **4.2. The working Modalities**

There are three key ideas in using technology to transform Rural Nepal. First, set up a CIC in every village. Next, network these CICs to create a Community web-portal to ensure a peer-to-peer communication network between villages. Finally, computerize key government operations in an eGovernance initiative, starting with those that can have the greatest impact for the villagers.

The CICs makes possible the vision of a connected computer accessible to every family. What makes the CIC unique is its approach to solving the rural computing challenge. It brings together a number of innovations to help create an infrastructure that is both affordable and user-friendly.

The three innovations that it leverages are: server-centric computing to enable the use of low-cost computers as thin clients, open-source software to bring down the cost of software, and WiFi to solve the connectivity problem. (As we will see shortly, WiFi will currently get used as a LAN solution to extend the reach of the CIC beyond a single room, and later will be used as a wide area network solution to provide a high-bandwidth solution to inter-connect multiple villages.)

The CIC consists of a computer-cum-communications centre. It has 5-10 computers connected together in a LAN, in a single room. The multiple computers ensure that the computers themselves do not become a bottleneck. Villagers should be guaranteed to get access to a computer whenever they want it. Also, by locating them in the village, we ensure that they do not have to walk much to use them. Access to computing is no more than a few

minutes, rather than a few kilometers. This will make them think of computing as part of their lives a utility, available on-demand.

The combination of server-centric computing, low-cost clients and open-source software is the foundation for creating an affordable solution for the computing infrastructure at the CIC.

The clients should also support multimedia with the use of webcams and microphones for recording and playback of audio and video. This is important in the context of the villagers because they may not easily adapt to the largely text-driven world that we exist in today. Using multimedia also gets over the language and usability barriers.

As far as possible, the CIC should be able to work in the offline mode, that is, its dependence on Internet connectivity should be minimal. The server should mirror key applications and relevant data, making it possible for the clients to work without the need for an Internet connection. In fact, even the assumption that a CIC may have a few hours of Internet connectivity daily could be far-fetched. This makes the application development challenging, but it becomes an important pre-requisite given the realities of Rural Nepal.

The offline mode entails updating through CD (or an alternate such device e.g. USB Memory Devices). A CD will get written daily at the village CIC which has the day's emails and requests which cannot be served locally. This CD would then be sent by courier or through the postal system to the next level in the hierarchy, which is likely to have better Net connectivity. Similarly, a CD from there would bring updates to the village.

Besides the computers, the CIC also has other facilities. It has a printer for printing documents. It has a scanner to ensure that documents could be digitized and then sent across as email attachments. In a way, this approach could replace fax using a store-and-forward approach, because the phone line may not be present or may not work. In fact, the scanner-printer combo would also work as a photocopying system.

### **4.3. Solving the Electricity Problems**

A key issue which needs to be addressed is how the CIC will be powered. Electricity is intermittently available in much of Rural Nepal. Without electricity, the CIC becomes a museum of digital gadgets! There are a few ideas on how we can consider solving the electricity problem.

By the use of a car battery with pedal power, via stationary bicycles. One minute of pedaling yields five minutes of power, according to an article in the Wall Street Journal.

The second approach is to create a 12-volt supply directly, powered by car batteries. Computer power supplies use 230/115 volts because they are meant to plug-in directly into the mains. In the case of the CIC, since all the devices are in a single room, one can look at directly using the 12 volt supply from car batteries (as in the first approach) without converting to the mains voltage. This will probably mean a slight redesign for the 5KPC, but the benefits would be well worth it.

The third approach is to consider the use of solar power. Much of Rural Nepal is blessed with plenty of sunlight round-the-year. This energy can be converted into a solution which can generate power cost-effectively. Talk about Solar Energy has been around for many years,

but there have been few solutions which have become commercially available for electricity generation.

In the river side areas of Rural Nepal wind energy can be the fourth option.

A big consumer of power in the computer is going to be the monitor. The question is: can this be reduced? One could look at using smaller screens, but they would then take away the full-fledged desktop experience that we are trying to provide. So, provisioning power for the CIC is a key challenge which needs to be addressed, along with that of connectivity.

Nrirds has been working on finding the feasible solution for the places where there is no electricity. In this matter we are in constant touch with Inveno company to explore the cheapest and the modest solution for the rural cic. Power estimation presented on page 16 is the outcome of preliminary consultation with Inveno. Nrirds is hopeful about finding the feasible solution in near coming future.

## Power estimation given by inveno company for cic in syangja

Item	watts draw	quantity	hours/day	watt hours		
Tube Lights		80	2	10	1600	
Desktop P4		200	2	10	4000	
17" CRT		85	2	10	1700	
Scanner		20	1	10	200	
Laser Printer idle		70	1	9	630	Brother HL-2070N
Printer Printing		450	1	1	450	Samsung SF-565P
						watts printing/standby
						450, 70
						300, 85
		1200 watts	subtotal		<u>8580</u> Watt hours	

Solar power with good sky conditions you may get 4-5 hours per day of full sunlight year round average.

This is due to changing solar angles to panels, clouds, etc. Only partially due to length of daylight.

Thus, at a MINIMUM you need at least twice as much solar panels as your power draw.

~Panel Watts

17160

~C

Current U.S. price for solar panels runs about \$3 per watt, plus charge controller and batteries.

Normally you design a solar power system with batteries to handle 3 days of no sunlight

Your typical car battery is 12 volts and 60-80 amp hours, but you can only draw about 40% of battery capacity without greatly shortening its life.

The special deep cycle battery is designed for longer slow discharges and you can draw it down 80% of capacity safely.

Volts X Amps = Watts    Watts X Hours = Watt Hours

So a good deep cycle battery of 80 amps hours can provide 80% X 80 amps hours X 12 volts =

768 watt hours

80 Ahr car battery

384 watt hours

To provide 3 days of storage you would need

34.0 deep cycle batteries of 80 amp hours

Plus additional panels to provide energy storage

68 automobile type batteries

OK, you can see from this that reducing power demand of the equipment is critical. That you you need to go to diesel generator.

Typically for off utility power systems, every dollar spent in buying more efficient equipment saves \$3 in solar system costs.

Suggestions:

Laptop computers will draw under 50 watts often under 30

LCD monitors draw about 20 watts versus CRT at 80+ watts

Inkjet printers will typically draw under 50 watts

Item	watts draw	quantity	hours/day	watt hours		
Tube Lights		80	2	4	640	
laptop		50	2	10	1000	
LCD		20	2	10	400	
Scanner		20	1	10	200	
InkJet Printer		5	1	9	45	
InkJet Printer		50	1	1	50	
						Use daylight as much as possible
			subtotal		<u>2335</u> Watt hours	
						Solar Panel wattage
						4670
						Estimated panel cost
						14010

Now if you go with a diesel generator, you can estimate fuel burn will be about 1 liter for every 2.5kW hour

Standard computer model    8.5 kW 10 hours    85kWhr

34 liters per day

Low Power model

2.5 kW @ 10 hours    25 kWhr

10 liters per day

The low power model may also allow purchase of a lower power rated generator, saving first costs.

Now for battery back up of utility powered site

You estimated 4 hours a day of power NOT available, thus you would need batteries, and inverter sized for the watt load and a suitable battery charger, able to recharge the batteries in about 4 hours.

For this take the calculated wattage of your site

1200 watts draw

4 hours on battery

4800 watt hours of battery

Again deep cycle with 80% of 80 amp hour rating @ 12 volts =

768

7 batteries

Again auto battery with 40% usable of 80 amp hour rating @12V

384

13 batteries

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## 5. CIC APPLICATIONS

The CIC fulfills a multi-centric role: it is a computing and communications centre, has a digital library of documents, complements the teachers for school and adult education, and serves as a small business office for entrepreneurs. Its real value comes, of course, from the applications that it can enable for citizen services and government interactions, making it an eGovernance touch-point for the villagers.

