E-SERVICES IN RURAL NEPAL:

A STUDY OF TELECENTERS

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Dedicated to

My Late Grandma Tika Devi Dangal…………..

ABSTRACT

Delivery of public goods and service is as old as Government. Types of public services and the way services are delivered are frequently changing in the context of demand/expectation of the people, changes in the technology, scientific innovation, resource availability, and challenges that internal and external environment brought. New problem often requires new solution and new services to provide them, expanding the scope of government activity. World has continuously experiencing "paradigm shift" in delivering public goods and service. The emergence of concept of New Public Management during the late 1980s and coherent development of Information and Communication Technology (ICTs) during the early 1990s has brought the landmark changes in the public service delivery. Both the concept reinforces each other and emphasized on people centered timely, cost effective and participative service delivery. Development of Information and Communication Technology (ICT) has opened a door for better communication and processing of information. Government all around the world is using this priceless innovation for providing better, fast, transparent, efficient public services to its citizen; which is simply termed as e-government. The application of ICTs varies from country to country and with in the country, its presence can be felt all around the world. In this context of increasing ICTs internationalization Nepal's rural areas has also got an opportunity to be introduced with this wonderful technology since 2002.

The initiation undertaken through Wireless Project Nepal by national NGOs E-network Research and Development (ENRD) has been now spread throughout the country. ENRD is not any more the single actor in the field; different government institutions, national and international NGOs and even the private sector are actively involving to connect the rural Nepal with rest of the world.

In order to make study more focused and convenient three telecenter Nangi telecenter, Tikot telecenter and Dandagaun telecenter were chosen on the basis of judgmental sampling techniques. These centers poses basic ICT infrastructure and are continuously operating since their establishment. All these telecenters are providing internet service, secretarial services and to some extent educational and agricultural services. Nangi and Tikot telecenters are providing telemedicine services also. The study used both the quantitative and qualitative research methods to gather the required data.

Overall objective of the study was to assess ICTs penetration in rural Nepal and analyze its role in facilitating services delivery. The study aimed to achieve three specific objectives which were: to examine and analyze factors affecting accessibility and participation in the e-service delivery process, to assess how public telecenters are facilitating accessibility of e-services and to examine how the public telecenters are enhancing citizen's participation in e-service delivery.

The study found the accessibility and participation in the process of e-services is affected by socio-economic, organizational and technical factors. Higher education showed differet relationship with the ICTs usage rate, similarly young age people have higher accessibility to ICTs. The study found that difference in gender has not any effect on the usage of ICTs among male and female users.

Availability of effective content and e-services seems to have direct effect on the accessibility and participation in the e-services. ICTs infrastructure have effects on the service offered and service diversification, which ultimately affects on the accessibility and participation in the e-services. Telecenters operational rules and regulation had positive relationship with the users participation and accessibility to e-services. Study found that telecenters have helped positively for increasing accessibility to e-services but participation in e-services is not encouraging though increasing.

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List of Abbreviation

ADB: Asian Development Bank

ENRD: E-Network Research and Development

e-Services: Electronic Services

ICT: Information and Communication Technology

IT: Information Technology

ILO: International Labor Organization

INGO: International Non Government Organization

HLCIT: High Level Commission for Information Technology

NGO: Non Government Organization

NIC: National Informatics Centre

OECD: Organization for Economic and Cultural Development

UNDP: United Nation Development Program

UNESCO: United Nation Education Scientific and Cultural Organization

VDC: Village Development Committee

Acknowledgement

Chapter I

1.0 Introduction

Development in communication and information technologies (ICTs) in the late 20th century has revolutionized the world in many ways. The influence of this development is multidimensional. It has not just only created economic opportunities and benefits, but also to larger extent has affected social practices and life style of the people. It has largely changed, the way people think, live and perform their activities, the way society manage its affairs, and the way state operates and carry out its function. All most every aspects of human life have been influenced by this development.

Types of public services and the way services are delivered are frequently changing in the context of demand/expectation of the people, changes in the technology, scientific innovation, resource availability, and challenges that internal and external environment brought. Information and Communication Technology (ICT) has opened a door for better communication and processing of information, faster and in cost effective ways than ever before. Because of this new innovation the traditional notion of public service delivery has been in rapid changes.

Rapid development, advancement and wider acceptance of ICTs in the society have put large pressure on the government to use this technology in managing states affairs. With increasing application of ICTs in the day to day life of the people, Government around the world are increasing their reliance in this technology for better serving the people and to manage their own affairs faster, easier and in efficient manner. As a result ICTs has effected on how public goods and service has been delivered to the people and of course it has created new avenues for better public service delivery.

When the services are delivered using the ICTs it is known as e-service delivery. Application of ICTs for managing states affairs, and to deliver services to the people is termed as e-government

1.1 Evolution of ICT in Service Delivery

Until quite recently, governments were plagued by a typical supply-side orientation, wherein developmental priorities were set by notions of the welfare state and centralized planning, and citizens were merely treated as passive recipients or beneficiaries of public services (Prakash and Singh n.d.). But things are slowly and gradually changing as the application of

ICT has potential to transform the way public service are delivered and the interface between government and citizens.

Information technology (IT) is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other related forms) including the both telephony and computer technology that have been the driver of what has often been called "the information revolution." (Wange and Salaam, 2007).

Development of electronic calculating machine in 1946 was historic event in the development of ICT. This pave forward to the development of IBM main frame and mini-computers during the decade of 1950s to 1970s. Evolution of microprocessor in 1969 by Intel Corporation was another landmark development in the field of ICTs. Microprocessor development helped downsizing and replacement of traditional mainframe and minicomputer with micro based alternatives. The development of internet in the decade of 1990s was the most important revolution in the field of ICTs. It has helped to build worldwide system of computer networks, communication and rapid information flow. The internet revolutionized the ICTs application from data processing to information and knowledge management. It was the turning point from where governments around the world sense the possibility of delivering fast, cost effective and integrated services through ICTs application.

Since the ICT's revolution in late 1980's and early 90's the world has advanced a lot in the field of delivering public service to the people. Different countries are using this wonderful innovation for bringing administrative efficiency, and providing better public goods and services to the citizens. Different countries in the world, including different states of neighboring country India have proved that utilization of ICTs in government affairs can bring positive outcomes in administrative efficiency and in public service delivery. Modern ICT is a significant strategic tool for lifting public sector performance, offering benefits of greater efficiencies and effectiveness in government operations and service delivery, improved communication and coordination across organisational boundaries and levels of government, and greater transparency and accountability in government functions (Public Service Commission, Queensland Government. 2011).

Starting, from 1971, with the establishment of National Computer Center (NCC), Nepal has nearly passed a journey of four decades in the field of ICTs, but with little achievement. In

fact increasing pressure to adopt ICTs in managing state affairs was realized only after the reintroduction of democracy and adaptation of liberalization policy in 1990s.

In order to make sure that disadvantage and poor people especially from the rural areas are not left beyond for getting fruit of ICTs development, different welfare nations have started the concept of telecenters. The term telecenters refer to the public place, where people can access communication and information technologies, that enable them to gather information, learn and communicate with others.

Most early telecentres started with a modest goal: giving people a chance to access and learn about technology… A telephone, a photocopier, a computer, the Internet (telecenter. Org 2009). The concept of telecenter is growing as a movement worldwide and it is not just limited with initial goal of educating technical skill to the people. Today's telecenters use computers and the internet to do everything from improving public health to extending education to a wider audiences to strengthening local democracy…..to human connection to outside world…through simple E-mail to affordable financial remittance services (Ibid).

Telecenters are commonly known as Community Information Center, Information Access Center, Kiosk and so on. Different telecentre is likely to have its own unique qualities that match the needs of the community. Telecenters have gained prominence as the primary instruments for bringing the benefits of ICTs to poor communities where the technological infrastructure is inadequate and the costs of individual access to these technologies are relatively high. They provide opportunities for access to information by overcoming the barriers of distance and location, and by facilitating access to information and communication, they have the potential to foster social cohesion and interaction (Young, Ridley, & Ridley, 2001).

Telecentres have been hailed as the solution to development problems around the world because of their ability to provide desperately needed access to information and communication technologies (ICTs) (Gómez and Hunt 1999). Telecentres have considerable potential for narrowing the "digital divide" in remote, rural and disadvantaged communities. They can facilitate to take advantage of the information economy, education access, government information, healthcare and other services, and develop socially and economically especially for the developing countries and rural areas.

In Nepal's current state of transition, the political agenda has taken priority over everything else, including ICT development (Shrestha and Pandey 2009). In spite of passing through the most difficult passage of its history, Nepal is progressing slowly and consistently in the field

of ICT. Due to the increasing access of the people in ICTs, Government is increasing electronic presence and also the number of service delivered using ICT is increasing day by day.

Most of the government ministries and departments as well as municipalities now have website as well (Shrestha and Pandey 2009). Apart from the information like policies, laws, regulation, circulars, manuals, forms, and other information, some of these institutions like Inland Revenue Department under the ministry of Finance has recently started accepting Electronic Filling of TDS, Installation Returns of Income Tax and Electronic Registration. Public Health Department under Ministry of Health has started the e-health services and telemedicine services. Similarly some other offices like Office of the Controller of Examination under the Ministry of Education since 2008 has been providing School Living Certificate (S.L.C) results through SMS, and through web.

These are some of the example of many such initiatives undertaken by government and local government institutions (especially municipalities) recently to provide effective services to the people. These kinds of new e-services initiatives have helped people to get services without hassle, faster, cheaper and in convenient manner. There has been increasing acceptance among the citizens that ICT can facilitate better service delivery thereby complementing existing.

1.2 Telecenters Promoting e-service in Rural Nepal

Telecenter show its presence in Nepalese soil with the dawn of new millennium. Recognizing the important role of extending ICT services in the rural areas to contribute to the poverty alleviation linked developmental goal of the country, the rural information centre was highlighted for the first time in the IT Policy 2001 (Chapagain 2006). Nepal's first Rural Telecentre was established by E-Network Research and Development in 2002, at Himanchal Higher Secondary School of Myagdi District under the Wireless Nepal Project. Since then number of telecenter organization has been established mainly through government, I/NGO and private initiatives.

Rai (n.d.) in his work   Nepal's telecenter landscape and where CeCs stand mentioned that there are about 426 telecenters operating in Nepal out of which 349 is funded by Nepal Government and rest is funded by I/NGOs and private initiatives. Apart from providing commercial services like Phone, Internet, Photocopy, Scanning, Printing, VoIP, Digitization,

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Lamination, Basic ICT Training, Digital photo and color printing, Remittance, Phone time recharge, Agro-based product prices through mobile SMS; through rural information gateway they also provide information about Agriculture, Health, Education, Women Empowerment, Employment and ICT.

Establishment of telecenters in the nooks and corners of the country has added the new dimension to the public service delivery. Citizens, who were compel to travel long distance to get basic information (like requirements to get services, market price of product etc) and very basic services (like government forms, communication etc) due to centralized public service and difficult geographical terrain are able to get these services in their own villages. In fact, Telecenters have pivotal roles in mediating e-Services extension and promoting awareness on available online information in rural areas (http://www.telecenters.org.np/en/index.php). How the telecenters are facilitating eServices in the rural areas has been the essence of this study, hence this issue will be examined in details in following chapters.

1.3 Statement of the Problem

Most of the people across the world held consider government to be too costly, too inefficient, too ineffective, too self serving, too inconvenient and too insular (Prabha, Raghuveer and Parthasarathi 2006). This holds true in the context of Nepal too. Nepalese bureaucracy is charged with high corruption, collusion, and nepotism. As noted by Sapkota (1997) Government functions are rigid as they are tied to procedural red tapism, and causes undue delays in decisions making. Goods and service are not delivered efficiently and effectively because lack of commitment to the public interest and the traditional attitude of bureaucracy, i.e. power holders do not necessarily want to share authority with other partners for fear of marginalization of their existing roles.

Nepal is a topographically challenged country. It has mountains, hills, valleys and terai. This geographical structure has created hardship in access and prompt delivery of public services. Rural population is predominant and around 85 percent of total population lives in rural areas (ADB, 2009). Majority of the poor people living in rural and often isolated areas have no contact with the world beyond their nearest neighbors. They live in information-deserted areas. Limited means of communication with the outside world are major reason for the isolation and economic backwardness of rural communities. Recent development in the field of ICTs has made it possible to connect different geographical regions in cheaper cost than ever before.

According to ADB survey conducted in (2007), Citizens make an average of two visits, travel for up to 6 hours each time, and wait for 2 hours at village development committee (VDC) offices to complete public service transactions such as birth, death, marriage, relationship, and migration registrations, as well as vehicle and land registrations. Sometimes, further delays are caused by the absence of VDC staff without notice. In general, government processes are bureaucrat-centric and not citizen or service oriented. Because service delivery is not transparent, citizens are faced with the threat of harassment and bribery (Ibd). Introduction of ICT in public service delivery might help convert bureaucrat centric approach into citizen centric service by providing quality service in convenient and most effective manner often in very low cost then the conventional methods.

In order to improve the accessibility to ICTs and ultimately bring the people in realm of socio-economic development different NGO and INGO started a concept of telecenters from 2002. Afterwards, Government joined the movement with the objective to minimize the digital divide and bring rural isolated people in the mainstream of development. But most of the government supported centers are not effective, non-functioning position and those in operation are focused on mere communication rather than exploring the ways how the wonderful innovation of ICTs can be utilized for providing public services to the people.

1.4 Objectives of the Study

E-service delivery or Use of ICTs in public service delivery has created new wave towards accessibility to public services and opportunity to participate in the service delivery process. So the core objective of this study is to assess how this new approach of service delivery mechanism is getting its stronghold in the isolated and rural masses of Nepal. This study has the following specific objectives:

- ❖ To examine and analyze factors affecting accessibility and participation in the e-service delivery process.
- ❖ To assess how public telecenters are facilitating accessibility of e-services in rural Nepal.
- ❖ To examine how the public telecenters are enhancing citizen's participation in e-service delivery.

1.5 Research Questions

In the course of this research, the researcher will put best possible effort to find answer of the following questions:

- ❖ What is the current state of e-services delivery in rural Nepal?
- ❖ What are the factors that affect e-service?
- ❖ How public telecenters can be made more effective for better delivery of e-services?

1.6 Hypothesis

In the course of the study following hypothesis have been tested;

Hypothesis

- **a)** Male have more accessibility to e-services than females.
- **b)** Higher the educations better the accessibility to e-services.

1.7 Scope of the Research

This study is focused on service delivery aspects of Telecenters. Study of economic and social benefits of the telecenters is not the core objectives, though these issues come during the study. Similarly, the study includes only the telecenter users and non-users are left.

Among 426 telecenters operating in Nepal; majority of telecenters are funded by Nepal Government and rest are by I/NGOs and private initiatives. Hence to make the research easy, telecenters established by national non government organization will be taken as the population for the study. Among these telecenters also, only three telecenters established by E-Network Research and Development (ENRD) will be taken for this study.

ENRD is the pioneer of the rural tlecenter in the context of Nepal. This organization initiated establishment of rural telecenter since 2002. Since than, the organization has already established number of telecenters in more than eleven hilly and mountainous district of Nepal. In fact the government supported telecenters and private sector invested telecenter showed their presence only when some of the ENRD supported telecenter were established. Telecenters established by ENRD is undertaken for study because ENRD is the oldest non-governmental organization connecting rural Nepal with rest of the world by establishing telecenters.

Three telecenters Nangi Telecenter of Nangi, Myagdi, Tikot Telecenter of Histan Tikot Myagdi and Dandagaun telecenter of Dandagaun Rasuwa will be taken as case study for this research. The first two tlecenters are located in the western mountainous district, where as the later is located in the mountainous region of the central region. All the three telecenters are located in rural area and supported by ENRD, therefore serves the purpose of the study and is the prime reason for taking as sample for study. They are also selected from the point of convenience and accessibility.

1.8 Significance of the Study

This study explores ICTs development in the rural areas from the perspective of e-services. The study provides the ground realities of the ICTs development and its application in the rural areas. This help to assess the ICTs penetration in rural areas and to know the people's insight about the possibility of developing ICTs as alternative service delivery mechanism.

Different governance indicators including World Bank's World Wide Indicators in Governance and CPI of Transparency International have ranked Nepal as one of the poorly governed country of the world. The country is continuously facing the governance related problems. Government has undertaken different Governance reforms initiatives. But this governance improvement program has not been able to bring the intended outcomes. According to Gautam (2008), most of the governance reform programs are either partially implemented or non implemented. In fact governance is not means rather it is end. It is the intended outcome of certain practices or policies. Hence, by utilizing ICTs in public service delivery, we can ensure governance by means of accessibility, transparency and participation, which will ultimately enhance quality of public service delivery.

1.9   Limitation of the Study

This study is focused on role that telecenters play in facilitating service delivery in rural Nepal. The study has taken only NGO supported telecenters, and not the telecenter supported by government INGOs and private initiatives. Since, the outcome and impacts of the telecenters operated by different stakeholders, might be different generalization of the finding might be difficult. Similarly, only three telecenters are taken from the two mountainous district of Nepal are taken, thus have probability of number and geographical bias. Further, this study is primarily based on the telecenters users and people not using telecenters are

excluded from the study. Though not direct benefit, non-users also might get indirect benefit and information. why non users are not using telecenters facilities might provides actual reality of the telecenter movement and e-Services initiatives. Though desired all these limitation was not able to address because of the quality and quantity of the resources constraints.

1.10   Organization of the Study

This thesis is arranged and presented in five chapters. The first chapter provides the basic information about the study undertaken. It provides information about the general background of the study, states the research problems, specifies research objectives, research questions, hypothesis and also defines the scope of the study. In addition it also provides the information about significance and limitation of the study before concluding the chapter with organization of the study.

On the background of the research laid down in chapter one, important and relevant documents that facilitates our study have been reviewed in chapter two. Here, the attention has been given to validitate our study on the ground of the study undertaken and research that has been carried out earlier. On the basis of the research framework and the review of literature, we select the most relevant theory for the study and devised the theoretical framework that guides us to achieve the research goal.

In the third chapter we figure out the data sources required for the study and most practical method to collect them. The study uses both the quantitative and qualitative method of data collection. Data analysis and presentations method has been selected on the basis of nature of data and their appropriateness.

Fourth chapter presents, describes and analyze the facts gathered from the study. At first current scenario of e-services has been discussed followed by the background of the study and proceeding towards how rural telecenters are facilitating accessibility and participation on e-services. At last, citizen's perception regarding telecenters has been presented.

The last chapter of this thesis presents the findings, summary and conclusions on the basis of data obtained from the study.

Chapter II
Theoretical and Conceptual Review

2.0 Introduction

This chapter deals with the theories and concept of e-services with particular emphasis on the telecenter movements. The chapter begins with the discussion of ICT usages and proceeds towards discussion of e-services concepts and relevant studies. Then the research gap has been discussed highlighting need for taking this study. Further, the chapter discusses theory used in this study and highlights the analytical framework that has been used. Finally, the chapter concludes with the detail elaboration of the variables and their operational definition in relation with this study.

2.1 Usage of ICTs in Providing Services to Rural Areas

Information and Communication Technologies (ICTs) are driving core economic, social, political, and cultural activities globally (Krishna 2005). Information and its access has been the driving force for the achievement and advancement in any sector and the fields. If information is critical to development, then ICTs, as a means of sharing information, are link in the chain of the development process itself (ILO 2001). Recognizing the importance of ICTs several countries have harnessed the potential of ICTs for improving public services, good governance and development. As the current literature of public service delivery has recognized the fact that poor and ineffective public services delivery is one of the main reason for rural poverty, the use of ICTs in the rural areas can enable to overcome rural poverty by means of effective service delivery and development. They enhance the human capabilities and fit in with instrumental freedom espoused by Sen, (cited in Krishna 2005) through,

1. Collection and dissemination of market information like prices, resources of supply and removal of barriers to the access information

2. Employment generation

3. Education and health-care delivery through formal and informal distance learning programs and bringing health information and tele-medicine to the poor

4. Delivery of government services with greater efficiency, transparency and accountability and effective program formulation, implementation and monitoring

5. Empowerment by enabling the voices of the poor to be heard in policy formulation and in expressing their grievances.

2.2 Literature Review

In this section, the researcher has tried to study and review some of the established facts with the help available information from various reliable and authentic sources. In order to carry out study systematically, the researcher at first broadly categorized the study into two parts i.e. conceptual review and review of related studies. In conceptual review the researcher has tried to review some facts and understanding in the related topics with the help of books, journals, periodicals, authentic web sites and so on. Similarly, the researcher has gone through journals, thesis, and research documents in order to analyze the related studies.

2.2.1 Review of Concepts

In this section the researcher has tried to document different important literature that is related to the ICTs and Telecenter movement. Reviews presented here are obtained from books, journals and web site.

Information and Communication Technologies (ICTs)

Information and Communication Technologies (ICTs), has been referred to the electronic and communication devices like radio, television, fax, cell phone, newer digital technologies such as computer, internet as well as print media through which processing, transmission and display of information is carried out. In 1998 OECD member countries agreed to define the ICT sector as a combination of manufacturing and services industries that capture, transmit and display data and information electronically (cited in Viitanen 2003). According to ADB (2003), ICT is at the convergence of a tripod made of three specialized domains, namely information technology, data and information, and socioeconomic issues, to fuse the capabilities and functionality of each specialized domain into a holistic yet fluid domain that works to develop a customized information system for each user.

E-government

According to "E-government toolkit for developing countries" developed by UNESCO & NIC (2005, p. 8-10), E-government is the use of Information and Communication Technologies to promote more efficient and effective government, and make it more accessible and accountable to the citizens. Same report highlights importance of e-government as follows:

"The need for e-government finds its genesis into broader factor pertaining to 'good governance'. Since Governance primarily refers to the manner in which power is exercised

by governments in managing a country's social and economic resources. Good governance involves a multifaceted approach and application of ICT is one of the important enabler of good governance. Using ICT along with other reforms, Governments today is able to deliver a wide range of services – from ration cards, motor licenses and land records to health, education and municipal services – in a manner that is timely, efficient, economical, equitable, transparent and corruption free".

Telecenters

A Telecentre is typically a public place with different information and communication technologies like computers, a telephone line, internet connection, and other office automation equipments such as photocopier, scanner and fax. It is a common meeting place where people are exposed to tools, skills, attitudes and values of ICTs (Fuchs, 1998); provide public access to ICTs for personal, social, educational and economic development (Harris, 1999); offer a range of services and vary in their location and business models (Proenza *et al*., 2001).

Accessibility

According to Shand & Arnberg (1996), accessibility means clients should have easy physical access to administration at convenient hours and be offered information in plain language (Cited on Liem 2007). New Public Management (NPM) promotes different tools to ensure the citizen accessibility to the service. For example apart from **use of ICT in service delivery** and others, Citizen Charter has been one of the most sprawling agenda of NPM and public service modernization. Drewry (2005), mentioned that among several relevant section mentioned in The British White Paper issued in 1991, one is about **accessibility of services**. According to him this document, is assumed as the fundamental legal document for the introduction of citizen charter in UK and states "services should be run to suit the convenience of customers, not staff".

The NPM heralds the transformation of the citizen into a customer of public services, who pays for public services, and hence has choice and the exit option (Osborne and Gaebler, 1992 cited on Haikio 2010), and the opportunity to give feedback on public service delivery (Bellamy and Taylor, 1998 cited on Haikio).

According to (Roman and Colle 2002), without sufficient access, telecentres will not be able to justify their existence, nor be demand-driven. They consider Literacy, Relevance, the Culture of Information, the Cost of Information, Technophobia, Complexity of ICT Protocol and Powers the most prevalent obstacles to access.

Participation

According to World Bank (1996, p.xi) participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them. Recent thinking about citizen participation looks at the concept of participation from a perspective that acknowledges the possibility of citizens taking autonomous action and creating their own opportunities for participation (FAO 2002).

White (1996) in her book "Depoliticizing development: the uses and abuses of participation" outlines four forms – or degrees – of participation: (1) nominal; (2) instrumental; (3) representative; and (4) transformative. She also outlines the different interests each of these serves depending on whether a top-down (i.e. by those who want others to participate in their process) or bottom-up (i.e. by those who participate in others' processes) view is taken of the particular participation situation. For each form of participation, participation can be seen to play a different function ranging from simply 'display' (for nominal participation) to 'means/end' (for transformative). The article emphasises that rather than merely being concerned with participation, it is necessary to engage with the question of how people are participating in a given process. White concludes that: (1) participation must be seen as a political process; (2) "while it has the potential to change patterns of dominance, [it] may also be the means through which existing power relations are entrenched and reproduced" (p.14); (3) "the form and function for participation itself becomes a focus for struggle." Critically, "the absence of conflict in many supposedly 'participatory' programmes is something that should raise suspicions" (p.15).

Hickey & Mohan (2008) in their book "Participation: From Tyranny to Transformation" sought the relevance of 'participation' in processes of social transformation. Acknowledging that much that was done in the name of participation in development over the preceding 20-30 years failed to deliver on its transformative potential, the authors draw together a variety of case studies and reflections on practice based on experiences where participation has delivered on its transformative potential. More specifically, it looks at the particular

conditions under which participation is able to contribute to change and the kinds of processes that can address issues of exclusion, injustice or unequal power relations. A cross-cutting feature of transformative participation is that it is inherently political, raising issues related to identity, inclusion/exclusion and power. Furthermore, the skills, capabilities, knowledge and support-base of individuals become integral to their capacity to participate in processes that enable them to influence others.

Theory of NPM has highlighted the importance of participation in the case of service delivery. NPM focus on participation among citizens, users, residents, consumers or costumers. The NPM discourse focuses on the application of market mechanism in society to promote the common good and connects participation with efficient governance and resource allocation. NPM studies interpret ideological foundation for **citizen participation** and consumer positions to favor market mechanisms and non-hierarchical governance (Christensen & Pallasen 2001; Hudson 1998 cited in Haikio 2010). The reasoning behind citizen participation, in practice especially consumer involvement, is the assumption that it improve services and increase effectiveness (Aberbach & Cristensen 2005 cited in Haikio 2010). NPM announce citizen participation as a norm for good governance.

2.2.2 Importance of Telecenters in Rural e-service

Arabas Sey and Michelle Fellows (2009), in their document of "Literature review of research on the impact of public access to information and communication technologies" for the Global Impact study mentioned that *"Information and communication technologies (particularly computers and the Internet) are widely acknowledged as important resources for socio-economic advancement in both developed and developing countries..…Developing countries, however, face enormous challenges in their ability to utilize these resources for their growth and development agenda. Limitations range from infrastructural constraints to an individual's ability to convert access to information and communication technologies (ICTs) into tangible benefits in light of other environmental constraints. In this context, shared use models of access such as telecenters, libraries and internet cafés, are important means of making ICTs available"*

"One of the major objectives behind telecenters is shared access to information and communication technologies. Telecenters are seen as essential tools for addressing digital divide and providing underserved population access to ICT resources that they could not afford privately" (Fillip and Foote 2007, pg 8). All household access to ICTs is not possible

for the country like Nepal with difficult geographical terrain, scatter living practices, majority of population living in rural areas and in poverty. In such a situation, though individual household access is not possible providing share access is possible, especially due to rapid development of technology. This is where the importance of Telecenters lies. Telecenters can only be the medium for the isolated and poverty ridden rural masses to expose to the ICTs and the services it can facilitate.

ESCAP technical paper "Role of Telecentres as Knowledge Networks: Success and Challenges" prepared by Ariyabandu (2009), states 'The role of conventional telecenters is transforming to more development oriented networks… The transformation of tlecenters to knowledge hub has facilitated knowledge functions like, education, employment, agriculture and health besides providing conventional ICT facilities to bridge the digital divide. Many of the value added services have empowered rural community to access information and knowledge to improve livelihoods and attain sustainable development. Besides new information sources, the transformation process has also endured on new partnerships, governance structures, participation and business plans'.

2.2.3 Telecenter in Developing Countries

Mukerji (2009), in his doctoral thesis "ICTs and Development: A study of Telecenters in Rural India" examines the socio-economic changes induced by telecenters in rural India. By analyzing the successful telecenter cases in the context of India like Chiraag-Banas, Akshaya, e-Choupal and Drishtee using qualitative nature of inquiry with case study as the research strategy, the researcher try to answer the questions of pattern of access and use of a telecentre and its services by households belonging to different groups in a village, influence of local context and telecentres and development. The study found that the pattern of access and use of telecentre services varies across different socioeconomic groups (class, occupation, caste, religion, education, age, gender, political and institutional affiliation). Influence of physical infrastructure like road sand transport on the pattern of access and use depends on the service, presence of alternate channels, and the cost versus quality provided by the two channels. Electricity affects the pattern of access and use depends on the service, its dependence on electricity, and the way the kiosk owner is managing its availability. Similarly, the extent to which Internet connectivity is important/ critical depends on the dependence of these services provided on Internet and the amount of revenue the services generate.

In their article "ICT provision to disadvantaged urban communities: A study in South Africa and Nigeria", Akinsola, Herselman and Jacobs (2005), describe research to develop a

sustainable ICT model in a Nigerian community, by evaluating ICT provision in South Africa's disadvantaged communities and comparing it with the Nigerian situation. Four ICT centers were involved in the case study. The authors argue that bridging the digital divide in disadvantaged communities requires adequate knowledge of the underlying causes of the divide, a favorable Government policy, a focus on the benefits of providing ICT, the provision of suitable infrastructure, and a committed management that is prepared to get round the various barriers or risks found in disadvantaged communities.

2.2.4 Review of Related Studies in Nepal

In the study "Telemedicine in Nepal" (Pradhan 2009), assess whether telemedicine based on store-and-forward technology would be satisfactory for the diagnosis of cases sent from remote rural areas in the specialties of dermatology, radiology, pathology and cardiology. Three hospitals AMDA Hospital, Damak (eastern region), Siddhartha Children's and Women Hospital, Butwal (western region), Siddhi Memorial Hospital, Bhaktapur (central region) was referred as a cases for telemedicine and Specialist expertise was provided from the three central-level hospitals: Teaching Hospital, Tribhuvan University (Department of Radiology and Dermatology), Kathmandu Medical College (Department of Pathology and Department of Dermatology), Sahid Ganga Lal National Heart Centre. A total of 218 cases were observed. Telemedicine was used for the purpose of general guidance, assessment of diagnosis, treatment and examinations. The study found that that there was potential for telemedicine in Nepal, especially in rural areas, but also in urban areas. It was also found that textual information with images was sufficient for diagnosis in many cases. All participants in the project from local hospitals and central hospitals felt comfortable with IT as a whole and telemedicine in particular.

In the study "PPP Led ICT Enabled Services in Rural Nepal", Chapagain, (2006), reviews the development of information and communication technology (ICT) in Nepal. Employing mostly the interview, focused group discussion and document review throughout the research, Mr Chapagain, conclude that PPP concept may be difficult to apply when it comes to operating the telecenters as profitable enterprise. He recommends a two pronged approach, which he thinks is possible for establishing and expanding telecenters in rural areas. According to this approach, the government should take the initiative to establish telecenters in rural areas where there is significant need but not favorable prospects to attract the private sector in the venture. Whereas government should encourage private sector initiatives to set up telecenters in areas with substantial business prospects through incentives like waiver of license fees on VSAT, subsidy for power by solar, relief on import custom duty and so on.

Mr. Chapagain, also recommended others appropriate policy interventions to enhance public private partnership modalities to promote ICT enabled services in rural areas of Nepal.

2.2.5 Research Gap

Existing literature on telecentres in the form of reports, case studies in print and on the web, articles articles etc. is voluminous and consists mainly of descriptive, anecdotal case studies and donor-directed evaluations (Mukerji 2009). Most of this literature focused primarily on the conducive environment required for the establishment of the tlecenters, different telecenters models and most probable benefits that it is likely to offer once in the operation. In other words these literatures primarily focused for directing policy and strategy to various agencies. Empirically grounded research are lacking and only very few literatures pay attention on how these telecenters can be developed as the alternative mechanism for the traditional service delivery. This type of research has its own significance especially in the country like Nepal where people accessibility and participation in the service delivery process is hampered by the geographical barriers, poverty, lack of people centric policy and poor governance.

2.3 Theory of Public Services Delivery

In this section theory of public service delivery has been discussed. Considering the usage, relevance and importance, only the theory of New Public Management has been taken for this study.