CIC caters to the needs of four constituencies: the villagers, the village administration, the district and state administrations, and the marketing organizations. The various applications available at the CIC can be categorized as follows:

- **Information:** The CIC enables two-way information flow. Commodity prices, weather information, crop planning, literacy programs, exam results, health information, school curriculum, government notifications, downloadable forms which could either be printed or filled online, and employment opportunities are all examples of what the CIC can provide. All of this information should be available on the server so the need to connect to the Internet is not there. Updates can be done via CD (or Internet connectivity, if available) every few days. In turn, the villagers and the village administration also provide regular updates on the health of the village and its resources, which is sent to the district administration.
- **Communications:** Email will be the primary means. In fact, the ability to communicate with other villages and with government officials is going to be perhaps the main application for the initial use of the CIC. As WiFi becomes a reality, Voice-over-IP (VoIP) will become an important means.
- **Community:** At present, interactions between village residents are limited to gatherings at the local meeting place (Tea Shop or Chautari). Distance makes interactions between residents of different villages rare, except for business or social functions. The CIC can now help build out communities across villages, independent of distance, based on interest areas. Thus, farmers could form an online community, and teachers could do the same. Community web-blogs are an excellent platform to amplify the flow of ideas without the constraints of time and geography. One section could contain classified ads narrowcast to specific audiences.
- **Transactions:** While providing eServices like land records and birth/marriage/death certificates are important for the village residents, they may require the presence of a real-time Internet connection (unless the service can be formulated as an offline request). Transaction services like bill payments and bus and air ticket bookings which require queries to centralized database servers can only become possible when connectivity improves.

## 6. Resources to run CICs

The CIC should be the responsibility of a local entrepreneur. There should be no government subsidies in their set-up or operation. The role of the government should be that of an enabler, not a financier.

A package of applications should be made available to the villagers for a reasonable cost per family per month. The question is: what will make each family pay a monthly subscription fee? Our view on this is that they will pay if it can:

- Offer hopes of additional income as a growth in livelihood
- Remove pain from their lives
- Improve their skill sets and learn to do things better and retraining
- Make them more productive in agriculture and handicrafts
- Offer their children a brighter future in terms of education and jobs.
- Provide them a voice to and response from government within a specified time period

Once the CICs start being rolled out and their usage begins local small scale content developers and software companies will realize that there is an excellent platform for offering value-added services, much like what we are seeing with the SMS services on mobile phones today. These service providers should be able to distribute their applications and content to the CICs easily. Getting new services is critical for building out an ecosystem around the CIC foundation.

*There are multiple ways by which the CIC can generate additional revenue:*

- It can take up data entry jobs or other such work to better leverage the computers that it has. The country can pay for some of the services that it uses. For example, on account of the CICs, the information collection and dissemination costs can be reduced. Part of those savings could be channelised through the CIC.
- Some funds could be allocated from the village for the operation of the CIC, since the village administration will also be a significant user and beneficiary.
- Additional services can be offered for the villagers beyond the base set, which can result in more revenue. Ads can be shown on the screens to create a revenue stream from companies interested in reaching the rural markets.

The monthly gap can thus be narrowed and even eliminated. Over time, as the villagers realize the benefits of the CIC, usage will increase. Also, as content developers and software companies realize the potential of the audience being created; additional revenue-generating services will get created. The aim should be to get the per capita income of the villagers to increase, since that will mean that they would be willing to spend some more money at the CIC.

<b>6.1 Projected Monthly Cash flows For A Small CIC</b>				
<b>Description</b>	<b>Income</b>	<b>Expenses</b>	<b>Profit</b>	<b>Details</b>
<b>Telephone</b>				
Local Calls	1200	750	450	Based on 40 minutes of local calls per day
Mobile Calls	2250	938	1312	Based on 25 minutes of Mobile calls per day
STD Calls	2700	2250	450	Based on 15 minutes of STD calls per day
Monthly Connection	175	264	-89	Nepal Telecom monthly connection cost
<b>(Profit from Telephone)</b>			2123	
<b>Internet</b>				
Customer Internet Usage	9000		9000	Based on 5 people using the internet for one hour per day
Monthly Connection		1100	-1100	NTC monthly unlimited internet usage rate
<b>Telephone Costs</b>				
Connection	175	264	-89	Nepal Telecom monthly connection cost
Local Calls		4500	-4500	Based on 1 hour of 2 computers operation, and 3 hours of 1 one computer operating, per day.
<b>(Profit from Internet)</b>			3311	
<b>Other Operations</b>				
Training	1000		1000	
Staff Wages		3500	-3500	
Electricity		500	-500	
Rent		2000	-2000	
Newspaper Subscriptions		200	-200	
Stationary		234	-234	
<b>PROJECTED PROFIT/LOSS</b>			<b>0</b>	
The projected minimum net profit for a small CIC is zero Rupees.				
<b>Projected Setup Costs For A Small CIC</b>				
<b>Description</b>				<b>Details</b>
Phone line installation (2)			21160	
Purchase of computers (2)			30000	
Computer installation costs			1840	Networking cables and electrical safety
Purchase of tables (3)			4500	
Purchase of chairs (3)			1500	
Signboard			500	
<b>Expected Setup Costs</b>			<b>59500</b>	
The projected minimum setup cost for a small CIC is fifty-nine thousand and five hundred Rupees.				

<b>6.2 Projected Setup Costs for a big CIC</b>				
	<b>Quantity</b>	<b>Item Cost Min/Max</b>	<b>Minimum Cost</b>	<b>Maximum Cost</b>
<b>Furnitures for Internet Cafe</b>				
Computer Chairs	8	500/600	4000	4800
Computer Tables	8	1500/2000	12000	16000
Staff Chair	1	500/600	500	600
Staff Desk	1	1500/2000	1500	2000
Simple Carpeting	1	2000/3000	2000	3000
Drinking Water Set	1	2500	2500	2500
Cupboard (Daraj)	2	3000/5000	6000	10000
Freight	1	1500/3000	1500	3000
<b>Sub-total</b>			<b>30000</b>	<b>41900</b>
<b>Computer &amp; Networking</b>				
Computers	8	15000/30000	120000	240000
Switch	1	1500/2500	1500	2500
Computer Cables	50 mtrs.	1500/2500	1500	2500
RJ 45+ Outlets	20	200	200	200
Technical Charge	1	5000/10000	5000	10000
Phone Installation	2	10580/15000	21160	30000
Fax+Photocopy+Scanner+Printer Machine	1	30000/40000	30000	40000
Freight	1	1500/3000	1500	3000
<b>Sub-total</b>			<b>180860</b>	<b>328200</b>
<b>For CIC library</b>				
Tables	4	1500/2000	60000	80000
Chairs	13	500/600	6500	7800
Racks	3	1500/2000	4500	6000
Cupboard(Daraj)	1	4000/5000	4000	5000
Teaching Board	2	1500	3000	3000
Simple carpeting	1	2000/3000	2000	3000
Curtains and Matress	N/A	1500	1500	3000
Drinking Water	1	2500	2500	2500
News Board	2	1500	3000	3000
<b>Sub-total</b>			<b>91800</b>	<b>118100</b>
<b>Stationary</b>	N/A	5000	5000	5000
<b>Sub-total</b>			<b>5000</b>	<b>5000</b>
<b>Human Resource</b>				
Initial Teacher Training	N/A	2000/3000	24000	36000
<b>Sub-total</b>			<b>24000</b>	<b>36000</b>
<b>Projected Total Setup Cost</b>			<b>301660</b>	<b>487300</b>
<b>In Words:</b>				
The minimum projected setup cost for a CIC is three lakhs one thousand six hundred and sixty Rupees.				
The maximum projected setup cost for a CIC is four lakhs eighty-seven thousand and three hundred Rupees.				