2.3.1 New Public Management (NPM)

Public administrative reform became a virtually worldwide phenomenon in the 1980s and 1990s (Caiden 1991). The concept of New Public Management (NPM), which emerged during late 1970s and early 80s in the developed nations has been considered as one of major public sector reform tools in order to provide better public services to the people. Common (1998) and Minogue (1998) observe that fiscal crises of governments, poor performance of the public sector in different arenas, imperious bureaucracy, lack of accountability, corruption, changes of people's expectations and the emergence of better alternative forms of service delivery have contributed to the emergence of the NPM model (cited in Sarker 2006)

The OECD, has short listed a group of managerial doctrines in its NPM model of reform with eight characteristics- devolving authority and providing flexibility, ensuring performance, control, and accountability, optimizing information technology, developing competition and choice, improving the quality of regulation, improving the management of human resources,

providing responsive service, and strengthening steering functions at the centre (Kickert 1997 cited in Gautam 2008).

NPM and E-government

The main idea behind the concept of e-Government is to improve the overall performance of the public sector through better governance. As such, it can be seen as a product of the reforms being advanced by the New Public Management—an output-oriented, demand-driven approach that gives premium to providing high quality service to citizens (Schedler, K. & Scharf, C. 2001). In the same vein, NPM gained popularity as governments sought to lower costs, provide better service, contain deficits, and incorporate new technologies (Lindquist 2006), objectives that e-government can help achieve. E-Government and NPM are thus seen as complementary, supporting each other to achieve the common objectives of optimum performance, by means of better governance.

Chadwick (2003) understands e-government as characterized by a "dominant managerial discourse of cost cutting and efficiency" and related to administrative reforms (Cited on Liem 2007). This concept of e-government is thus developed against the background of NPM. According to Schedler & Schar (2001), similar to NPM, e-government culture promotes: (1) customer orientation, which uses the needs of the people as a guideline; (2) a culture of trust, which sees processes of departments being linked up and individuals collaborating, requiring an openness not only towards stakeholders but also towards co-workers; and (3) a disposition to technology in order to create a climate where computers are welcome. Increasing number of scholars believe that New Public Management principles provide a useful conceptual framework to study e-governance. According to Prakash and Singh (n.d), E-governance is an enabler for NPM type of government as it supports outcome orientation, customer centricity, decentralisation, participative management, and service delivery through marketisation.

From the discussion of NPM theory we can highlight some of the important factors that are relevant to this study which are as follow:

❖ Theory of NPM emphasis on developing competition or choice with the aim of increasing participation of private and civil society organization in public service delivery, so that service seekers can end "exit trap". More than that NPM emphasis on the participation of citizen, costumers in order to improve service delivery process and its effectiveness.

❖ NPM emphasis on the client-centered quality public service provision. Accessibility to the wide range of services can ensure client centered responsive public services.

On the basis of the literature review especially of accessibility and participation and based upon the NPM theory discussed above; a simple analytical framework has been developed. This framework explains how different factors influence the accessibility and participation of the rural people in the process of e-service delivery

2.4 Analytical Framework for the Study

In today's world accessibility to the services has been prime concern of citizens. However, alone accessibility cannot ensure proper public service delivery. To achieve public service objectives it needs to be user friendly and citizen need to actively participate in the process. Introduction of ICTs in the public service delivery or e-service delivery can enhance accessibility and create an opportunity for participation in the process. Ultimately, access and opportunity to participate in the service delivery process can ensure the better public service delivery.

As presented in the figure below Social Factor, Economic Factor and Technical and Organizational Factor are independent variables affecting the dependent variable which are Accessibility and Participation to e-service. These independent and dependent variable are measured by different indicators presented in the table below. Both primary and secondary data collection techniques will be applied to measure these indicators. The figure below shows the analytical framework that will be used to analyze this research:

Figure 2.1: Independent and Dependent variables of the study.

Independent Variables   **Dependent Variables**

Social Factor

Economic Factor

Technical & Organizational Factor

Accessibility

Participation

19
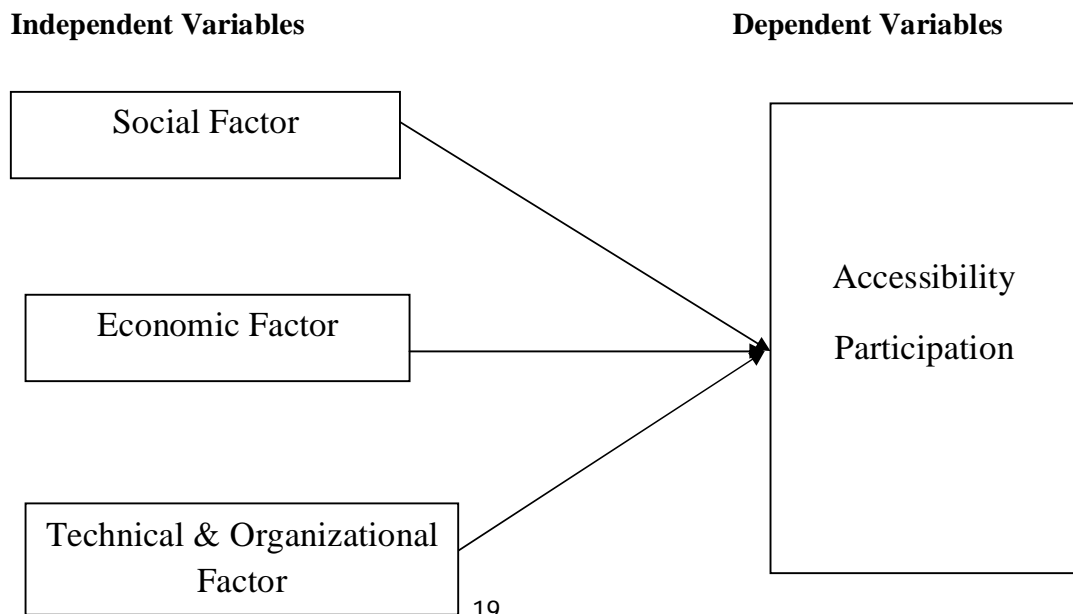
The table below shows the indicators of both dependent and independent variable their meaning for the purpose of this study and ways of collecting them.

Table2.1: Variables, Indicators, Meaning of Indicators

Variables	Indicators	Operational definition
Social Factors	Education	-No. of literate People - Education of users
	Gender	-Male and Female user
	Age	-Age of users
Economic Factors	Cost	-Affordability -Cost of services
	Income group	-Class perception of users
	Occupation	-Types of occupation of users
Technical & Organizational Factors	Content	-Relevance of content -Types of information
	Types of services	- Service offered -Service preferred
	Connectivity	- Types of connection - Problem in connection
	Rules and Regulation	- Operational rule
Accessibility	Social Network	- Facilitation of relationship with (Family, Relatives, Politicians/ Public Officers)
	Better Information	- Information about agriculture, health, education, foreign employment, environment protection
	Usage Rate	-Frequency of usage
Participation	Activity transaction	-Government service -Product marketing -Employment related
	Feed back	-Grievance handling

2.5 Conclusion

In this chapter we have discussed different issues pertaining to the ICTs and Telecenters in particular. At first we discussed about the usage of ICTs in Public Service Delivery then the importance of Telecenters and we move forward reviewing difference concepts, articles, related studies in the context of Nepal and theory related with the public service delivery. On the basis of theoretical and conceptual review we lay down framework of the study and try to make study more clearly by elaborating different variables related with the study.

Chapter III
Research Methodology

This Chapter is mainly focused on detail activities undertaken during the study. In this chapter, it is tried to find out the procedures and methods for conducting research activities. At first, it has been decided, what kind of research method is appropriate for research activities undertaken? After it has been decided, the researcher has worked out to find the method and source for collection of data, as per the requirement of research activities. Suitable sampling method, data analysis procedure and research tools has been selected to perform the data analysis.

3.1 Research Design

There is various type of research design. Among numerous research designs, the researcher has used the combination of descriptive study and case study in this research. Descriptive research design has been chosen, to describe the present facts relating to Telecenters movements in the context of the Nepal. Descriptive study is widely used to assess the opinions and behaviors or characteristics of given population and to describe the situation and events occurring at present. Similarly case study has been carried out for an intensive investigation of projects, owned by the public.

3.2 Research Methods

This study has used both the qualitative and quantitative research methods to carry out the research activities. Since the research intents to examine the current state of e-services, factors affecting it and the possible ways to make telecenters more effective; both qualitative and quantitative information are required to satisfy the thirst of the study. Using both qualitative and quantitative elements in research is known as mixed research method. It is considered as the most effective approach in the research and helps to overcome the disadvantages of both qualitative and quantitative methods where as reinforces and strengths the benefits that can be obtained from both the techniques.

3.3 Population and Sample

As discussed above there are around 426 telecenters operating in Nepal funded by Nepal Government, I/NGOs and private initiatives. All these telecenters compromise as the population for the study.

Large number of telecenters currently in operation provides choices for the study but since, it is difficult to study how all these telecenter are facilitating public service delivery because of different resources constraints, only three telecenters are taken as the study area. Details regarding the estimated telecenters are presented below

Table3.1: Estimated Total Telecenters in Nepal

Types of Telecenters	Number	Total
A. Government Established Telecenters		**349**
1. Nepal Postal Service	228	
2. High Level Commission for Information Technology	66	
3. National Information Technology Center	27	
4. Nepal Telecommunication Authority	28	
B. I/NGOs		**77**
1. USAID Nepal	18	
2. Wireless project Nepal (ENRD)	28	
3. Read Nepal	16	
4. Others	15	
Total (A+B)		**426**

Source : (Rai (n.d.) Nepal's telecenter landscape and where CeCs stand)

All the users of above mentioned Telecenters are the population of this study. But since all the users of above mentioned Telecenters are difficult to undertake for the study, only three telecenters users will be taken for this study. The detail sampling plan for these three teleceners is discussed in the upcoming section. The three telecenters that are used for study are described in detail below:

3.3.1 Himanchal Higher Secondary School e-Center

> Name: Nangi Telecenter
>
> Address: Ramche - 2, Nagi Myagdi
>
> Background: Nangi is a beautiful village located in the height of 2360 meter in the lap of Himalay. It lies in the Myagdi district and is approximately 30 km far from the district headquarter Beni. It is a first rural village of Nepal where

internet was connected. Nangi telecenter, is located in the Himanchal Higher Secondary School. Himanchal higher secondary school is the epicenter of the Nepal's wireless project. It is the place from where, 2007 Magasys prize winner Mahabir Pun started the task of connecting rural Nepal through wireless internet. Nangi village is inhabited predominantly by Magar ethnic communities including, other few people of different castes and social groups.

Himanchal school is running computer course providing opportunity to the rural students to take computer as an optional subject. Further this center is running telemedicine and e-learning program to community members. Community e-learning program has supported income generating programs like making handmade paper, apricot jam, handicraft, etc.

Services provided: Internet, Telemedicine, VoIP, E-learning, Scanning, Photocopying, Printing

Devices: Desktop PC, Laptop, Printer, Photocopy Machine, Web Camera, Scanner, Wireless Network

Mode of Connectivity: WiFi (wireless)

Beneficiaries: Students, Teachers, Youths, Men and Women

Telecenter Incharge: Kishan Pun

3.3.2 Tikot Secondary School e-Center

Name: Tikot Telecenter

Address: Histan Tikot - 3,4,5, Tikot Village Myagdi

Background: Tikot is one of the remote village of Myagdi district situated in the height of 2250 m height. Tikot village is approximately 36km far from the district headquarter Beni. This village is inhabited dominantly by Magar ethnic group with little representation of Brahmin, Chhetri and Dalits. Telecenter located in the School of Tikot village is providing VoIP phone and internet services to local communities. Further Tikot telecenter is conducting e-learning programs and also providing telemedicine services.

Services Provided: Internet, Telephone, Telemedicine, VoIP, Phone, Scanning, Photocopy, Printing

Devices: Desktop PC, Printer, Web Camera, Scanner, Photocopy Machine, Wireless Network

Mode of Connectivity: WiFi (wireless)

Beneficiaries: Students, Teachers, Youths, Women

Telecenter In charge: Mr. Tek Pun

3.3.3 Dandagan Higher Secondary School e-Center

Name: Dandagaun Telecenter

Address: Dandagaun-1, Dandagaun village, Rusuwa

Background: Dandaguan telecenter is located at remote area of Rasuwa district. It is approximately 30 km far from the district headquarter Dhunche. Dandagaun is situated in the south-west part of Rasuwa. Dandagaun telecentre was established in 2064 (2007). Dandagaun is inhibited mainly by Tamang, Bhramin, Chhetri and Gurung. Dandagaun telecenter was jointly established by E-Network Research and Development (ENRD) and High Level Commission for Information Technology (HLCIT) and local community. Telecenter is located in Dandagaun Higher Secondary School is providing secretarial services and e-learning to the students teachers and also to other communities member.

Services provided by telecenter: Internet, Telephone, VoIP Network Phone, Photocopy, Printing, Scanning

Devices: Desktop PC, Printer, Photocopy Machine, Web Camera, Scanner, Wireless Network

Beneficiaries: Students, Teachers, Youths, Women

Mode of Connectivity: WiFi (wireless)

Telecenter In charge: Mr. Shivaram Bhatta

3.4 Sources of Data

The major source of data used on the study can be broadly categorized into two groups. In order to obtain first hand data primary sources of data has been used while secondary sources were sought to obtain the already existing data.

3.4.1 Primary Sources

Under the primary sources the researcher has collected the opinion, views and suggestion from various experts by means of interview and questionnaire. Apart from interview and questionnaire the researcher has collected interesting cases and carried out observation to gather primary data during the course of the research study.

3.4.1.1 Primary Data Collection Techniques

Questionnaire

In order to gather required information, effective and reliable questionnaire has been developed. Questionnaire has included necessary question to gather the first hand information about the indicators mentioned in the analytical framework.

Field Survey

Field Survey has been conducted using questionnaire. Pilot testing among five possible respondents has been carried out before conducting field survey in full scale. Feedback received from the pilot testing has been used to revise the questionnaire to make it more valid and reliable. Purposive sampling techniques have been used to select the respondent. Field survey was carried among the seventy respondents. The entire respondents are the actual customers using the telecenters service

Case Study

In order to get more clear and precise information about the telecenters role in facilitating public service delivery, this study has undertaken some case studies of telecenters users. During the case study, few examples of the typical cases of success and failure stories related with e-service delivery have been collected.

Interview

In order to validate the data obtained from the above mentioned techniques and to get some practical insight about the role of telecenter in e-service delivery. Five people have been interviewed using semi structured questionnaire. The people who have been interviewed are:

1. Organization undertaken for Case Study: Telecenters operator and management committee member (3)

2. High Level Commission for Information Technology (HLCIT) Top management & IT experts (2)

3.4.2 Secondary Sources

Extensive secondary research has been carried out to gather information about the role of telecenters in e-service delivery. The major sources of secondary data are the project feasibility report and the project completion report of the project under study. The journals, books, dissertation, thesis, internet has been other major sources of secondary data.

3.4.2.1 Secondary Data Collection Techniques

Content Analysis

Content analysis has been carried out to gather the required information regarding, state of e-eservice delivery and factors influencing in this process. Under content analysis, published and unpublished books, journals, research works, articles, notes, newspapers, magazines, and online information, etc., related to e- service delivery has been reviewed.

3.5 Data Analysis

The major objectives of the study are to study and analyze the e-service initiatives in the rural Nepal. Hence some of the major statistical analysis tools have been used to evaluate the efficiency of e-service initiatives. During the process different statistical tools like Statistical Measurement of Central Tendency, Frequency analysis, Cross Tabulation etc has been used as per the requirement of the study.

3.5.2 Statistical Tools

In this section different statistical tools that are used in this research have been presented and describe. The measure statistical tools that are used are measurement of central tendency, linear regression and time series analysis.

3.5.2.1 Measures of Central Tendency

Measures of central tendency are used to describe the middle or centre of the data set. The general idea behind the measure of central tendency is that to look for a common measure that best describe or represents the characteristics of entire group. The researcher has used the measures of central tendency for deriving single value within the range of data, which represents a group of individual values in a simple and concise manner and concentrates in the middle of the distribution.

3.5.2.2 Frequency Analysis

Analysis of data often begins with Frequency Analysis. Frequency analysis is particularly useful for describing discrete categories of data having multiple choices or yes-no response formats. This analysis involves constructing a frequency distribution. The frequency

distribution is a record of the number of scores that fall within each response category. The frequency distribution, then, as two elements: (1) the categories of response, and (2) the frequency with which respondents are identified with each category.

3.5.2.3 Cross Tabulation

Cross tabulation is the process of creating a contingency table from the multivariate frequency distribution of statistical variables. Cross Tabulation which is also known as Pivot Table or Contingency Table and is an effective means two show relationship between two or more than two variables. Cross tabulation effectively show the relationship between independent and dependent variables. In this study Cross tabulation has been used to relationship between Accessibility and Participation with social, economic, technical and organizational factors which are dependent and Independent variables of the study respectively.

3.6 Validation of the Data

As discussed already quantitative and qualitative methods has been used for carrying out this research activities. Questionnaire survey has been the primary sources of quantitative data and data obtained through this technique has been validated by Interview, Observation and Secondary data. Similarly, Interview has been the primary sources of qualitative data and it will be validated by observation, result of questionnaire survey and secondary data.

3.7 Generalization of Data

The findings of the research can be generalized in the context having similar Socio-economic, Political, Technological and Geographical environment as in Nepal. Nepal being the least developed countries, and as the study being conducted in rural Nepal, findings might have more significance to less developed countries than to the developed nation. Findings have greater significance to the researcher who are directly or indirectly involved in the Telecenter movement, with the hope uplifting backward and poverty ridden thousands of people of the rural masses.

3.8 Conclusion

A mix of descriptive and case study approaches have been selected to carry out the research in this study. A mixed method approach, combining both the quantitative and qualitative methods has been considered appropriate to collect data. Depending upon the requirement of study different primary and secondary data collection techniques have been used and data thus collected have been analyzed with the help of appropriate statistical tools by using SPSS.

Chapter IV

Data Presentation and Analysis

4.0 Introduction

This chapter deals with analyzing and interpreting the data that have been collected through survey and interview. At first current scenario of e-services particularly focusing on rural areas has been discussed. The chapter than discuss about how rural telecenters are facilitating accessibility and participation on e-services. Then we discuss citizen's perception regarding telecenters. At the end citizen's ideas regarding how telecenter can be made more effective and the linkage between theory of the study and finding has been presented.

4.1 Current State of E-services in Rural Nepal

In this section facts that are necessary to understand the general e-services environment are presented. Here we discuss about the institution involved in e-services targeting rural areas, availability of e-services, e-services efforts made in rural areas and about the availability of the content. Data presented and discussed here will be based both on primary and secondary sources.

4.1.1 Institutions providing e-services in Rural Nepal

Institutions involved in providing e-services can be broadly categorized in three different groups. Basically, government, non government sector and private institutions are involved in providing e-services in Nepal. Though non-government and private institutions role is grooming day by day, government role is still in upper hand and lmost important given the resource availability, bureaucratic strength of the government as well as socio-economic and geographic situation of the country.

4.1.1.1 Government Supported Telecenters

Different institutions of Nepal Government directly establish telecenters by funding for equipment and initial support. Some government institution like Postal Service funds and professionally run the telecenters by itself, where as some other institutions like High Level Commission for Information Technology (HLCIT), National Information Technology Center (NITC) and Nepal Telecommunication Authority (NTA) provides initial support and hand over to the user's community with the participation of the local government, social leaders and business community.

Telecenters run by the postal services is one of the emerging successful cases of rural information center in the context of Nepal. It has already established more than 200 Postal Information Centers. In fact Postal Information Center now managed by the Postal Service is upgraded version of their traditional services. Postal Services information center are managed and run efficiently. According to postal service website (www.postservice.gov.np) postal services started establishing Postal Information Center in FY 2064/65 and has already established 228 Postal Information Center till FY 2067/68.

 HLCIT has been established in 2003 with the expressed mandate to formulate and recommend IT related policies to government of Nepal, to monitor its implementation, to review the policies and to recommend necessary changes. Among others, the HLCIT also has the responsibility of extending IT enabled services to those rural areas where there is no involvement of the private sector. It also has the responsibility for the formulation and implementation of IT related national plans and programs and coordination of programs of different governmental and donor agencies. HLCIT has financed number of rural telecenters, but most of the telecenters supported by HLCIT are facing sustainability problem. In the interview with the Manohar Bhattarai, vice chairman of HLCIT agrees that "Most of the telecenters funded by HLCIT is in non-functioning position".

Box 1: Problems in Government Supported Telecenter (Panuti Information Center)

Problems in Government Supported Telecenter: Panuti Informaion Center

Panuti Rural Information Center located in Panauti-2; Subbagaun Kavrepalanchok was once the role model of Rural Information Center. The center was established with the help of High Level Commission for Information Technology (HLCIT), Panauti Municipality , FIT Nepal and Computer Club of Kathmandu University in 2004 June. This center was providing internet services, secretarial services, e-learning and other income generating trainings to the local community members. Once the establishment was complete and after running the center for one year under its supervision HLCIT handover the management to the local community members.

The center was hailed as the successful case of rural information center. Center being nearer from the Kathmandu was visited from many national and international experts. As the center got the national and international focus, there started dogfights among the local power groups to capture the management committee. Management committee once successfully managed

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by the locals of Shubbagaon village was now in the hand of Municipality Mayor from 2007. The worse day for the center started with the takeover of the management committee by municipality Mayor. Due to other work load and frequent changes of Mayor as a result of political instability, rural information center was not more in attention of the Mayor.

Shakuntala Shrestha, a resident of Shubbagaon and operator of the center from 2008 is in complete dismay. The center once fulfilled by the local is deserted now. Three computers out of the six are out of order. The dial of internet connection is no more efficient. Photocopier that went wrong six months ago is waiting for the repair. The belongings of the center have been the headache for her. Management committee neither takes charge of the belonging nor repairs it. She has not got any salary or help from any institutions since one year. She can neither ignore nor run the centers.

(Source: Interview with Shakuntala Shrestha and locals)

National Information and Technology Center (NITC) is another government institutions established in 2002 as per the provision of IT policy 2000 under Ministry of Science and Technology with the vision of developing and promoting Information Technology Sector of Nepal. Currently it is working as government's central ISP and also focuses on Telecenter establishment and basic and advances IT trainings for government employees. NITC has established and supported around 27 telecenters throughout the country, but majority of them are in nonfunctioning position.

Nepal Telecommunication Authority (NTA) is the regulatory body governing the Nepalese telecommunication sectors. It has played an effective role in expanding Telecommunication infrastructure in rural Nepal. In order to make an easy access of ICTs in rural Nepal, NTA has established and supported different telecenters throughout the country but performance of these telecenter is not well praised.

4.1.1.2 I/NGOs Supported Telecenters
With the view of empowering isolated rural masses and bringing them in mainstream of development different INGOs and NGOs are involved in establishing telecenters in rural areas of Nepal. Generally, I/NGOs participate with local community for the establishment of the telecenters. The telecenters are managed by the community and are sustained through continuous support of I/NGOs as well as through self supporting revenue generating

programme (Chapagain 2006). Telecenters established under the Wireless Project Nepal of E-Network Research and Development (ENRD), telecenters established under RUPP project supported by UNDP, telecenters established under the READ Nepal, SAP Nepal, and US AID falls under this category.

Among the above mentioned I/NGOs telecenters established under the Nepal Wireless Project of ENRD is doing praiseworthy job. Established in 2002 under the leadership of Mahabir Pun; ENRD has already established around 120 telecenters in school, community (8 with telemedicine) in 13 mountainous and hilly district of Nepal. Since, ENRD is the leading NGOs working in the rural Nepal in the field of Information and Communication Technology, telecnters established by the ENRD has been taken for this study.

4.1.1.3 Private Sector Financed Telecenters

Though private sectors are reluctant to start ICT related business in the rural areas given the prospect of return on investment, number of cybercafés, and information centers are grooming in the rural areas having the prospects of financial sustainability. Especially, such kind of cybercafés and information centers has been established in important religious places, tourist destination and business hub of the rural areas (Chapagain 2006). These centers are privately owned and professionally managed by the individuals.

4.1.2 Availability of E-services

With the promulgation of ICT Policy 2000, Nepal government has envisioned E-based society in Nepal. More than that tenth five year plan (2002-2007), stated special efforts would be given in expanding the utilisation of IT to general people and, in this regard, tele-centre would be developed and expanded to ensure VDC's access to IT. It also mentioned that as per the policy of expanding Internet access to all VDCs gradually, general people of 1,500 VDCs will be brought into the access of the facility within the plan period. Similarly, E-government master plan consulting report (2006), lay out detail framework about the implementation of the E-based society concept, but all most programme mentioned in the master plan has been partly implemented or non- implemented. Very few works like establishing few telecenters, creations of website of all the government ministries and departments, little works in the field of health, education and natural resources preservation has been done but are far behind satisfactory level.

In the interview Manohar Bhattari stated that "Unavailability of wide range of e-service is the major obstacle in the e-government efforts of Nepal". He further mentioned that e-services is the vital measure to show the implementation of e-government but this is what Nepal lacks at the present context. Mahabir Pun also said that since the government does not provide e-based service to the people, talking of e-government is shame and government has mainly used it for getting additional resources. Both the interviewee agrees that Government has not been able to create infrastructure necessary for providing e-services in different fields. Citizens are facing lot of trouble, travelling long distance, spending lot of money and wasting time and efforts in getting basic government services like passport, citizenship, license, vehicle registration, different certificates, land registration, paying taxes and others, but government seem blind on all those suffering faced by the citizens and reluctant to go online in spite of its promise to create e-based society.

4.1.3 E-service Efforts in Rural Nepal

ICT revolution of the 21st century has crossed every boundary. It is not more limited to the developed nation, rich or urban areas. Even the isolated and illiterate mass of the rural areas considered it to be important means for the communication and information purpose and ultimately for changing their livelihood. Apart from these, increasing requirement of ICT knowledge in education and in job market has created demand for ICT in rural areas also. Viewing this important development, different development agencies, local NGOs, Government and private sector are actively involved in providing ICT services in rural Nepal. But as discussed above, since the availability of e-services is limited most of the rural telecenters are occupied in providing ICT training and secretarial services.

Even the vice chairman of HLCIT Manohar Bhattari, agreed that secretarial services and ICT training has been the major work done by the telecenters. Mahabir Pun, president of ENRD also agreed on those points in addition he mentioned that NGO supported telecenters are slowly providing health, agriculture and education related services. He pointed some of the centers run by ENRD having telemedicine facilities, agriculture program targeted for the farmers and ongoing educational programme targeted for students and teachers.

4.1.4 Availability of the Content

Availability of the effective and useful content is the basic necessity for attracting and retaining the customers. In one hand Nepal has low literacy rate, on the other hand there is lack of English proficiency even with the majority of literate people. Hence, the availability

of the content in Nepali language related to the agriculture, education, health, employment, environment, disaster management etc is the most important if rural massed are to get benefit from ICT.

During the study respondent were asked about the sufficiency of content in the Nepali language while browsing internet in the preferred area of the users. The figure below shows the response of the respondent with this regard;

Figure 4.1: Availability of Nepali Content
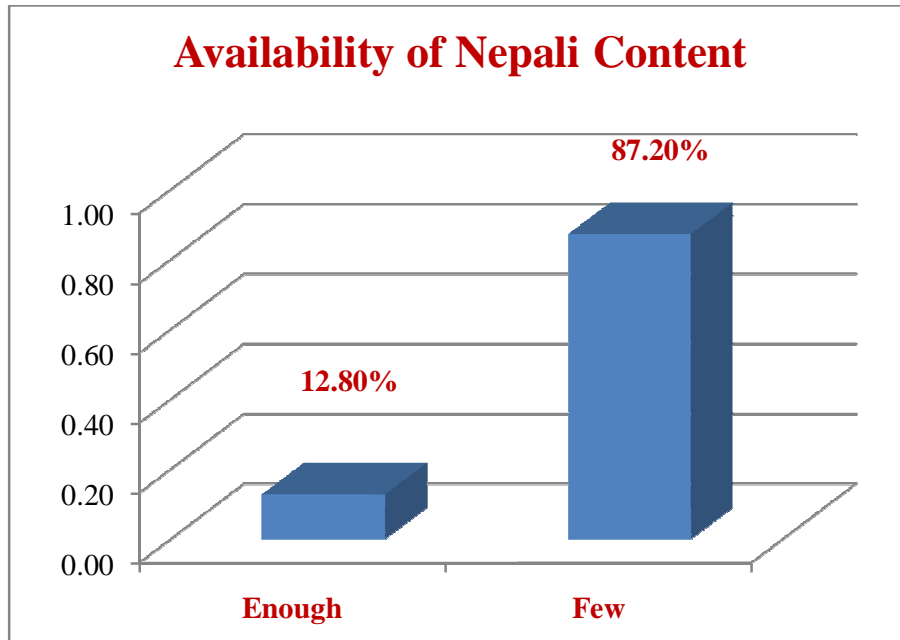
(Source: Field Survey, 2011)

Above figure shows that more than four fifth of the respondent (87.3 percent) are in opinion that they found few contents in Nepali language while browsing the internet in preferred area of interest. Both the interviewee Manohar Bhattarai and Mahabir Pun have similar opinion as respondent. They agree that there is very little content in Nepali language.

With the view of providing different information related with agriculture, health, foreign employment, human rights, women empowerment etc in one site HLCIT has developed telecenter portal. This portal is still running but information are limited and not daily updated. Thefigure below shows the respondent answer when asked whether they visit the telecenter portal or not:

Figure 4.2 : Visit to telecenter portal

Visit to Telcenter Portal
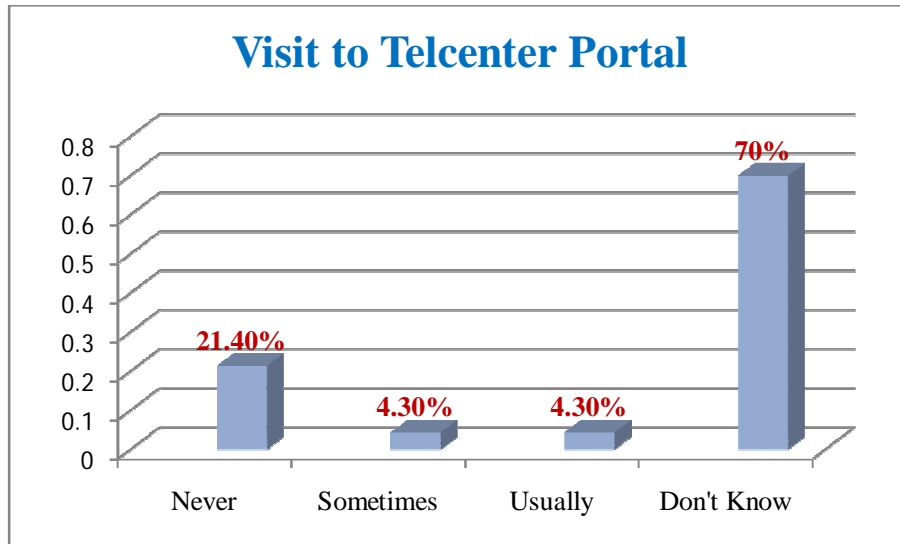
(Source: Field Survey, 2011)

Above chart shows that all most all the respondent either don't know or have never visited the telecenter portal. Only 4.3 percent respondent said they usually visit the telecenter portal, whereas same percentage of the respondent said they visit the site only sometimes.

During the interview HLCIT vice chairman, Manohar Bhattarai, said that telecenter portal is not functioning effectively as it should be. He also agrees that majority of the people are unaware about the site. In line with Mr. Bhattaria, Mahabir Pun doubt on the effectiveness of telecenter portal given the limited information and lack of people awareness about the availability of the site.

Response of the respondent when asked whether the content that is available in Nepali language are useful in their daily life or not is presented in table below:

Table 4.1: Usefulness of available Nepali content

Usefulness of the available content	No. of Respondent	Percent
Useful	57	81.4
Not Useful	2	2.9
Don't Know	11	15.7
Total	**70**	**100**

(Source: Field Survey, 2011)

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Above table shows that majority of the respondent feels that content that is available in Nepali language are useful. Both the interviewee (Mahabir Pun and Manohar Bhattrai) agree that good content should be the current need of Nepalese telecenter movement. They have similar opinion that currently there is lack of effective content in Nepali language and now the focused should be on developing content that serves the need of the people. Both of them mentioned that project for developing effective content is underway.

4.2 Factors Influencing the Telecenter Operation

Study of the factors affecting telecenters is needed to have better understanding and critically analyze the study. In fact here we are going to discuss about the factors affecting the operation of telecenters. We will start our discussion providing the information about the study area, proceeding towards social, economic and technical factors related with the telecenters and its users.

4.2.1 Information of the Study Area

As already discussed in the preceding chapters, this study undertook three telecenters, Himanchal Higher Secondary School e-Centers and Tikot Secondary School e-centers of Myagdi district and Dandagaun Higher Secondary School e-centers of Rasuwa district supported by ENRD.