<b>Projected Profit and Loss Statement for a CIC</b>				
		<b>Min/Max Per Month</b>	<b>Minimum Per Year</b>	<b>Maximum Per Year</b>
<b>Projected Revenue</b>				
Telephone		7800/14000	93600	168000
Internet Café		6000/10000	72000	120000
Photo Copy, Fax, Printer & Scanner		1000/3000	12000	36000
Tution and Training Classes		1000/4000	12000	48000
<b>Projected Gross Profit</b>			<b>189600</b>	<b>372000</b>
<b>Projected Expenses</b>				
House Rent		2000	24000	24000
Electricity		500/2000	6000	24000
Staff Wages		3000/4000	36000	48000
Internet charge per yr.		1000/12500	12000	15000
Daily News Paper Subscription (2)		334	4000	4000
Monthly News Paper Subscription (2)		67	800	800
Telephone expenses		5500/11000	66000	132000
Telephone usage for internet		2200/5000	26400	60000
			<b>175200</b>	<b>307800</b>
<b>Projected Net Profit Per Year</b>			14400	64200
<b>In Words:</b>				
The estimated minimum net profit for a CIC is fourteen thousand and four hundred Rupees.				
The estimated maximum net profit for a CIC is sixty-four thousand and two hundred Rupees.				

We are planning to Establish 30 Community Information Centers (CICs) this Year. Ten more CICs in Syangja District, ten CICS in Kaski District and Ten CICs in Dang District. Also we are in need of the funding for giving continuity to the previously established CICs.

Set up cost for 30 Small CICs: 30\*Rs.59500 =Rs. 17, 85,000 only

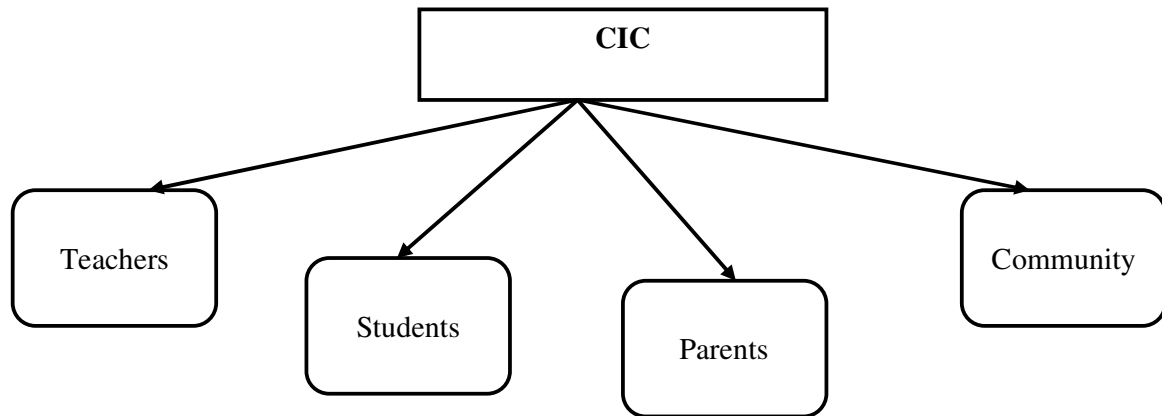
Set up cost for 30 big CICs: 30\*Rs.3, 01,660= Rs.90, 49,800 only (Minimum)

Set up cost for 30 big CICs: 30\*Rs.4, 87,300= Rs.1, 46, 79,000 only (Optimum)

Note: Set up Cost will be negligible if the concerned authority could provide the second hand Computers, Fax machine, Photocopy Machine, Scanners, Printers, and the furniture.

## 7. Implementation of CICs

### 7.1. First Phase Implementation of CIC



#### Services provided in the First phase

- Market information of agricultural products to the local people.
- Provides the basic functionalities of library and the meeting point of people for various discussions and decision making.
- Daily newspaper that is published is provided everyday in the center.
- Notice board will be kept for the people searching for products to be purchased or to be sold. So that they can use this board to disseminate information to the huge mass. Best examples practiced may be the notice of a farmer willing to sell a buffalo. He/she would just write the description of his buffalo and allocate the price with his contact address. The person willing to buy it can contact him/her.
- Wall newspaper will be published by the community students so that CIC can be computerized in its next phase.
- Data collection about the community will be carried out for publishing the Village profile which can aid in the Tourism sector of that community.
- For the sustainability, as an example, local people can submit their electricity bills in CIC, and later on it makes the payments to the electricity offices. It's aiming at providing social services and income generating activities for the CICs.

#### 7.2. Second Phase Implementation

The second phase implementation includes providing knowledge to the people about computers. This CIC concept is running on the link concept first information then Communication technology. The second phase will be implemented in the following way.

- There will be around 5-10 computers in each CICs. These computers will be connected to the internet. If no proper infrastructure is found in school then the possible alternatives will be searched such as Youth Club, Amma Group. Location of the CICs will be entirely based on the community decision. After all, CICs are for the community, by the community and with the Community.

- There will be two phone lines in each CIC one for the PCO and other for the Internet Connection.
- The main aim of CIC is the concept of “IT Chautari” where local people can get each and every details of the information required making it a model community information center (CIC).
- It will provide real time applications, Computer related documentaries and the entire information about all the necessary fields such as Agriculture etc.
- It will act as an inquiry system in a Community. Information on Health, Education and Industry will be comprised.
- All the Desktop work will be provided by CICs in fare prices to the community such as printing, Scanning etc.
- CIC will also serve as the computer training institute to train the local Community.