4.2.2 Service Provided through Telecenters

All the three telecenters under studied provide the secretarial services and e-learning courses to community members. Apart from those Nangi and Tikot telecenters also provides telemdedicine services. Nangi telecenter once used to have a website called hatbazar for facilitating buying and selling of agro products (like handmade papers, locally made jam, handicrafts etc) and livestock of the village. The site is no more effective and has to be updated.

Box 4.2: Telemedicine: Contributing in Curing Rural Health Problem

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Telemedicine: Contributing in Curing Rural Health Problem

Smriti Phagami, a female student of age 18 from the Gharamdhi, was studying in secondary level in Tikot Secondary School. Since one year she was facing respiratory problem. She used to suffer from headache and her nose used to remain closed while moving down to hill. Taking advantage of the telemedicine facilities, located on her own school premise, she consulted her problem with the Tikot Telemedicine Operator Reu Kumari Pun.

After listening the problem of Smriti, Rekumari arranged a time with the doctor of Kathmandu based Model Hospital; a provider of telemedicine facilities to ENRD centers.

Doctor Saroj Dhital of the Model Hospital saw the problem of Smriti. Dr. Dhital being from different department consulted with ENT doctor and prescribe her medicine.

The medicine worked and she is doing well. Because of telemedicine facilities, Smriti was able to consult her problem to the doctor, based on Kathmandu. Now being well she is feeling relaxed and focusing on her study.

(Source : Interview with Reukumari Pun)

During the research respondent were asked for their purpose of visiting the telecenters. Majority of the respondent mentioned secretarial services was the main purpose of visiting telecenters. Services as used by the telecenters users are as follows:

Table 4.2: Purpose of visiting Telecenters

Purpose of visiting telecenter	Total Response	Percent
To make a call	31	44
For email	51	73
Internet Browsing	44	59
Photocopy	41	53
Lamination	-	0
Printing	33	47
Information downloading	49	70
Others (visiting social sites)	2	3
Total	**251**	

(Source: Field Survey, 2011)

Above table indicates that citizens are using telecenters mainly for information and communication purpose. Majority of the telecenters visit telecenters for secretarial services. Doing e-mail has been the major purpose of visiting telecenters. Information downloading and internet browsing has been other major job carried out in the telecenter. To make a call comes in the fourth place, while photocopying and printing comes in 6th and 7th places as rated by the users.

During the interview with the telecenters operators, it was found that internet call was once the most preferred and mostly used services of telecenters. After the introduction of cell

phone in those villages, almost every households has got cell phone, hence number of people visiting telecenters for internet call has drastically decreased.

4.2.3 Gender of the Respondent

Nepal is patrimonial society. Traditionally the role of female is limited to the household activities. Hence the participation of female in the telecenter movement is an interesting issue. The chart below shows gender wise participation of the respondent:

Figure 4.3: Gender of the Respondent
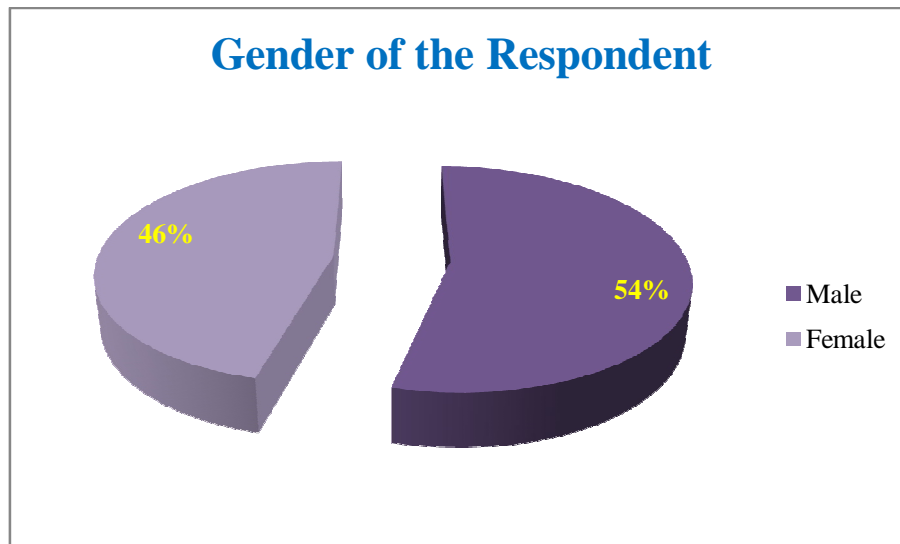
(Source: Field Surve, 2011)

The chart show that the number of the male and female participated in the survey is almost same. This indicates females are not left behind in the field of ICT.

4.2.4 Age of the Participant

Age has been considered as the important variable for using technology. Young age people are considered more technologically friendly than old age people. To check the effect of age on the telecenter movement, age of the participant is grossly divided into young and old age. According to the National Youth Policy (2010), "Youths" means the women, men and third gender of 16-40 age groups. Hence on the basis of this definition participant below the age of 40 are considered youth and above are old. The table below shows the cross tabulation of age and gender of the participants:

'Table 4.3: Age and Gender of the Participation

Gender	Age				Total
	Below 40 (No.)	%	Above 40 (No.)	%	
Female	30	94	2	6	32
Male	29	76	9	24	38
Total	**59**		**11**		**70**

(Source: Field Survey, 2011)

Above table shows that 84 percent of the respondent are below the age of 40. This indicates that majority of telecenter users are the youth. Another interesting observation from the above crosstab is among the female users 94 percent are the young but it is only 76 percent in the case of male. 24 percent telecenters users are male old age people, and only 6 percent telecenters users are female old people reflects discrimination between male and female and preferential treatment to the male in education in traditional Nepalese society.

4.2.5 Education of the Respondent

Present telecenter movement of the Nepal is targeted to the educated Citizen's. Literacy plus e-learning is the basic requirement for accessibility and participation of the citizens in telecenter movement. Since the country has not yet gone for figure, image or sound based e-services, formal or informal education and e-literacy is prerequisite for using the available e-services.

Majority of the respondents are in higher secondary level and above. Only 12 percent of the respondent are secondary level and below. In the interview telecenter operators mentioned that even the non educated people were interested with the new technology in the beginning but later they considered it to be the job of students.

When asked about the government efforts regarding e-services for illiterate people, HLCIT vice chairman clearly mentioned that present telecenter movement and e-services are for the literate people. He also mentioned that government has no any current plan to introduce any program targeting illiterate people. Mahabir Pun put similar opinion and agreed that illiterate people are left behind in ICT. He also stated his organization has supported for the e-literacy for the visually impaired people.

4.2.6 Occupation of the Respondent

Nature of occupation greatly influences the telecenter use. The table below shows the crosstab between the education and the occupation of the respondent:

Table 4.4: Crosstab between education and occupation

Education	Occupation										Total
	Student		Farmer		Teacher		Ngo workers		Security		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Secondary Level & Below	1	11	3	33	1	11	1	11	3	33	9
Higher Secondary Level	43	93	0		2	4	1	3	0		46
Bachelor Level	0		0		9	100	0		0		9
Master's and above	0		0		6	100	0		0		6
Total	44	63	3	4	18	26	2	3	3	4	70

(Source: Field Survey, 2011)

Above table shows that majority of the respondents are students and teachers. Students and Teachers consist of around 89 percent of the total respondent. Other respondent like farmer, NGO worker, retired security consist of only 11 percent of the total respondent. Since all three telecenters under study are located in School naturally teacher and students becomes largest number of respondent. During the survey most of community members (except student and teachers) said that they face difficulty in visiting telecenters because of it being in school. Since telecenter operates only in school hour and no separate manpower is assigned to look after, they feel that they will disturb the school environment if they visit the telecenter during office hours.

In the interview with the telecenter operators they mentioned that, the dual responsibility (teacher and operator) assigned to them makes it difficult for giving justice and time to telecenter. They also agree that community members (except teachers and students) are not able to freely used the resource centers as there is no separate lab for villagers and school centers remain closed in off hours and holidays.

Another observation from the above cross tabulation is only teachers have education level of bachelor and above. The education level of students and other respondents are below the higher secondary level.

4.2.7 Economic Status of the Respondent

Information and Communication technologies are internationally considered to be in the easy access of the rich and wealthy people. Affordability of the ICT by the poor and disadvantage has been the prime issues of ICT development. Perception of the users about their economic status plays an important role in ICT usage. From the study we found that 94 percent of the respondents are from the lower middle class and lower class. In spite of coming from low economic background they are willing to pay the services fee charged by the telecenter.

4.2.8 Cost of the Service

Three year interim plan (2007-10), projected the percentage of population living below the poverty line to 24 percent by the end of the plan. Hence the affordability of the e-services by the poor and disadvantage living in the rural area is the major challenge of ICT development in the Nepalese context. The table below presents the telecenter users perception about the cost of the e-services:

Table 4.5: Cost of e-services and Economic Status of Users

Economic Status	Cost				Total
	Affordable		Expensive		
	No.	%	No.	%	
Upper middle Class	2	3			2
Lower Middle Class	46	68	2	100	48
Lower Class	18	26	0		18
Don't Know	2	3	0		2
Total	**68**	**100**	**2**	**100**	**70**

(Source: Field Survey, 2011)

Above table present that around 97 percent of the respondent considers that services provided by the telecenters are affordable. The crosstab between economic status and cost shows that almost all the telecenter users that fall in lower middle class and lower class considered that e-services provided by the telecenter are affordable.

From the interview with the telecenter operators, we come to known that internet is provided free of cost in all three centers. Even the e-learning course are provided free of cost to the community members. But citizens have to pay Rs 5 per page for the printing, photocopying and scanning. Even the telemedicine service is provided free of cost till date. But the telemedicine wing the Nangi telecenter has planned to charge Rs 50 per patient from the near future.

4.2.9 Connectivity Status

Types of connectivity and its efficiency is the major determinant for the telecenter success. Poor connectivity creates unnecessary hassle and tension to the service seeker and ultimately service seeker gives up efforts for the services. As mentioned above all the three centers are connected with the wireless WiFi technology. The table below presents the telecenter users perception about the efficiency of connectivity.

Figure 4.4: Efficiency of telecenters connectivity
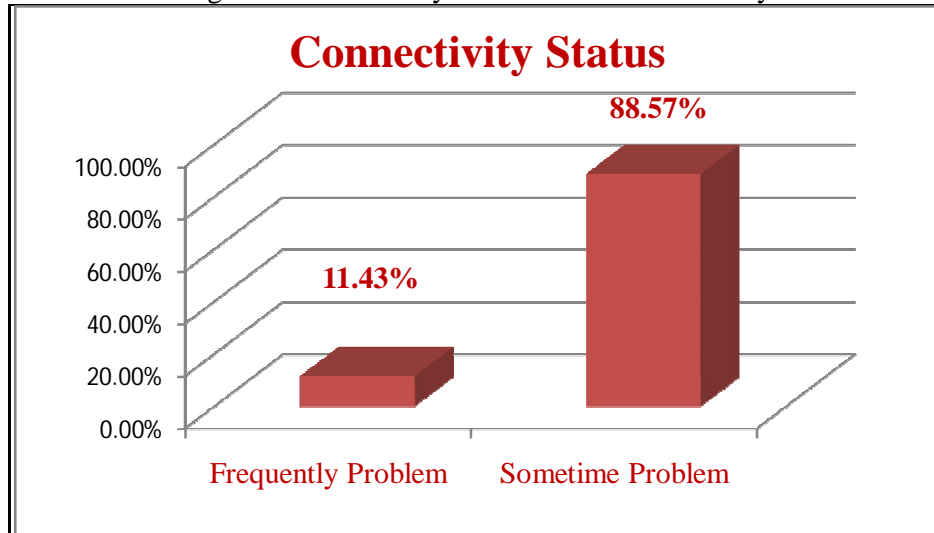
(Source: Field Survey, 2011)

Above figure shows that around 89 percent of the respondent consider they face connectivity problem only sometimes while browsing the internet and using VOIP call.

Telecenter operators also present the similar opinion when asked about the connectivity efficiency. Shiva Ram Bhatta telecenter operator of the Dandagaun considered wireless technology is faster and much efficient than previously used dial up connectivity. Nangi and Tikot have wireless connectivity from the beginning.

4.2.10 Operational Rules and Regulation

Operational rules and regulation are the ground level guidance that governs the day to day activities of the telecenter. In order to streamlined the activities of telecenter activities and bring similarity in their operation procedure, HLCIT introduce "Telecenter Operation Manual" in 2061. During the research it has been found that telecenter operation manual is not effectively implemented.

In the interview, telecenter operator mentioned that there is no specific rules and regulation for operating activities of the telecenter. They added, since the telecenter is located in school, they get advice from the school management committee. Personal judgment of the telecenter

operator and suggestion and ideas from the Mahabir Pun is the primary basis for running the telecenter.

In the interview, Mahabir Pun said that the role of ENRD is limited in supporting the establishment of telecenter, helping for wireless connectivity and technical follow up. He stressed that it is the community who have better knowledge of their local environment, hence there should not be specific guideline for operating telecenter rather the community should manage centers as per its requirement. When asked about the implementation of telecenter manual HLCIT Vice Chairman, Manohar Bhattrai said that every organization has to follow basic operational process while establishing telecenters but he also doubt on the effective implementation of all the provision mentioned in the telecenter operation manual.

4.3 Telecenters role in Enhancing Accessibility

In this section we will discuss the role played by telecenters in enhancing the e-services accessibility. Improved Social Network, Better Information and Usage Rate are considered as the indicator for having accessibility to e-services. If the tlecenter user opines that their social network has improved after the telecenter introduction, flow of information and knowledge on different subject matter is better than when there is no telecenter and if the usage frequency is high than we can consider telecenter has increased the e-services accessibility of the citizen's.

4.3.1 Social Network

Human beings are social beings. They always like to have better social connectivity. Relation with the family, relatives and public are the three major relations that human beings always want to keep intact for better social relation. The table below will show the impact of the telecenter on the social network of the respondent.

Table 4.6: Social Network after the Introduction of the Telecenter

| Better Social Relationship | Improved Social Network | | | | | | Total | |
| | Agree | | Disagree | | Don't Know | | | |
	No.	%	No.	%	No.	%	No.	%
Improved Family Relation	67	96	1	1	2	3	70	100
Improved Relative Relation	54	91	5	7.5	1	2.5	70	100
Improved Public Relation	15	20	11	16.5	44	63.5	70	100

(Source: Field Survey, 2011)   (See details in annex III)

Above table shows that telecenter has improved the social network of the citizens. In an average 96 percent of the respondent believe that their family relation has improved after the introduction of the telecenter. Similarly, 91 percent of the respondent believes that their relationship with relatives has improved after the introduction of the telecenter. In case of the public relation majority of the respondent (63.5 percent) were not able to define the impact of the telecenter on public relation. Among the respondent who define the impact majority of them agree that telecenter has improved public relation. In conclusion we can say that telcenter has positive impact on the social relationship of the respondent.

In the interview with the telecenter operators; they mentioned that community members social network has greatly improved after the introduction of the telecenters. Especially, community members used VOIP call and email to contact to their family members, relatives residing abroad and different towns for the purpose of study and work.

If we analyze improved social network from gender perspective we can see that, almost equal percentage of male and female agree that, family relationship has improved after the introduction of the telecenter. But in case of relative relationship the percentage of male (94 percent) saying telecenter has improved relative relationship is higher than the female (88 percent). Similarly, 58 percent of male respondent and 69 percent of female respondent mentioned that they cannot define the impact of telecenter in public relationship. But among the respondent who define the public relation, percentage of male respondent (34 percent) saying telecenter has positive impact on public relation is much higher than percentage of female respondent (6 percent). From this analysis we can derive the inference that male social network has better improved than female after the introduction of the telecenter.

4.3.2 Better Information

Information has been considered as the power in 21st century. Access to the information has been considered as the most important determinant of citizen's livelihood. In this section we will present the respondent view about the impact of the telecenter on the availability of information in the sector of agriculture, health, education, foreign employment, environment protection and disaster management.

Table 4.7: Information on Different Sectors after Introduction of Telecenter

| | Better Information | | | | | | Total | |
| | Agree | | Disagree | | Don't Know | | | |
	No.	%	No.	%	No.	%	No.	%
Agriculture	49	70	9	13	12	17	70	100
Health	65	93	-	-	5	7	70	100
Education	70	100	-	-	-	-	70	100
Foreign Employment	25	36	6	8	39	56	70	100
Environment Protection	42	60	7	10	21	30	70	100
Disaster Management	33	56	7	10	24	34	70	100

(Source : Field Survey 2011)   (See details in annex: IV)

Above table shows that around 70 percent of the telecenter users consider they have got better information in agriculture after tlececenter introduction. Around 93 percent users consider they have got better information in health sector while this is 100 percent in the case of education. Around 60 percent of respondent in environment protection and around 56 percent of the respondent in disaster management said that telecenter has improved flow of information in the respective field. In the case of foreign employment majority of the respondent (56 percent) were not able to define the role of the telcenter. Among the respondent who define the impact of the telecenter on foreign employment; majority of them consider it has helped for the better information in foreign employment also.

If we analyze the above table, we can see almost 100 percent of the respondent said they experienced better information flow in the health and education sector. This is primarily because the tlecenter and telemedicine facilities are located within the periphery of the school and majority of the respondent are students and teachers. Similarly, most of the respondents' family background is farming and some of the respondent are themselves active farmer, thus we can see high number of respondent agreeing for the positive impact on this field.

In the interview with the telecenter operators they mentioned that since the telecenter and telemedicine is located in the school, student and teachers are the prime beneficiaries of the facilities. They also mentioned that the local agro product trading site hatbazzar.com has increased the awareness of the community members in agricultural issues. They also discussed about the increasing number of people visiting telecenters for getting foreign employment related services. Telecenters operator of Nangi mentioned that remittance

service is underway. In overall all three telecenter operator agreed that telecenter has overall positive impact in the flow of information regarding agriculture, health, education, foreign employment, environment protection and disaster management.

If we analyze the better information obtained from gender perspective in agriculture, foreign employment, disaster management the percentage of male respondent agreeing telecenter has positive impact on the respective sector information flow is greater than that pecentage of female respondent. In the case of health and environment protection the percentage of female respondent agreeing telcenter has positive impact on the respective sector information flow is greater than that of the percentage of male respondent. While 100 percent male and female respondent agrees that telcenter has positive impact in the flow of information in the education sector. In reference of this analysis we can say that higher percentage of the male than female consider there has been positive flow of information in above mentioned sectors after the introduction of the telecenters.

4.3.3 Usage Rate

In this section we are going to discuss how frequently community members use the telecenter facilities. Higher usage rate in one sense is the better accessibility to the e-services. The table below shows the frequency of the use by community members:

Table 4.8: Crosstab between Gender and Usage Rate

Gender	Usage Rate				Total
	Frequently		Not so frequently		
	No.	%	No.	%	
Male	25	67	13	33	38
Female	15	47	17	53	32
Total (No)/Average (%)	**40**	**57**	**30**	**43**	**70**

(Source: Field Survey, 2011)

(Frequently = Everyday +More than once a week, Not so Frequently =Once a week+ More than once a month+ Sometimes)

Above table shows that on an average 57 percent of the respondent frequently use the telecenter facilities. Since majority of the respondent frequently use the telecenter facilities; this indicates the better accessibility to e-services. If we analyze the above table from the gender perspective 67 percent of the male respondent frequently use the telecenter facilities, while this number is only 47 percent in the case of female respondent. From this facts we can draw a references that male users has higher usage rate than female users.

From the facts presented in above three tables, we can see that telecenters has played positive role for enhancing social network, better information and greater usage rate of the e-services. From this fact we can say that telecenter has played an important role in enhancing accessibility to e-service. Analysis of the above table from gender perspective, we have seen that in an overall comparatively large number of male respondents mentioned that they have developed better social network, gained better information and has high usage rate than female. This supports the hypothesis that male has higher accessibility to e-services than female.

As already mentioned above usage rate is one of the important indicator of accessibility to e-service. The table below presents the crosstabulation between the education and usage rate. It gives us the relationship between the education and usage rate.

Table 4.9: Cross tab between telecenter usage rate and education level.

Education Level	Usage Rate				Total
	Frequently		Not so frequently		
	No.	%	No.	%	
Primary Level	1	50	1	50	2
Lower Secondary Level	1	50	1	50	2
Secondary Level	3	60	2	40	5
Higher Secondary Level	25	54	21	46	46
Bachelor Level	8	89	1	11	9
Masters and above	5	83	1	17	6
Total	40		30		

(Source: Field Survey, 2011)

Above table shows that frequency of usage rate has increased as the level of education increases. Respondent usage rate has gradually increased as per the level of education. Only 50 percent of the primary and lower secondary level respondent has frequently use the telcenter facilities, while this number increase to more than 50 percent as the level of education increases. Respondent frequently using telecenter facilities of bachelor and master level are 89 and 83 percent respectively. From this analysis we can draw a reference that higher education level has positive relationship with usage rate.

4.4 Telcenters role in Participation to E-services.

In this section we discuss the role played by telcenters in facilitating the participation of e-services. Practical utilities of telcenter are visible through different activity transacted and grievance handling procedures. Here, we are going to present citizen's view about how these telecenters are facilitating participation in e-service.

4.4.1 Services Attempted through Telecenters Facilities

Whether the telecenter users have attempted to receive the services using the telecenter facilities is the important determinant of the citizen's participation in e-sevices. It is the application part of the ICT, and socio-economic transformation of the people is only possible through right application of the technology. The table below shows the respondent response when they were asked whether they try for any service using telecenter facilities:

Figuer 4.5: Service Attempted Using Telecenter Facilities
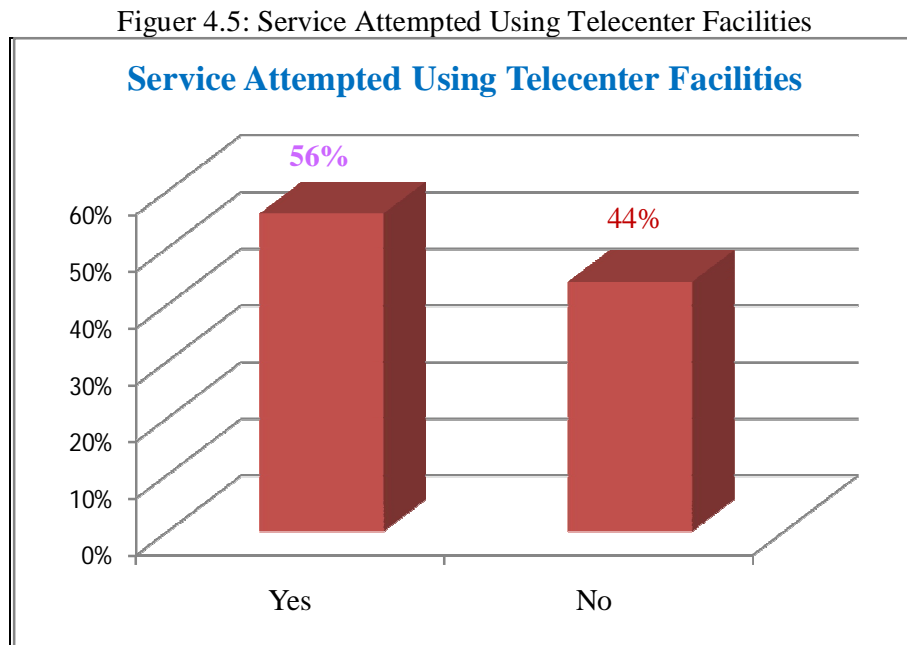
(Source: Field Survey, 2011)

Above figure showed that majority of the respondent said that they tried for the services using the telcenter facilities. Among the 39 respondent who tried for services, types of services tried by them is presented in following table:

Table 4.10: Types of Services Tried Using Telecenter Facilities

Types of Services	Total Response	Percent
Download governments and other forms	7	18
Services (education, health, certificates, employment etc)	34	87
Received agro product price and information	14	36
Marketing of products	2	5
Other	2	5

(Source: Field Survey 2011)

Since, telecenter and telemedicine facilities are located in school, services in health and education has been mostly tried services. Agro product price and information has been the second preferred services using telcenter facilities. Few respondent has used telecenter facilities for downloading government forms and marketing of the product. Some respondent even said they use telecenter facilities for getting employment and for their livelihood also.

Box 4.3: Telecenter: More than a medium of Information and Communication

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Telecenter : More than a medium of Information and Communication

Mr. Binod Paudel, 27 a resident of Dandagaun VDC -2 was once working as the community moblilizer of UNDP supported Local Governance Program (LGP). Once the project was terminated he tried for the same type of job in international Non Governmental Organization called "Hifer International". Mr. Paudel though experienced and skillful was disqualified from the job especially due to computer literary. Realizing the importance of computer in the job market of 21st century, Mr . Paudel took initiation to established e-center in his village with the goal of providing computer literacy to students, teacher, and unemployed youth. He thought that this will help to prevent youth from disqualifying from the job just because of the computer illiteracy. Now, youth like Mr Paudel along with teachers, students, and some other villagers of Dandagaun have basic knowledge of ICTs. More than that some youths including Mr. Paudel himself are using this technology for getting employment and for their livelihood also.

(Source: Interview with Mr. Binod Paudel and Shiva Ram Bhatta)

The respondent who did not try for any services using the telecenter facilities, were asked reason for not using it for the services. Majority of the respondent says lack of information followed by lack of technical knowledge as the most important reason for not using telecenter facilities for getting services. Some respondent even said services was not required while one respondent said traditional practice of delivering service is easier than e-services.

In the interview with the telecenter operators mentioned that, telecenter facilities are partially used for receiving education, health and agriculture services. They also mentioned that increasing number of community members are using telecenter for foreign employment purpose. However, they believe that telecenter facilities have not been optimally used in the level that brings positive changes in the livelihood of the citizens living in the rural areas.

4.4.2 Success in Activities

Success in receiving services indicates the active participation and application of the technology by the respondent. Respondent were asked whether they (including their family members) were success in receiving different kinds of services. The response of the respondent is shown in figure below:

Figure4.6: Success in Receiving Service
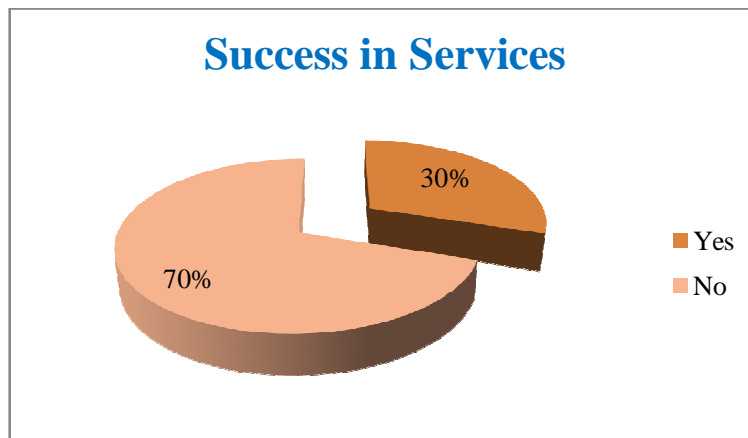
(Source: Field Survey, 2011)

Above figure shows that only 30 percent of the respondent were succeed in receiving services using telecenters. The figure presented in 4.2.1 showed us that 56 percent of the respondent tried for services by using the facilities available in telecenters. But the fact presented here states that all the respondent who tried for the services were not success in receiving the service. Respondent who were success in receiving services got the following services:

Table 4.11: Services Successfully Received Using Telecenter Facilities.

Types of Services	Total Response	Percent
Getting any kind of services	18	86
Marketing products	4	19
Getting employment opportunity	2	10
Protecting from environmental hazards	6	29

(Source: Field Survey, 2011)

Among the respondent who succeed in receiving services 86 percent mentioned that they were success in receiving government and other services like downloading government forms, contacting with public officers, service related with health, education, agriculture etc. Apart from this respondent said they got the information regarding global warming and environment protection from internet, it has encouraged them to preserve forest and other natural resources available in the village. They argue that preservation of natural resources has protected them from possible environmental hazards like, soil erosion, landslide and so. on. Apart from these respondents were successes in marketing products like fruit jam and handmade papers and also in getting employment opportunity.

The respondents who were not success in receiving services were asked reason for their failure for getting the services. The table below presents the respondent reason for not using telecenter facilities for getting services:

Table 4.12: Reasons for Failure in Getting Services Using Telecenter

Reasons	No. of Respondent	Percent
Lack of Information	13	27
Not Required	8	16
Lack of Technical Knowledge	28	57
Total	**49**	

(Source: Field Survey, 2011)

Among the respondent who were not able to receive services using tecelcenter facilities lack of technical knowledge has been the most important reason for not being able to receive the service. Another important reason has been the lack of the information about the e-services, while 16 percent of the respondent said they were not success because service was not necessary.

In order to find out the ratio of respondent who were succeed in receiving services to the number of respondent who attempted for the service, crosstab between services attempted and success in receiving services was carried out (see detail in annex V). Finding of crosstab shows that the ratio of success in services to services attempted is around 50 percent. It means that out of every two respondents who attempted for the service one respondent received the services. It shows that the success rate is encouraging, but the problem is on the demand side of the respondent. If more and more respondent tried for the services, there is a more than 50 percent chance for succeeding in receiving services.

4.4.3 Grievance Handling

Grievance handling mechanism includes the simple discussion for the improvement of the telecenter to formal complain lodge and action taken against the complains. In this section we will present how much sincere telecenter users are in improving the telecenter and facilities available. We will also discuss the types of complain made by the telecenters users and institutional mechanism of solving the grievances.

4.4.3.1 Discussion for Improvement

Discussion for improvement of the telecenter and its facilities indicates the sincerity of the telecenter users for the services they received and its future. Human becomes sincere in any issues only when they have some stake or interest in the concern subject. If positively taken and address it leads to the further participation. The table below presents the respondents participation in the discussion for the improvement:

Table 4.13: Respondent Participation for Improvement

Discussion for Improvement	No. of Respondent	Percent
Never	11	15.7
Sometimes	47	67.1
Frequently	10	14.3
Always	1	1.4
Who Cares	1	1.4
Total	**70**	**100**

(Source: Field Survey, 2011)

Above table shows that 67 percent of the respondent sometimes discuss with the management committee and telecenter operator for the improvement of the services. Similarly, around 14 percent of the respondent said they frequently discuss for improvement, while only 1 respondent always discuss for the improvement. 16 percent respondent have never discuss for the improvement of the services while 1 respondent said not to care the issue at all.

4.4.3.2 Types of Complain Lodge by Telecenter Users

Complain signifies the two meaning first the participation and the dissatisfaction. Citizens can effectively complain only when they participated. We asked the participation to mentioned the types of complain lodge by them, which is shown by the table below:

Table 4.14: Types of Complain Lodge by Telecenter Users

Types of Complain	No. of Respondent	Percentage
Cost of Service	6	8.57
Service Offered	20	28.57
Connectivity	26	37.14
Content	7	10
Discriminatory Practices	-	
Not Complained Yet	11	15.71
Total	**70**	**100**

(Source: Field Survey, 2011)

Above table shows that around 85 percent of the respondent complained in different subject matters. Connectivity has been the major issues for complain followed by the service offered, content and the cost of services. All this indicates citizen care and are serious about the telecenters and its activities.

4.4.4.3 Grievances Handling Procedures

There is no formal method for grievances handling. Grievances lodge by the customers are being heard by telecenter operator and school management committee. Sometimes users directly complain to the organizations which has supported the telecenter. Since the user's access to the responsible staff of those organizations is limited their grievances are poorly addressed. Most of the time users grievances are heard but not addressed.

4.5 Citizens Perception on Telecenters

How citizen perceived telecenter determines the future of telecenter. Citizen positive views help for future development of the telecenter. Citizen view on telecenter is the reflection of their believe about what they can do using telcenter facilities. The table below presents the citizen perceptions on different aspect of telecenters:

Table 4.15: Citizen Perception on Telecenter

Citizen Perception	Agree		Disagree		Don't Know		Total	
	No.	%	No.	%	No.	%	No.	%
Facilitate Contact	65	93	5	7	-		70	100
Facilitate Information	62	89	4	5	4	6	70	100
Made Service Seeking Easy	46	66	-		24	34	70	100
Decrease Cost of Service	42	60	2	3	26	37	70	100
Effective Means of Communication & Information	70	100	-		-		70	100
Facilitate Services	68	97	-	-	2	3	70	100
Improved Socio-Economic Condition	61	87	5	7	4	6	70	100

(Source: Field Survey, 2011)

From the above table we can say that Citizens have positive perception regarding telecenters. When asked about the telecenter role in facilitation of contact 93 percent of the respondents agree it does, while only 89 percent respondents agree that telecenter facilitates information. Furthermore, respondent were asked whether the telecenters are effective means of communication and information or not, 100 percent of the respondent agree it is. Similarly, when respondent were asked whether tlecenter made service seeking easy, only 66 percent agree it does. In another question regarding telecnter role in decreasing the cost of seeking service, only 60 percent agree it does. Further, the respondents were asked whether telecenter facilitate service or not 97 percent of the respondent agree it does. 87 percent of the respondent believes that telecenter can help to improve the socio economic situation of the citizen residing in rural areas.