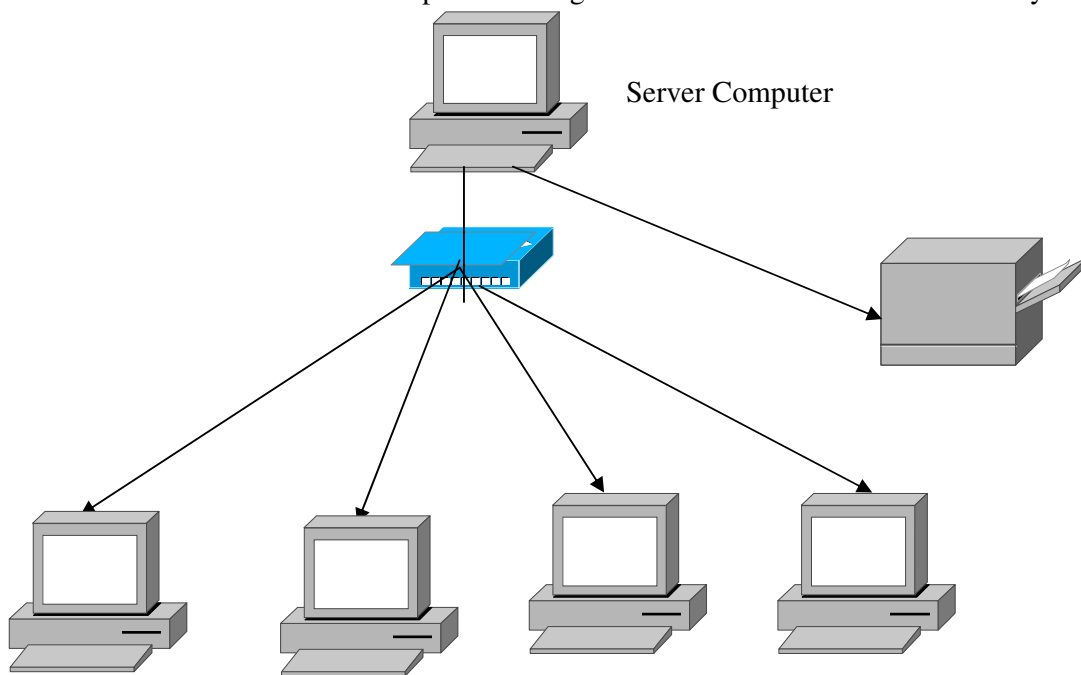
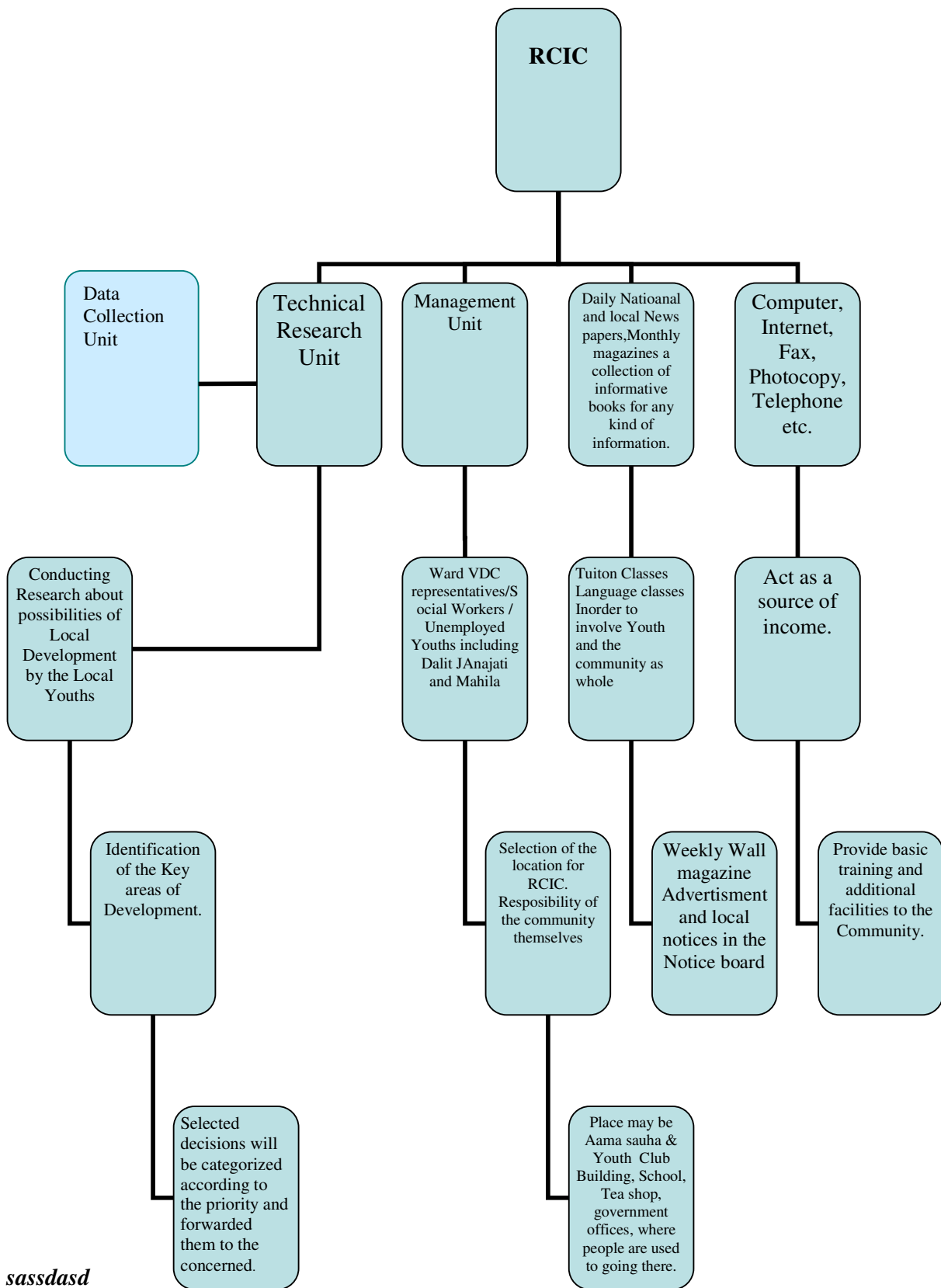


Figure: Second Phase Implementation

The CIC will facilitate not only the rural regions to take the benefits of internet connectivity but also bring the rural region closer to the national mainstream by enabling efficient and faster information flow amongst the people. The IT infrastructure set up at CIC will help the government to make the government services available through CIC.

- To conduct computer training programs.
- To explain the benefit of CIC and its applications.
- To provide access to socio economic databases.
- To provide internet and email services.