All this shows that telecenters are the rays of hope for overcoming the communication and information barriers, means of accessing wide range of services cost effectively and ultimately for transformation of the livelihood of the rural people.

In order to get the citizen view about how telcenter can be improved, one open ended question was placed in the survey (See Annex VI). Analyzing the ideas forwarded by the people we can broadly categorized citizen view for improvement in five parts. Citizen emphasized on **ICTs education** as the most important determinant for the future development of ICTs. It signifies that the people are not satisfied with current level of ICTs education and training. This also

indicates for their wish for better application of ICTs in their life. Second important factor as perceived by the users is the **ICT infrastructure**. It indicates users don't want any kind of disturbance while using ICTs. Users also put their view on **telecenter management** should be managed effectively. It shows their feeling of ownership. Not only have this users provided some important insight on **financial and policy** issues. This indicates people are really serious about ICTs and are willing to support government if appropriate measures are taken for ICTs development. This is presented in table below:

Table 4.16: Categorization of Citizen's View for Improvement of ICTs/Telecenter

ICT Education	ICT Infrastructure
• ICT Training/ Seminar to the community members • Create awareness about the ICT/telecenter importance • Encourage people to use telecenters	• Increase the number of computer • Alternative provision for continuous power supply • Effective internet connection • Technical assistance to solve the problems • Upgrade technology available in telecenter
Telecenter Management	**Financial Issues**
• Equal opportunity and access for all community members for using telecenters • Allocate off school hour time for community members for using telecenters • Effective participation of community members for telecenter operation • Citizen with ICT knowledge should share with others • Separate competent employees for running telecenter • Develop local site dedicated for the telecenter areas	• Continuous support and help from government level • Support from I/NGOs for operating telecenter • Socio-economic help for the rural people • Establishment of telecenter using local resources
Policy Issues	
• Expand the rural telecenters • Long term plan for telecenter development with users participation • Provision of prize for best telecenters and capacity enhancement of the poor • Regular monitoring and evaluation from government	

4.6 Link between Theory and Findings the Study

As cited in Prakash and Singh (n.d), two basic principles of NPM are managerialism (a proactive, outcome-oriented, customer-centric government based on decentralisation and participative management) and marketisation (charging for public services, promotion of markets through creation of incentives, introducing competition between units through fragmenting, and competition in public service delivery through contracting) (Osborne and Gaebler, 1992; Walsh, 1995). In other words the ultimate thirst of managerialism is easy accessibility to the wide range of services to the citizen, where as marketisation emphasis on citizen's active participation in the delivery of services.

E-governance places the citizen at the centre stage by redesigning of government processes in a citizencentric manner, delivery of e-services through single window, making government officials accountable downwards to the citizens, providing voice to citizens, empowering citizens and enabling them to participate in policy (Prakash and Singh n.d).E-government therefore is the reform element that support and enforce NPM.

The study undertook New Public Management (NPM) as the theoretical model of the study. The analytical framework that was primarily developed on the basis of this theory considers the participation and accessibility as the dependent variable while, social factor, economic factor and technical and organizational factor as the independent variables.

Finding of the study and citizen's perception on improvement of telecenter/ ICTs provide similar views. Study found that accessibility and participation in e-service is affected by range of social, economic, technical and organizational factor. For example study found that accessibility to e-services is affected by the education level, age and gender. Study shows that higher educated people tend to use telecenter facilities more but telecenter should be managed well so that all the users have equal access to telecenters. Similarly, there should be gender impartiality and even the old age people should get chance to use the facility. These are sensible issues in telecenter management. Theory of NPM advocate for the citizen centric effective management of the centre.

Similarly cost, occupation, income group of the citizens are related with the economic aspects that affect the accessibility and participation of the e-services. Citizens should be charged in rational basis and they should be willing to pay for the services. Theory of NPM advocates for the financial efficiency and treating citizens as the customer is basic thirst of the theory. Content, types of service, connectivity and organization rules and regulation are the technical

and organizational factors that demand for the customer orientation, citizens friendly, outcome oriented participative services. This is in line with the theory of NPM which emphasis for optimizing information technology, ensuring performance, providing responsive service and strengthening the steering function at the centre.

More than that Citizen also perceived that ICTs education, ICT infrastructure, Effective management of the centre, Financial efficiency and support and Appropriate policy issues are important for future betterment of the centre which are in line with the NPM doctrine. This proves that the theoretical and analytical frameworks used for this study are appropriate and relevant.

4.7 Major Findings of the Study

4.7.1 Findings Related with Telecenter role in Accessibility to E-services

Telecenter has facilitated better connection to family members. Majority of the telecenter users are in opinion that telecenter has played positive role in building and maintaining family relation. Telecenter users also agree that telecenter has facilitated for maintaining better relationship with relatives. Majority of the telecenter users were not able to define the role of the telecenter in building and maintaining public relation. Among the respondent who define relationship majority of them said it has positive contribution. More than 90 percent of telecenter user considered they have got better information about health and education after the introduction of the telecenter. In agriculture, environment protection and disaster management majority of the users have similar view. But in case of foreign employment majority of the users were not able to define the role played by telecenter. Among the respondent who define majority said it has positive role. Study also shows telecenter users frequently use the telecenter facilities.

- ❖ In overall telecenter user consider the positive contribution of telecenter for building and maintaining social network.
- ❖ Majority of telecenters users consider they have got better information on different sectors after the introduction of the telecenters.
- ❖ Most of the telecenters users are frequently using the telecenter facilities.

In summary we can say that telecenter has facilitated for better family relation, relative relations. Increasing number of citizens are using telecenter facilities also for public relation. This indicates that telecenters facilities have been primarily for communication and information purpose. This is because many citizens from rural Nepal used to go big cities and

abroad for education and employment purposes. Hence we can say telecenters has increased the accessibility of e-services in rural Nepal.

4.7.2 Findings Related with Telecenter role in Participation in e-services

Majority of the telecenter users said that they tried for services using the telecenter facilities. Services like health, education, agriculture, and other government services were mostly tried. Though majority of the respondent tried for services only few respondent were successful in getting services. Users considered lack of information and technical knowledge has been the major reason for not being able to receive the services. Among the respondent who were successful in getting e-services, majority said they were success in receiving services related with health, education, agriculture, environment protection and so on. Majority of the respondent sometimes discuss with the telecenter operator and management member for the improvement of the services. Connectivity and services offered are two types of major complained lodge by telecenter users. Telecenters do not have any formal mechanism to handle the grievances of the users.

- ❖ Number of citizens attempting for e-services using telecenters facilities is increasing.
- ❖ Study found that every one users out of two, who attempted for the services were able to receive services.
- ❖ Lack of information and technical knowledge has been the major reason for not being able to receive e-services.
- ❖ No formal mechanism to address grievances though citizens complained on different issues.

In summary we can say that citizen's participation is increasing but not encouraging. The problem in citizen's participation in e-services arises primarily due to low number of e-services available, lack of content in Nepali language, problems in telecenter management, low computer literacy and so on.

4.7.3 Findings Related with Factors Affecting the ICTs/Telecenter

- ❖ The study found the direct relationship between the availability of ICTs infrastructure and the range of service provided. For example, Nangi Telecenter which have relatively better ICTs infrastructure in comparison with two other centers, have been able to provide telemedicine, educational and agricultural services in addition to internet services and secretarial services.

❖ Young male and female users have equal opportunity and access to e-services. But in case of old users male have higher access than female users.

❖ Majority of the telecenter users are the young age people. Literacy, desires to undertake the challenge, wish for modernity, requirement for job market, and inquisitive for new knowledge has been the primary reason for youth dominance in ICT use.

❖ Education has been the key determinant for the ICT use. Higher education level shows positive correlation to usage rate. Among the respondent especially the teachers and students have high level of education. Illiterate people consider education as the major barrier for using e-services.

❖ Majority of rural telcenter users are teachers and students. This is because they are educated, required it as part of their education and in some cases even the telecenters are located in school.

❖ Citizen's from other occupation has limited accessibility to e-service. This is primarily because of education level, e-services and content availability and concept that computer education is for the students.

❖ Majority of the telecenter users are from the lower middle income and lower level. In spite of the economic background almost telecenter user considers cost of the service is affordable. This is largely because all the three telecenter visited provide the internet and telemedicine services free of cost, while users have to pay nominal charges for the secretarial services.

❖ All three telecenter visited have WIFI based wireless internet access. Telecenter sometime faces the connectivity problem.

❖ No specific rules and regulation for operating telecenters. ENRD has provided discretionary power to community for operating telecenters. HLCIT has introduced "Tlecenter Operation Manual" targeting all telecenters operated in country but it has remained largely ineffective.

4.7.4 Findings Related with Current State of E-services in Nepal

Telecenter are the major institutions working for the rural e-services in Nepal. On the basis of support and ownership these institutions can broadly categorized into government supported telecenter, I/NGOs supported telecenter and Private Sector initiated tlecenters. Government still retained the key position in the telecenter movement. Government through High Level Commission for Information Technology (HLCIT), National Information and Technology

Center (NITC), Postal Services, and Nepal Telecommunication Authority (NTA) is contributing to the telcenter movement. Majority of the government supported institutions are non-functioning primarily because of the lack of financial and technical follow up, politicization of the centers, establishment of telecenters in political pressure and without proper evaluation on sustainability, lack of ownership feeling of the locals, poor management, service orientation of the centers, and due to lack of competent employees to run the center. Number of I/NGOs supported telecenters are increasing. Similarly, number of private sector run e-centers and cybercafés in rural areas are increasing.

❖ Most of the Telcenters supported by ENRD are located in school. Telecenters supported by the ENRD can be taken as the successful cases in the context of Nepal. Continuous technical follow up and discretionary power given to the community to run the center has been the primary reason for the success of the ENRD run centers.

❖ Paperwork for providing e-services in Nepal was lay down with the promulgation of ICT Act 2000, five year development plan (2002-2007), ICT master plan 2006 but no major breakthrough in e-services except creation of websites of different government ministries and departments and some very little work in progress in certain sectors.

❖ Unavailability of E-based government services is the major hurdle for expanding the e-services in rural Nepal.

❖ Telecenters are the providers of e-services in rural Nepal. Most of the telecenters are providing basically internet and secretarial services. Some telecenters are also providing services like telemedicine, education and agriculture related services.

❖ Unavailability of useful enough content in Nepali language in different subject matter has been another major problem of Nepalese telecenter movement. It has discouraged rural telecenter user for the regular use of the center.

❖ Citizen Consider the content that are available in Nepali language are useful for their life but not sufficient.

4.7.5 Findings Related with Citizen's Perception

Citizen's were asked to give their opinion on different aspects of ICTs and Telecenter on the basis of their experiences. All of the respondent agree that telecenter are effective means of communication and information. More than four fifth of the respondent also agrees that telecenter/ICTs facilitates different kind of services, and help to improve the livelihood of the rural people.

- ❖ Citizen perceived ICTs education like trainings, seminar and creation of awareness about ICTs is the most important factor for the future development of ICTs/ telecenters.

- ❖ ICT infrastructure like power, connectivity, number of computers, continuous technology upgradation as another important factor for future telecenter development.

- ❖ Issues related with telecenter management like equal opportunity and access to all citizen, allocation of separate time for community users, competent employees, development of local website, citizen participation in the telecenter operation etc are considered as the other most important factors for improvement of telecenters.

- ❖ Financial issues like continuous financial support from government and development agencies, mobilization of local resources for the establishment of telecenter, economic support to people residing in rural Nepal are considered as important factor for future ICT development of the rural areas.

- ❖ Citizens also view the importance of the policy issues like expansion of telecenter, long term planning for telecenter development, regular monitoring and evaluation, provision of prize and punishment, socio economic support to the disadvantage and backward rural people etc as the important factor for future development of ICTs/Telecenter in rural Nepal.

4.8 Conclusion

There are different arguments for and against rural telecenters. Telecenter experiment on Latin America, Africa and South Asia has shown mixed result. In some cases telecenters has proved to be effective not only just for mere communication purpose but also as the vehicle for socio-economic transformation. Where as in some cases telecenters has bitter experienced, they are dead in infancy before they are bloomed.

Nepalese telecentres are struggling for their existence. They have realized that mere communication and information service is not sufficient for the survival and getting optimum benefit from the technology. Therefore, in spite of difficult political, technical and socio-economic condition they are putting their efforts for diversification of the services. Different innovative concepts are coming and many telecenters are providing agriculture, health, education, environment protection, foreign employment, disaster management related services.

Certain socio-economic, technical and organizational factor influence on the accessibility and participation in e-services, but in overall telecenters has provided an opportunity for the easy accessibility to e-services. It is again telecenters that have created platform for the participation in the e-services in rural Nepal. Though participation is not in satisfactory level it is slowly gaining momentum. Citizens are excited about the new development, but they consider there should be some positive changes in ICTs education, ICTs infrastructure, telecenter management, financial issues and policy issues for the future betterment of telecenters in rural Nepal.

Chapter V

Findings, Summary and Conclusions

5.0 Introduction

In this chapter at first, findings of the study is presented, followed by the major highlights of the study. Before closing the chapter, insight obtained from this study and suggestion for the future research is presented.

5.1 Summary

The technological advancement in the field of ICTs is scaling new height each day. Innovation and rapid technological development in the field of ICTs have made it widely available throughout the world. Technically, the world is in the position where every people can have easy access to ICTs but the socio-economic, cultural and political environment is barring many poor and underprivileged people to take benefit from this new innovation. As a result there has been a discrepancy in the application of ICTs among different countries of the world. Unfortunately, the difference in the ICTs application is not limited only between the countries; it is much wider within the countries.

With the hope of bridging increasing digital divide and bring the rural isolated people in the mainstream of development, the concept of rural telecenter was initiated in 2002. The initiation was undertaken through Wireless Project Nepal by national NGOs E-network Research and Development. ENRD is not any more the single actor in the field; different government institutions, national and international NGOs and even the private sector are actively involving to connect the rural Nepal with rest of the world.

In this context this study was carried out with the overall objectives of assessing ICTs penetration in rural Nepal and its role facilitating services delivery. The study aimed to achieve three specific objectives which are: to examine and analyze factors affecting accessibility and participation in the e-service delivery process**,** to assess how public telecenters are facilitating accessibility of e-services and to examine how the public telecenters are enhancing citizen's participation in e-service delivery.

In order to make study more focused and convenient three telecenter Nangi telecenter, Tikot telecenter and Dandagaun telecenter were chosen on the basis of judgmental sampling techniques. The study used both the qualitative and quantitative techniques for data collection. Questionnaire survey was carried out using purposive sampling technique. Interview and case studies was other major method used for data collection.

From the study we found the accessibility and participation in the process of e-services is affected by socio-economic, organizational and technical factors. Higher education showed positive relationship with the ICTs usage rate, similarly young age people have higher accessibility to ICTs. The study found that difference in gender has not any effect on the usage of ICTs among male and female users.

Occupations of the users have shown effects on the usage and participation of the e-services. Class perception of the users don't seem to have any effect on the accessibility and participation as the majority of users considers lower middle class and lower class, but still thought cost of the telecenters affordable. Availability of effective content and e-services seems to have direct effect on the accessibility and participation in the e-services. ICTs infrastructure have effects on the service offered and service diversification, which ultimately affects on the accessibility and participation in the e-services. Telecenters operational rules and regulation had positive relationship with the users participation and accessibility to e-services.

From the study we find that these telecenters have helped positively for increasing accessibility to e-services but participation in e-services is not encouraging though increasing. Citizen perceived that telecenters are effective means for communication and information, in facilitation of services and uplifting the socio-economic condition of the poor and disadvantage people living in rural area.

Two hypothesis were tested during the study. First hypothesis was related with the gender and accessibility while the second was related with the education level and accessibility. The study supported the hypothesis that male have greater accessibility to e-services than female. Similarly, the study supported the hypothesis that higher the education levels higher the accessibility to e-services.