sassdasd

Fig: Overall Structure of Community Information Center

### 5.3. Third Phase Implementation: Internet based Community web-portal

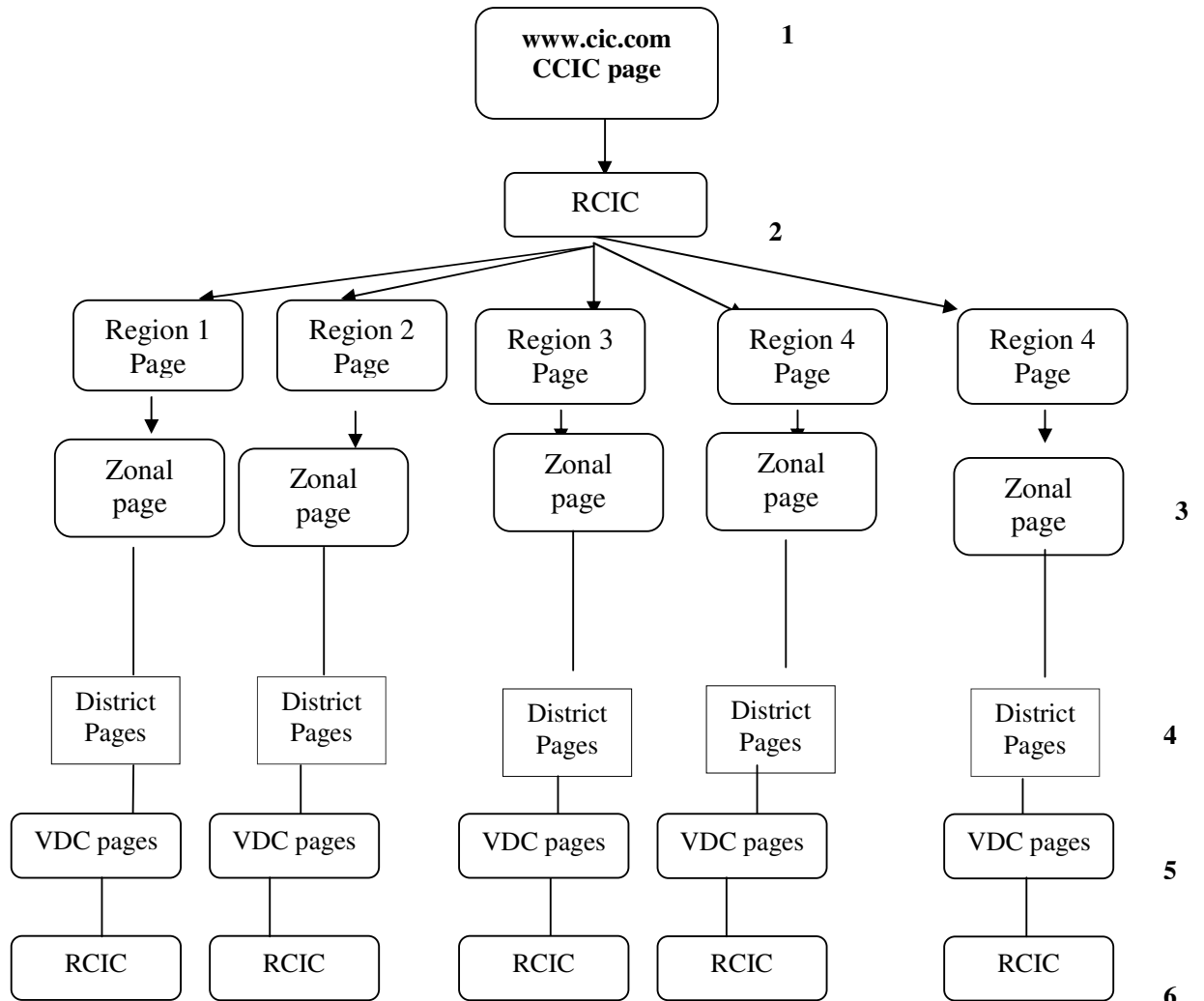


Fig. Diagrammatic illustration of Internet based Community web-portal

#### CIC Portal working methodology

- 1. www.cic.com CCIC page:** This is the Index page of CIC. In this page links of different Regions are kept. Search engine will be there in the index so that a user can easily find the required information about the particular CIC. In index page the important information and activities of different CICs all over the country will be presented. Administrator has full right to change and enter datas. Where normal user can use and see informative datas provided by the CICs. The registered member can also perform transactions with different CICs. A login and password is necessary for those registered members.
- 2. RCIC:** This is the Regional CIC page. All the links regarding specific regional CICs will be set aside. In this page the important information and activities regarding that region will be presented. For easy search of information and desired information about CICs, search engine will be kept.

3. **Zonal page:** This is the Zonal CIC page of different zones. All links of that specific zone will be set aside. In this page the important information and activities regarding that zone will be presented. For easy search of information's and CICs again Search engine will be kept.
4. **District Pages:** In district pages different information and activities regarding individual district will be presented as a quick reference. In this page different VDCs links will be provided.
5. **VDC Pages:** Information and activities of different VDCs will be reserved so that user can know about that village in a brief.
6. **RCIC:** This is the main page for a CIC working in rural sector. Developments, news, facilities, activities, necessities, problem etc. about that CIC will be present in this page. From this page a normal user can know all the information like price of fruits, vegetables, organic fertilizer etc. After knowing information if he is a registered member then he can sell or buy different goods as well. Normal users do not have all these privileges.

After the completion of the second phase, there will be the internet connection in every CIC as shown above. So a CIC portal (Website) will be made where all the CICs have their own space where they can update their information. Also any general user can look at the updates from any where around the world. For updating there will be username and password to be remembered. But for the general user he/she can simply click the required CIC link to get the information. Networking all the CICs physically is not a better option with regard to its high costs and the inefficiency due to the wide range covered. Also there will be a chat room in the website for the CIC members to communicate instantly. We can think the Chat room just as a Yahoo Messenger lets call it as CIC Chatbox.

CICs in every village are the starting point. These centers are not critically dependent on connectivity. They should be able to function well independently and offline. But as the options for connectivity grow, networking them together into a grid call it the Community web-portal is the next step. What the Community web-portal does is create a internet work of the CICs, allowing for near real-time communications between them. This opens up a range of activities and applications that have previously not been there.

The CIC enables communications between the village and the district (and beyond). The Community web-portal becomes the platform for inter-village communications. This is interesting because so far in Nepal, there has not been much interaction between villages because of the limited options involved. Typically, villagers have interacted with either only nearby villages or with the district, which is one-level up the hierarchy. The network connecting up the CICs now makes each village a peer, and equidistant in the electronic world.

Prior to the Web, we had hundreds over 50 years of experience with broadcast media, from printing presses to radio and TV. Prior to email, we had hundreds of years experience with personal media -- the telegraph, the telephone. But outside the internet, we had almost

nothing that supported conversation among many people at once. Conference calling was the best it got -cumbersome, expensive, real-time only, and useless for large groups.

Consider the possible impact of interconnecting the villages into an Community web-portal: villagers can now share best practices with others across the districts or the country, they can benchmark themselves on a wide range of metrics and discuss ways by which they can improve, they can find out about opportunities elsewhere, they can create vertical communities of practice to share knowledge and innovations, and they can voice their opinions via community web-blogs. This is just the starting point. As people in the villages start using the network, they will come up on their own with the ideas on how to make it more effective and useful.

One set of institutions which need to be part of the Community web-portal are engineering colleges, which can play an important role in both developing software applications relevant for the rural segment, as well as providing technical support to nearby villages. By stimulating the creativity of the young human mind, we can create a win-win situation for students looking for interesting and practical projects to do in their final year of college, and the needs of the villages looking for technology talent to create content and software for the CICs and the Community web-portal.

On this idea, overlay technology with CICs connected as part of the Village Community web-portal, and we have an architecture that now fully integrates the village into the networked world, both physically and virtually.

By building a technology centre in the villages and connecting these together, we are leapfrogging a whole set of people from an era where they could interact with only a handful of people to one where they can peer with many more like them irrespective of distance. It is much like how the Internet connected diverse and isolated networks in its early days. The Community web-portal is the first step towards making the global village a reality.

#### **7.4. Government Role to encourage the establishment of CICs initially**

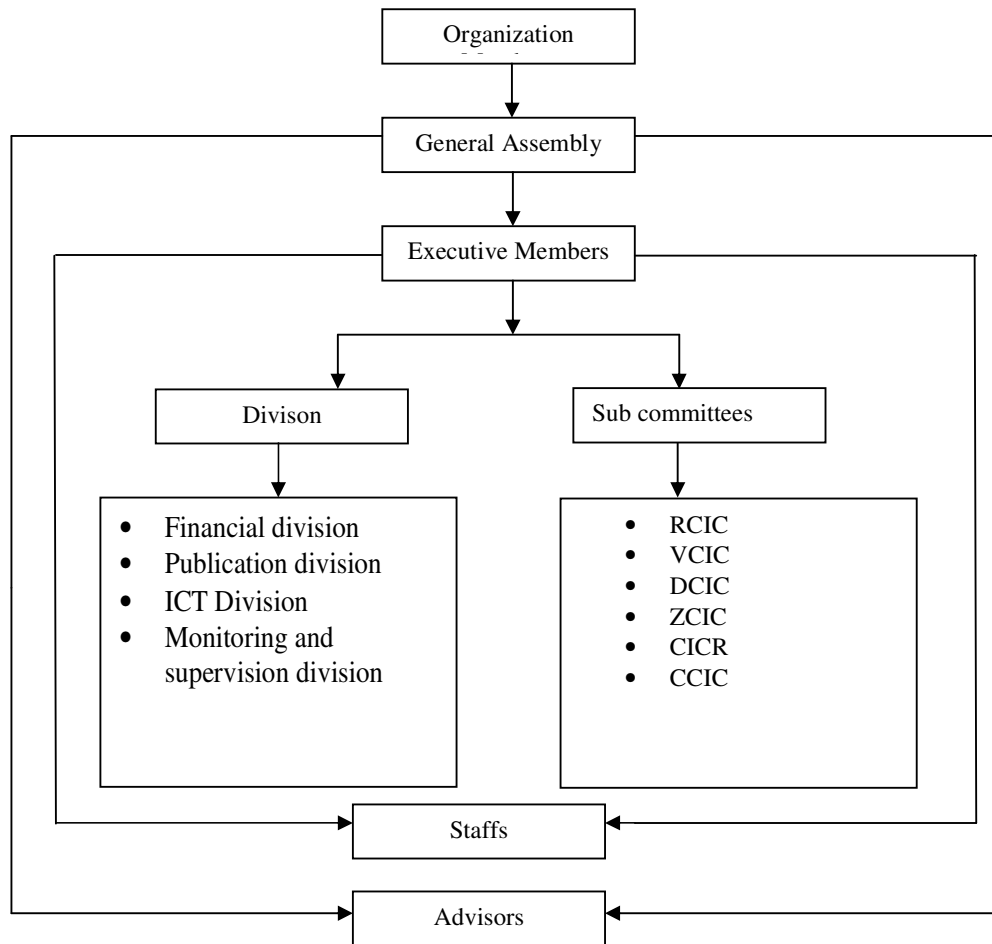
In the part of government there are a lot of responsibilities. CICs can't sustain without guardianship and help of the government. Government's Role could be as follows: Authentic information dissemination, networking of information from local level to national level and international level. It can facilitates for the good Internet Access, Replicate the best model, recognize and promote the best practices, create harmony within the promoters with same objectives, establish the coordination committee and permanent linkage with the policy making level, Give technical knowledge and trainings like hardware and networking for Social Mobilizer, Management and related training for Manager, identification- guideline, Coordination within the stakeholders, CIC, support by required equipments, make a policy for reward and punishment etc. Some others things that can be done are listed below:

- Different outdated equipments and devices like Computer, fax machine, printer, water pump, Photocopy machine which are operable can be donated to CICs. It would be helpful for us to transform rural society by establishing CICs. NRIDS can facilitate the technical help regarding the use of these tools and equipments so that community gets benefit.
- Old racks and cupboards, tables and furniture would be good material for the initial use in rural areas for CICs establishment. They could be repaired by rural community themselves. Water pumping tools are helpful tools for farmers for their agriculture. Government need not have to separate budget for rural transformation, if proper

utilization of the outdated equipments and devices are done. This can make development process to happen both in rural and urban areas simultaneously.

- Publication houses can give free copies of their publication to CICs such that the rural Community can spend the money they have in maintaining the resources they have rather than spending for the Newspapers. For an example, GorkhaPatra- a national daily if given to all the CICs free of cost will not only encourage Rural Community but also increases the goodwill of the Newspaper itself.
- Different NGOs/ INGOs and private sector companies working in Rural Areas may tie up with the CICs. This interaction will benefit both the CICs and other organization. CICs can be the resource of information of that Community, so they can get the details about the current situation based on facts and data. So the project or any program implemented in close association will surely fulfill the needs of the Villages. They need not carry on the research for the same topics if CICs have already researched about it. The investment by such organization could be fruitful and transparent. The corruption and misuse of budget and resources could be controlled.
- Different technical colleges are the helpful agent for the development of this society. Many students from different places come to study in City areas. If they work in CICs after their study, for at least 3 to 6 months. This will provide the students with the opportunity to explore the experience working in Villages. The students can submit their research about the community he /she involved. Due to this activity student would be highly motivated to work in his/her own land. In 100 students, if only 5 students make their working field as their community then it would be very much helpful for the rural transformation.
- Periodically the RCICs will send the report and recommendation to the VCIC and VCIC to DCIC, DCIC to ZCIC, ZCIC to CICR, CICR to CCIC. Also these reports will be submitted to the local government offices. This system will help the government make decision in reference to the voices and the wants of the Grass root Level.
- When technical college directly involves their students for volunteering purpose in RCIC then they can share what they have learned about the latest technology so that the rural people will be highly benefited. If old Stuffs (electronic and furniture) which are soon to be replaced by those colleges are donated to rural communities then they could be great contribution to the community for the set up of CICs. If the governmental and non-governmental bodies could support us by providing these stuffs. It could be a great fortune for this country for utilizing maximum manpower for its development through ICTs. We could accelerate and continue our vision into real output if at least 1 telephone, 1 fax machine, 1 photocopy machine and 8 computers are provided to each CIC.

## 8. STAFF / ADMINISTRATION



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## 9. AVAILABLE RESOURCES

- **Building** - small building or a flat or a room for CIC will be provided by the Local community.
- **Volunteers –Technical students from colleges of city areas**

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## 10. EVALUATION PLAN

Project evaluation will be the responsibility of the Project Evaluator and consist of two different evaluative strategies - formative and summative.

**10.1 Formative Evaluation** - Primarily qualitative in nature, the formative evaluation will be conducted through interviews and open-ended questionnaires. The Local people and student volunteers will be asked about the day-to-day operation of the Center, the topics covered in the training programs and the workshops, the attractiveness of the training materials, and other questions to provide feedback for the ongoing improvement of the operation of the Project. The Project Evaluator will meet regularly with CIC staff to share findings from the formative evaluation effort. Periodic reports will be prepared that identify the major findings of the formative evaluation and how they have been used to improve Project operation.

**10.2 Summative Evaluation** - Primarily quantitative in nature, the summative evaluation will begin with the establishment of baseline data at the beginning of the Project (using a random sample Local people to assess their ICT knowledge) and then be conducted at 6 month intervals (just prior to each group of volunteers completing their Project service).

A yearly report will be issued that presents the formative and summative findings.

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## 11. CONCLUSION

Effective utilization of ICT has the potential to make the rural communities in Nepal prosperous. Failure to exploit benefits of ICT would make them isolated, victims of the vicious cycle of poverty and widen the gap between the haves and the have nots. The use of ICT should not be restricted to simply establishing information flow channels; rather there is a need to find a way to integrate it with the various livelihood needs (natural, social, human, physical and financial) of the rural community. The narrow ICT coverage is found to be financially and practically non-viable. Further, no single agency can deliver all these critical inputs. The entire process should be endorsed by a well organized network of human resources/ government/ organizations/ institutions, etc. Besides the public sector, the need for a proactive participation by the private sector, NGOs, government agencies and other civil society organization is also important.

The project CIC aims to make maximum usage of ICT and the latest technology available in the most developed countries to reap the results into the rural community. It is a fortune that the developed countries have taken the long time and experience to develop this tools and the information, which we can borrow and use it in the development of our own society. It is a boon of time, which if we do not take the advantage we will be the looser. Provision of Internet facilities to remote geographic communities can have an important impact, for which the basic infrastructures need to be maintained.

If we really want to compete with this world then we need to start our work from the rural communities of Nepal. The need is to consider people not as our biggest problem, but our greatest strength. What has been missing so far has been a framework in which the mix of villages, people and technology can be magically combined to build a New Nepal, which is transformed from an autocracy into an Emergent Democracy?

The idea of having network of CIC in every village connected together into a Village Community web-portal, and complemented by Intelligent, Real-Time Governance will lead to reduced information asymmetry between administration and the citizens. It will provide for real-time feedback on schemes and problems, with solutions also being provided by people themselves.

Trust is a central and contentious element in the development of rural communities. Trust in the group and its members are essential to the development of bonding, bridging and linking social capital. Development of broader bonding, bridging or linking social capital is unlikely to occur without facilitation except in communities that are inherently structured to achieve this goal. Social service providers and practitioners may play a major role in developing and nurturing bridging capital. Communities structured to achieve broader bonding, bridging and linking social capital. It helps young people to connect to employment and life opportunities.

The overall proposition is that through access and effective use of ICT individuals and communities have a greater opportunity for engagement with others, broadening their understandings and building bonding, bridging and linking capital. Greater participation in communities is assumed to contribute to stronger social capital within the community at the local, state, national and global levels and hence contribute to improved economic and social outcomes.

Nepal wants this century to belong to Nepal. No nation can progress leaving behind more than two-thirds of its population. The tools and technology in the forms of CICs, the Community web-portals and intelligent and Real-Time e-Governance are at hand. The choice of transforming or ignoring Rural Nepal is in our hands.