Citizen perceived that ICTs education, ICT infrastructure, Effective management of the centre, Financial efficiency and support and Appropriate policy issues are important for future betterment of the telecentre and ICTs. Citizen's have rightly analyzed the present situation of the ICTs development in the rural area and have given wonderful ideas to overcome the present challenges. Now the ball is on the government court for devising appropriate policies, programs and effectively implementing it to address the ICTs related problem faced by the citizen in rural Nepal and to lead in the creation of knowledge based societies.

5.2 Conclusion

This study undertook an effort to gather the facts about the e-services development in rural Nepal. At present telecenters are the major providers of the e-services in rural Nepal. Government, national and international NGOs and private sector are involved to promote ICTs in rural Nepal. Numbers of telecenters providing different types of services are increasing. Almost all the telecenters provides communication and information services whereas few telecenters are also providing education, health, agriculture, environment protection, foreign employment, disaster management etc related services. From the facts obtained from the study, we have seen that telecenters have been used mainly for information and communication purpose. There has been very limited application of ICTs/Telecenters for changing the livelihood of the people.

Internet connectivity is increasing in rural Nepal but its effectiveness is hampered due to poor ICTs infrastructure like uncertain power supply, availability of few computers, and absence of technical follow up. Unavailability of effective and useful content in local language has been another major problem in expanding ICTs in rural areas. This problem is further aggravated by the absence of wide range of e-services. Study shows that effective telecenter management is vital for telecenter success. Absence of competent employees, effective operational rules and regulation and grievance handling procedures are other drawbacks of present telecenter movement of the Nepal.

In order to ensure ICT accessibility to all rural people and maintain balanced development government should facilitate for the expansion of the telecenter/ICTs. Similarly in the context of increasing literacy rate, ICT literacy and peoples increasing realization of ICT importance; government should make a provision for cheap internet connectivity in rural Nepal. The wider application of ICTs is possible when there is ICT literate people, availability of e-services, effective and useful content, people friendly technology and people awareness about the ICT importance. Basic ICT infrastructure like power and connectivity, continuous technological up gradation and follow up is essential for spreading e-services in rural Nepal. Competent employees who can encourage people to use ICTs, can solve the basic problems, create new product for the local people and run the center in systematic way is the due requirement for future development of telecenter. Government should make telecenter

operation manual effective so that all telcenters will have basic uniformity in the management of the telecenter.

The government efforts for enhancing e-services in rural Nepal are far behind acceptable level. Any government of 21st century should not be blind in the increasing global trend; hence government should instantly take major initiative in ICTs in order to benefit itself and the society. Government need to revised and update the current policies. If governments really want to increase access of e-services in rural Nepal, it has to develop a strategic plan for rural e-center development with active participation of the people. There should be also the provision of reward and punishment on the basis of continuous monitoring and evaluation of telecenter activities.

5.3 Avenue for Future Research

Research is never ending process. Social sciences continuously demand new research on ground that social issues always remain changing as per the time dynamics. Since the ICTs in the context of Nepal, is still in experimenting phase lots of research can be carried out in this sector. This study is focused on service aspects of ICTs, research on ICT contribution on economic and social life of the people can be undertaken. Similarly, this study is focused on rural Nepal and on telecenter, researcher can take an wider view of ICTs and its role in service delivery in the context of whole Nepal. More, the research has undertaken three tlecenters primarily supported by national NGO called ENRD. Therefore similar type of research can be carried out by increasing number of telecenter, and by taking government and private sector supported telecenters. Research regarding socio-economic effects of ICTs to ICT non users can be undertaken. Similarly, study regarding the contribution of ICTs in national economy can also be carried out.

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		TRIBHUVAN UNIVERSITY
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Dear Respondent,

The Questions included in this Questionnaire is for the research entitled "E-services in Rural Nepal: A Study of Public Telecenters". This research is carried as the part of my master's studies in the subject of **Public Policy and Governance**, which I am currently pursuing in North South University, Dhaka Bangladesh. I would like to assure the respondents that the information received from this research will be used for the academic purpose only.

The Questions presented in this Questionnaire are designed considering the telecenters users. Hence, Telecenters users are the prime respondent for this questionnaire survey. I kindly request the Telecenters users for close cooperation by providing the correct and valid information.

Researcher
Manhari Dangal

Questionnaire

1.Name……………………………………………

Socio-economic background of the respondent
2. Gender: 1 Male,   0 Female

3. Age (Current)…………………...

4. Place of birth: a) Village/Municipality…………………… b)
District………………………

5. Current place of residence: …………………………………………………………

6. Education :
        1 Literate
        2 Primary level
        3 Lower Secondary Level
        4 Secondary level
        5 Higher Secondary level
        6 Graduate degree
        7 Master's degree or higher

7. Occupational Status

7 a) 1. Working   2. Unemployed   3. Retired   4.Student   5. House wife

7 b) Occupation of those working (If 1 in question 7 a)),
        1. Farmer
        2. Manual workers
        3. Teacher (school/college)
        4. Public servants
        5. NGO workers
        6. Military service/Police/Security
        7. Foreign Employment
        8. Professional- lawyer, doctor, accountant etc.
        9. Other……………………………..

8. On the basis of socio-economic status, how would you like to describe yourself:
1. Upper class   2. Upper middle class   3. Lower middle class   4. Working class
5. Poor class   6. Hard core poor   7. Don't know

9. Why do you visit telecenters?

      1. To make a call

      2. For email

      3. Internet Browsing

      4. Photocopy

      5. Lamination

      6. Printing

      7. Downloading

      8. Others (Specify)…………………………………

10. Is the service offered by telecenters affordable?

Affordable				Very expensive
1	2	3	4	5

11. Do you find enough content/materials regarding Education, Health, Agriculture etc in Nepali language while searching in the internet?

Very Few				Enough
1	2	3	4	5

12. While going telecenter, do you visit the site of telecenter portal?

Never	Sometime	Frequently	Always	Don't know
1	2	3	4	5

13. How do you describe the materials and information regarding Education, Health, Agriculture etc available in the telecenter portal/ internet in Nepali language?

Irrelevant	Not so Relevant	Relevant	Very Relevant	Can't Say
1	2	3	4	5

14. Have you faced any problem while browsing internet or using VOIP or while making telephone calls?

Never	Sometime	Frequently	Always	Don't know
1	2	3	4	5

15. How frequently do you visit telecenter for getting service?

1. Daily   2. More than once a week   3. Once a week   4. More than once a month   5. Sometimes

16. Do you think that your social network has improved after the establishment of telecenter, comment on following statements

	Strongly Disagree	Quite Disagree	Partly Agree	Strongly Agree	Don't Know
a)It has been easier to contact with family members					
b)I have been able to develop better contact with my relatives					
c) I have been able to contact public officers/politicians for help					
d) Others………………………					

.

17. What is your opinion on following statement?

After the introduction of telecenter we have better information about:	Strongly Disagree	Quite Disagree	Partly Agree	Strongly Agree	Don't Know
a)Agriculture products					
b)Health issues					
c) Education materials					
d)Foreign/ employment opportunities					
e) Environment protection					
f) Disaster management					
g) Others………………………					

18. Using the services available in telecenters have you or your family members ever took following services? Yes [＿＿＿] No [＿＿＿]

If Yes…………………

1. Download governments and other forms
2. Seek any kind of services (education, health, certificates, employment etc)
3. Received price and other information about the agriculture products
4. Sell your products
5. Others (please specify)……………………………………………….

If No…………………………
1. Due to Lack of Information
2. Not required
3. Due to absence of technical know how
4. Traditional method of service delivery is easy and effective
5. Others (Please specify)……………………………………….

19. Using the services available in telecenters have you or your family members succeed in getting following services ? Yes ⬚ No ⬚

If Yes……………………

1. Getting any kind of government service
2. Marketing products
3. Getting employment opportunity
4. Protecting from environment hazards
5. Others (please specify)…………………………………………………….

If No………………………
1. Due to Lack of Information
2. Not required
3. Due to absence of technical know how
4. Traditional method of service delivery is easy and effective
5. Others (Please specify)……………………………………….

20. Have you made discussion with telecenter operators and telecenter management committee for improvement of the services?

Never	Sometime	Frequently	Always	Who cares
1	2	3	4	5

21. If you have complained the telecenter authorities, your complain is related with…….

Cost of services	Service offered	Connectivity	Content	Discriminatory practices
1	2	3	4	5

6. Others (Please specify)…………………………………….

22. I am going to describe various types of benefits using telecenters, from the experiences of the telecenters users, what is your opinion about these statements?

In general, using teelcenters services has,	Strongly Disagree	Quite Disagree	Partly Agree	Strongly Agree	Don't Know
a)Facilitate direct contact with required person/institutions					
b)Facilitates better information about product and services					
c) Lower cost of seeking and getting products/ services and marketing products					
d)Succeed in receiving help from public service providers and others.					

23. On the basis of your experiences in using telecenters services, to what extent you agree or disagree with these statements?

	Strongly Disagree	Quite Disagree	Partly Agree	Strongly Agree	Don't Know
Telecenters are effective means for communication and information					
Telecenters facilitates for effective service delivery					
Telecenters can help to improve soio-economic condition of the people					

24. Lists the things in priority, that need to done to make Telecenters and its services more effective?

1. ……………………………………………………………………..……………………..

2. ……………………………………………………………………………………………..

3. …………………………………………………………………………………………..

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Annex II

Semi-Structured Questions I

Questions for Telecenter operator, Management Committee Member

1. What kinds of connectivity you are using at present?
2. Is there any problem about connectivity?
3. Is the operation rule & regulation supportive enough to run the telecenters? If not why?
4. Is the present practice good enough to provide e-services to the people? If not what should be done?
5. Do you think that telecenters has helped to build direct contact with market/authorities? Can you sight some cases?
6. Apart from the family members and relatives do people call public officers and politicians using telecenter facilities?
7. What kinds of information/materials this telecenters provides to the people?

8. Are the people benefited with the better information about health, education, agriculture, employment opportunities, environment protection etc after the establishment of the telecenters? Can you site some cases please?

9. Has the telecenter facilitates to get product/services faster, then the earlier period when there was no telecenter? Can you site some example please?

10. Do the costumers complains about the cost of the service offered by the telecenter?

11. Have the costumer provided any suggestion/ ideas for improvement?

12. What kinds of mechanism you follow to handle the complaints lodge by costumers?

13. Do you think telecenters are effective for rural people? If yes/no why?

14. What should be done for the improvement of telecenter, so that it can provide better services to the people?

Annex II

Semi-Structured Questions II

Questions for HLCIT top management

1. Can you please explain in brief about the progress being made in rural telcenter movement?

2. What kinds of e-services HLCIT is providing to the rural people?

3. Content is undoubtedly the most important ingredient in providing e-services to the people. How is HLCIT helping in developing quality content? Is the current content provided through telecenters good enough quantity and quality wide to better educate the rural people?

4. Are telecenter established by HLCIT, achieving the objectives as it were supposed to?

5. Has telecenter been able to develop as the medium of providing e-services to the rural people?

6. How are the telecenters established by HLCIT managed?

7. Has HLCIT devolved enough authority to operate telecenters?

8. What are the major demands/complains lodge to HLCIT regarding telecenter operation?

9. How HLCIT handles the grievances lodge by telecenters and telecenter users?

10. The existing e-service mechanism clearly seems to target literate people to use e-services, is there any plan to target illiterate rural mass?

11. Do you believe that telecenter movement can improve the current situation of poor service delivery access to the rural mass?

12. What are the key challenges for the telecenter movement at current stages? How can we overcome the situation, to provide better e-services to rural people?

13. There is allegation that government body do not cooperate with I/NGO and private sector for the development of rural telecenter, how would you defend government position in this regard?

14. Where the rural telecenter movement is heading in the future?

Annex II

Semi-Structured Questions III

Questions for Telecenter Expert

1. Can you please explain in brief about the progress being made in rural telcenter movement?

2. What kinds of e-services Telecenters are providing in the context of Nepal?

3. Content is undoubtedly the most important ingredient in providing e-services to the people. Is there sufficient content available in Nepali Language in regard to Agriculture, Health, Education etc? Is the current content provided through telecenters

	Improved Social Network	Total

good enough quantity and quality wide to better educate the rural people?

4. Are telecenter established by government and other organizations, achieving the objectives as it were supposed to?

5. Most of the telecenters are established in the community school and users are mostly teachers and students. Has telecenter been able to develop as the medium of providing e-services to the rural people?

6. How are the telecenters managed? How should they be managed?

7. Has Telecenters been financially sustainable? What are the basic requirements of its sustainability?

8. Do you think government has done enough to cooperate with other organization for the effective development of telecenters?

9. The existing e-service mechanism clearly seems to target literate people to use e-services, is there any plan to target illiterate rural mass?

10. Do you believe that telecenter movement can improve the current situation of poor service delivery access to the rural mass?

11. What are the key challenges for the telecenter movement at current stages? How can we overcome the situation, to provide better e-services to rural people?

12. Are the current government policies, rules/regulation supportive for the development and escalation of the telecenters? If not what should be done?

Annex III

Improved Social Network

Better Social Relationship	Agree		Disagree		Don't Know		
	No.	%	No.	%	No.	%	
Improved Family Relation							
			Better Information				**Total**
Male	36	95	0		2	5	38
		Agree	**Disagree**		**Don't Know**		
Female	31	97	1	3	0		32
	No.	%	No.	%	No.	%	
Total (No.)/Average (%)	67	96	1		2		70
Agriculture							
Improved Relative Relation							
Male	27	71	2	5	9	24	38
Male	36	94	1	3	1	3	38
Female	22	69	7	16	3	16	32
Female	28	88	4	12	0		32
Total (No.)/Average (%)	49	70	9	10	12	20	70
Total (No.)/Average (%)	54	91	5	7.5	1	2.5	70
Health							
Improved Public Relation							
Male	33	87	0		5	13	38
Male	13	34	3	8	22	58	38
Female	32	100	0	8	0	58	32
Female	2	6	8	25	22	69	32
Total (No.)/Average (%)	65	93.5	8	25	5	6.5	70
Education							
Total (No.)/Average (%)	15	20	11	16.5	44	63.5	70

	No.	%	No.	%	No.	%	Total
Male	38	100	0		0		38
Female	32	100	0		0		32
Total (No.)/Average (%)	70	100					70
Foreign Employment							
Male	16	42	2	5	20	53	38
Female	9	28	4	13	19	59	32
Total (No.)/Average (%)	25	35	6	9	39	56	70
Environment Protection							
Male	22	58	2	5	14	37	38
Female	20	62.5	5	15.5	7	22	32
Total (No.)/Average (%)	42	60.25	7	10.25	21	29.5	70
Disaster Management							
Male	22	58	3	8	13	34	38
Female	17	53	4	13	11	34	32
Total (No.)/Average (%)	**33**	**55.5**	**7**	**10.5**	**24**	**34**	**70**

Annex IV

Better Information

Annex V

Cross tabulation between service attempted and success in receiving services

Success in Receiving Services	Service Attempted				Total
	Yes		NO		
	No.	%	No.	%	
Any Kind of Services	20 / 9	45			9
Marketing Products	5 / 3	60			3

90

Employment Opportunity	2 / 1	50			1
Protection from Environment Hazard	12 / 6	50	1		7
Total/Average	39 / 19	51.25	31 / 1		70 / 20

Annex VI

Citizens view for improvement of the telecenter

Total Number of Respondent: 70

Citizens view for Improvement	Total Response	Percent
ICT Training/ Seminar to the community members	41	59
Create awareness about the ICT/telecenter importance	34	49
Increase the number of computer	14	20
Alternative provision for continuous power supply	13	19
Expand the rural telecenters	9	13
Equal opportunity and access for all community members for using telecenters	8	11
Encourage people to use telecenters	7	10

Allocate off school hour time for community members for using telecenters	7	10
Effective internet connection	6	9
Effective participation of community members for telecenter operation	5	7
Technical assistance to solve the problems	4	6
Make services provided through telecnter more effective	4	6
Citizen with ICT knowledge should share with others	3	4
Separate competent employees for running telecenter	3	4
Continuous support and help from government level	2	3
Support from I/NGOs for operating telecenter	2	3
Socio-economic help for the rural people	2	3
Upgrade technology available in telecenter	1	1.5
Establishment of telecenter using local resources	1	1.5
Long term plan for telecenter development with users participation	1	1.5
Provision of prize for best telecenters and capacity enhancement of the poor	1	1.5
Regular monitoring and evaluation from government	1	1.5
Develop local site dedicated for the telecenter areas	1	1.5