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## **12. APPENDIX A - TIME LINE (First Year)**

### **Month One**

- Meetings with community leaders
- Meeting with Government Bodies

### **Month Two**

- Finalizing location of Centers

### **Month Three**

- Selection/hiring of CIC staff members
- Preparation for Center operation

### **Month Four - Six**

- Preliminary advertising of Center operation
- Hosting community meetings at Center
- Collection of baseline data on benefits of ICT
- Recruitment/selection/training of student volunteers

### **Month Seven - Twelve**

- Conducting of regular formative evaluation
  - Final summative evaluation at end of twelfth month
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### 13. APPENDIX B - Resume of Sudip Aryal (Project Director)

#### PROJECT DIRECTOR

Sudip Aryal

**Title:**

Founder President  
Nepal Rural Information Technology Development Society (NRIDS),  
Mayatari, Syangja

**Educational Qualification:** Bachelor in Computer Engineering

**Language Proficiency:** English, Nepali, Hindi, Basic Skills in Japanese and German Language

**Affiliation**

- Life Member of Nepal Scouts
- Member of [www.takingitglobal.org](http://www.takingitglobal.org)
- President of Nepal Rural Information Technology Development Society (NRIDS)
- Founder member of Nepal Youth Society (NYC)
- Member of Leo Club of Katmandu Kingdom
- General Member of Paropakar Orphanage Home

**Experience:**

- Currently working as the **president** of **Nepal Rural Information Technology Development Society (NRIDS)** since 2004, a NGO working for the development of Community Information center in the rural areas of Syangja District.
- Worked as an **intern** at **Nepal credit and Commerce Bank Ltd. (NCC Bank Ltd.)** Corporate office /Kathmandu Main Branch Bagbajar, Kathmandu, Nepal from 12<sup>th</sup> March 2005 onwards for a period of three months. We developed the **local Intranet of NCC bank**.
- Worked as **public relation Officer** of Leo club of Kathmandu kingdom in 2003-2004. We have conducted various social programs like Blood Donation and fund collection for the victims of Natural calamities
- Developed the official website of Syangja district ([www.syangja.com](http://www.syangja.com)), Suryodaya youth club ([www.suryodaya.org](http://www.suryodaya.org)), NRIDS ([www.nridsnepal.org.np](http://www.nridsnepal.org.np)). I am working as the moderator of Sci-Tech section of [www.tanneri.com](http://www.tanneri.com) a complete internet magazine for last 3 years.

## Publications/Presentations:

- Published an article entitled “**Computational Disambiguation of Nepali Language Parsing**” on Nepalese Linguistics : A journal of the Linguistics Society of Nepal, Volume 22, November 2006.
- Presented paper entitled “**Disambiguation based on syntactic constraints over lexical tag sequences and possible semantic constraints for Nepali Language Parsing**” in 27<sup>th</sup> Annual Conference of Linguistics Society of Nepal and 12<sup>th</sup> Himalayan Languages Symposium held on November 26-28, 2006
- Presented paper entitled “**Rural transformation by the establishment of Community Information centers in the rural Areas of Nepal: A Pilot Project**” in Second National Conference on Rural Tele-centers in Nepal Organized by (TBD): High Level Commission for Information Technology Ministry of Information and Communication held on November 17-18, 2006 in Kathmandu, Nepal
- Presented a paper entitled “**Disambiguation while Part of Speech Tagging and Local Word Grouping Techniques for Natural Language Parsing in Nepali**” in KCC EXHIBIT 2006- The Power of Bits, The Speed of Hertz jointly organized by Kantipur City College (KCC) and Center for Software Development and Research (CSDR) on September 8-9, 2006.
- Presented a paper entitled “**Community Information Centers in Rural Areas of Nepal : An initiative of the local community**” in the National Conference on **Rural Tele-Centers in Nepal: Swabhimaan 2062** Organized jointly by Ministry of Information & Communication High Level Commission for Information Technology, One world South Asia, Microsoft and FIT Nepal held during May 24-25 ,2005.
- **Convener** of Seminar on “**Pokhara University and its related problems**” conducted on 6<sup>th</sup> September 2003 organized jointly by Nepal Engineering student’s Council and Nepal Engineering College. Presented a **key note paper** entitled “Evaluation System and the problems of Pokhara University”
- Participated in the International conference on “**Information Technology: Prospect and Challenges in 21<sup>st</sup> Century**”, held during May 23-26, 2003, Kathmandu, Nepal.
- Presented a paper entitled “**Information Technology in development of Nepal**” in the 6<sup>th</sup> national Convention of ISTE Students in Jawaharlal Nehru Technological University college of Engineering, Hyderabad held on 10<sup>th</sup> & 11<sup>th</sup> Oct.2003.

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## Training and special courses

- Networking (Windows 2003 server based networking )(under training)
- Java (Core Java)(under training)
- Computational Linguistics training offered by Harold Somers Professor of Language Engineering School of Informatics University of Manchester, held on 2005, Madan Puraskar Pustalakalya, Kathmadu.

- Software Engineering Expert Discussion Series (SEEDS) by Pat Hall Professor of Software Engineering School of Informatics University of Manchester held on 2005, Madan Puraskar Pustalakalya, Kathmadu.
- Other short term training includes webpage designing, server side scripting language using Dream weaver, Fireworks, HTML, ASP and PHP.

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## Projects

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### Final Year Project (Academic)

*Natural Language Processing (NLP)*

Computational Disambiguation of Nepali Language Parsing.

### Minor Project Project (Academic)

*Local Intranet*

Development of Local Intranet of Nepal Credit and Commerce Bank limited (NCC)

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## APPENDIX C - PERSONAL PERSPECTIVE

*For the past 8 years I have had a strong concern for the transformation of rural areas in Syangja. This is the area in which I was born and partly raised. Through my studies at the University and my practice as a social Mobilizer and Computer Engineer I have come to learn that it is possible to transform not only Syangja but Rural areas of Nepal a whole through well designed and meaningfully focused programs of ICTs.*

*The challenge to the creation and operation of these programs, however, is twofold. First, we need to make them understand what ICTs is. Also we need to make them feel the importance that can play to ease their life.. And second, there does not exist a group of trained facilitators to assist in delivering this information in a timely and meaningful manner.*

*Research suggests that the most powerful way to affect ICT revolution initiative through the improved understanding of the value of Information rather directly exposing them with the technology. This project will focus on the establishment of Community Information Centers (CICs) for the rural transformation. And, it will occur in a local community location, either government schools or in Aama Group building, Youth Clubs and at the junction of the Village.*

*Further, the Project will build upon the very successful CIC program as a way to involve Technical as well as non technical Students volunteers in the offering of services to the rural Community in their respective subject areas of study and research. In addition to using these volunteers as a viable form of manpower for the offering of service, the Project will work to help these volunteers learn meaningful ICTs and also techniques for effectively teaching this information to the local Community - a knowledge base that is certain to help them in their future endeavors.*  
Sudip Aryal

### **13. CONSULTATIVE MEETING**

#### **NRIDS activities in Syangja can be generalized as follows:**

- 8> To empower the disadvantaged and poor communities with ICTs. Existing Mother's Group, Youth clubs and libraries are gradually following the Community Information Centers (CICs) model. We closely work with them to establish the existing infrastructure as CICs/telecenter
- 9> To conduct ICTs related workshops, meetings, seminars and training with the local government for the E-Governance preparedness.
- 10> To Conduct ICTs and e-Governance interaction program with the Grass root NGOs. More than half of the total numbers of NGOs have their own Blogs sites to update their day to day organizational activities.
- 11> Lobbying with the Government/ INGOS/other Donor agencies for further growth is also is in some cases comes as the responsibility of NRIDS.
- 12> To conduct the yearly progress Evaluation and Monitoring of the CICs.
- 13> Exchange Programs /Interaction programs of Grass roots are also conducted by NRIDS such that the Success Case Replication (SCR) is possible. SCR has become the NRIDS key method to empower the marginalized Communities with ICTs.
- 14> As there is no local FM in Syangja District till date. NRIDS in association with the various means of Mass Communication conducts the ICTs awareness programs highlighting the importance of CICs to support for the E-Governance .Annapurna FM-Pokhara, Regional Radio Nepal-Pokhara are supporting us to reach to the mass communities.
- 15>

#### **Women Participation in Community Information Center(CICs) Program:**

- 40% participation is seen in most of CIC
- 100% participation in Rajasthal CIC
- Aama Groups are the first priority to discuss for CICs Establishment and new activities of CICs Matters
- Email/Photo transfer/Webcam chat with relatives
- Telemedicine would attract women
- Applications designed for Illiterate users would also attract more participation
- e-Agriculture would attract participation

#### **Sharing, accessing and using relevant knowledge pertaining to key areas of sustainable development such as employment, education, gender and health**

- **Challenges**
  - Language Problem(Most of them know at least basic of English Language)
  - Internet Bandwidth (CDMA Technology-NTC)
  - Intermittent Power Supply Electricity
- **Opportunities**
  - Most of the CICs are governed by Amma Group(Mother Group).This assure Women Participation.
  - Unemployed youths go to Golf Country for Employment without the much prior information about the working atmosphere and the salary.

- NRIDS is Currently researching on the Wireless Implementation to connect the existing and the new CICs for Telemedicine and Distance Learning Implementation
- Optimum Awareness is created by NRIDS. Only the targeted Training would be necessary.
- Recognized by the Local Government.
- Group of IT Engineers working as a volunteer.
- Most of the Government and Non Governmental offices first approach CICs at first for any related work in particular Village.
- 8 CICs are preparing their Village Profile and Senior Citizen Experience Book which would also help us understanding the Villages situation better

### **Challenges and opportunities in joining a regional network of telecentres**

- **Challenges**
  - Language Problem- English language is not understood by all
  - Internet Bandwidth very low in rural areas 56 kbps only
  - Intermittent Power Supply Electricity
  - Investment in training the Local people
  - Local Content Creation
- **Opportunities**
  - Hands on Experience sharing
  - Online jobs/bidding
  - E-Marketing
  - Online Communities of similar people
  - Tourism Promotion
  - Cultural Exchange
  - Common problems have Common Solution no further research required
  - Have the possession of a huge Human Resource for the Rural ICTs
  - Possibility of prompt Success Case Replication (SCR)
  - Resource Sharing
  - Easy Monitoring

### **What can be done to enhance the ICT Revolution in Nepal?**

- National/Regional/Zonal/District/VDC/ ward/small village level ICT (Information Communication Technology) Taskforce should be formed
- Establishing CIC is the best way to implement this Taskforce development
- According our more than three years of experience in this field, the best approach for success is following the notion of “By the Community for the Community and with the community”. It means Lets try to ware them with the importance of ICT in individual’s life and motivate them to be interested to take this initiative Themselves.
- “The One and only alternative for Development of Nepal is through ICT”. Proper use of ICT enables all the areas of development to happen in an easier, simpler and scientific way.

- A rigid policy and action plan should be prepared by the detailed research of the Remote areas of Nepal. Plans and Policies prepared just by considering the success stories of other countries are not sufficient. We need to identify the key areas where ICT can help the life of Villagers easier and better than before. Providing Computers, Internet, telephone, fax and photocopy machine to villages is not only sufficient. Important thing to analyze is what in particular community take can benefit from these resources to enhance their business and other works.
- Government should try to use the Resources of School and Colleges of different parts of Nepal.
- Still there is a lack of ICT awareness through Mass media e.g. Newspapers, Television, FM, Radio etc. They can play very important role to support our mission of “ICT Revolution in Nepal”.
- Every Village should be encouraged to prepare the village profile every year. Also the concept of “senior people Experience book “should be implemented in every village of Nepal. The knowledge is in our villages, with our grandfathers/grandmothers/Fathers/mothers/brother/sisters living in their villages. They are the ones who know about the village history/Geography etc. We need to document that precious knowledge from them. This knowledge will help Government or any organization to carry out development activities. CIC Dhital ,CIC Mayatari, CIC Bayatari, CIC Kaskikot,CIC Rajasthal,CIC Bagalthok, CIC Pragati Nagar, CIC Helu, CIC Lampata are implementing this concept.
- Government can take the bottom up approach for the preparing plans and policies only if there is CIC in every village. Indeed the Village community plans for their village development and forward it to the Government. Then only can our country feel the pace of Development. We are proposing the government from village level about the areas of development for particular villages through the Community Information Centers (CIC). This should be implemented everywhere villages of Nepal.
- Conferences /Seminars/ Workshop should be organized in the grass root level. The organizing these kinds of programs should be handed over to the Community themselves. If there is a security problem then the government should call all the people/Organizations/Business/Industries/ Academic Institutions to volunteer in ICT revolution activities in their capacity. So this can happen more spontaneously by the

notion of “By the community for the Community and with the community.” Government need not make budget and security as the major barriers. Rather Government should empower all Nepalese to help voluntarily in this initiative. Not only should the Government, Every individual must feel the equal responsibility to develop their own villages through ICT. The best thing about ICT is even talking about it also is beneficial.

- Government should make a policy reform for mandatory Community Service in Remote areas for the partial fulfillment of the bachelor Degree. If only two educated youths out of 200 can contribute in this initiative. Then we can think of “One CIC per Village”. Nepal Rural Information Technology Development Society (NRIDS) is also taking the fresh graduates for voluntary service in CICs. But this should be implemented all over Nepal.
- We are now conducting awareness campaign in Grass Root level and also preparing for the District Level ICT conferences and workshops.
- NRIDS is conducting Information Brothers and Information Sisters Program. Foreigners as well as Nepalese whoever comes to volunteer in CICs they are honored as Information Brothers and Information Sisters of NRIDS. Our Information Brothers and Sisters are inside and outside the county. Outside the Country they are in Australia, Japan and America. The concept is not to expect funding/donations from them. Motive is to transfer the knowledge they have to the community; promoting the village tourism; introducing the villages to the world.
- NRIDS is an organization having a potential team of IT Engineers. The team members are voluntarily working for “Establishing CICs in remote Villages of Nepal”. The Concerned authority should utilize the experience/Expertise of Engineers like us who are working day and night for the development of Nepal through ICT. It is important to involve many youths dedicated for this kind of movement from the initial planning to formulation of plans and Policies.
- NRIDS’s working modality is Collaboration with small groups such as Aama Samuha /Youth Club/organizations and government agencies for the Long Run.

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Simone Cecchinia and Christopher Scottb

aECLAC, United Nations, Casilla 179-D, Santiago, Chile

E-mail: [scecchini@eclac.cl](mailto:scecchini@eclac.cl)

bDepartment of Economics, London School of Economics & Political Science, Houghton Street, London WC2A 2AE, UK

E-mail: [c.d.scott@lse.ac.uk](mailto:c.d.scott@lse.ac.uk)

#### **Information Technology Education in Nepal: An Inner Perspective**

**Dr. Subarna Shakya,**

Institute of Engineering Nepal

[sshakya@wlink.com.np](mailto:sshakya@wlink.com.np)

**Deepak Rauniar,**

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#### **Poverty Reduction Through Access to Information and Communication**

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Paul Ulrich

Director, Asia Pacific

Pyramid Research

Hong Kong

and

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Prakash Raj Singh Suwal

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***Rural Development with ICTs in Nepal:  
Integrating National Policy with Grassroots Resourcefulness***  
Roger Harris  
Roger Harris Associates  
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Kowloon, Hong Kong  
Phone: +852-2698-6132  
[harris38@netvigator.com](mailto:harris38@netvigator.com)  
<http://www.rogharris.org>

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### **Websites**

[www.takingitglobal.org](http://www.takingitglobal.org)

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[www.humaninet.org](http://www.humaninet.org)

[*Note: I am still working on preparing the concept paper. While preparing this, a lot of Research Papers/Journals/ and websites have been referred. In this course I have come across some of the ideas so much similar to our thoughts that I have kept exactly the same sentence without even changing it. Also in some places I am not able to quote here in this paper This also happened due to the technical terms associated also. . I apologies for the inconvenience.*]