ICT Status and Implementation for E-Governance by Local Governing Body in Karnali Province

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Abstract:
Karnali is the one of the seven provinces of Nepal and is considered as a remote province due to its' geographical location and lack of technological advancement. In this paper we tried to find out the status and implementation of ICT structures used by the governing body for E-Governance. From the general survey, we have got a generalized view that Karnali province, local governing bodies are moving in the right path to implement the e-governance but it is lacking a pace. The governing bodies are in the beginning phase and with the time span they took the motto of e-governance, we are far-far behind from where we could have been, but this research isn't sufficient for a core conclusion and further depth research is required for better understanding of other aspects that can affect the performance of E-Governance by ICT advancement as well as test in a huge number and more depth in validity.
Keywords: Karnali, E-Governance, ICT, Local Governing Bodies

I. Introduction

Karnali is one of the seven Province of Nepal. It has a total of 10 districts which is further divided into 79 local governing bodies. Among these 79 bodies there are 25 municipalities and 54 rural municipalities. The capital of Karnali Province is Surkhet.

ICT is made of up of three words i) information which means something that people can learn, know about, or understand. ii) Communication means the act of conveying meaning from one entity or group to another through the use of mutually understood signs, symbols and semiotic rules.

iii) Technology means the sum of techniques, skills, methods, and processes used in the production of goods or services.

ICT is essential for a good governance due to its impact on the society, i.e. ICT directly affects the social factors like business, banking, e-governance which can lead for a sound and healthy governance. For example ICT helps in the digital payment facilities, e-libraries for the readers who can access to books whenever they want, e-labs for medical and other testing and training which can be guided remotely.

In this paper we tried to find out the basic ICT infra-structures of the local governing bodies, how the resources are utilized, the work that have been digitized i.e. people can access and apply online, get services and certificate, receipts of online services etc, and what are the future plans to be taken by the governing bodies toward the ICT development.

II. Literature Review

Technology is a basic and important lever for the development and implementation of E-governance in the governing bodies. The development of Information Technology (IT) has a wide potential in all aspects of the social development. It can impact almost all the factors of the society by focusing on the ICT components that are Computer density, Communication, Connectivity, Cyber laws, Cost Management etc.

ICT has been instrumental in changing the way in which government operates through horizontal and vertical interactions and information flows. It has provided unique opportunities to government in terms of new ways of doing business through e-Governance and e-Governance applications. E-Governance is about leading the transformation of government to provide efficient, convenient and transparent services to the citizen and business. E-Government is also not about translating processes; it's about transforming them. E-Government concerns with the transformation of government, modernization of government processes and function and better public process. [1]

Information and Communication Technologies (ICTs) in a relatively short period of time and have

had a major transformation impact across all sectors of society. ICT played a catalytic role in dissemination of information, knowledge transfer, healthcare, capacity building and improved governance. [2]

Information and Communication Technology (ICT) is the basic tools of our daily lives to optimize the resources, improve work performance and efficient service delivery. Due to the diverse demographic and geographic situation of Nepal which has remote areas, government itself isn't able to provide service to the citizen in rural area. Empowering Rural people by means of ICT services in service delivery is becoming quite challenging. Nepal, after adopting the liberalization policy to encourage involvement of private sectors there have been optimum competition in ICT sectors which helps to reduce the digital divide and considerably increase the ICT penetration rate. But the service is more squeezed to urban areas. [3]

It is evident that ICT's are challenging existing governance models, it is however difficult to envisage what new institutional, quasi-institutional, and legal provision may actually define and codify the new governance models that ICTs could indeed make possible. In principle, it is expected that the role of government will shift from being a central steering entity to that of a moderator of collective decision-making process. However, in order to perform this role effectively, all stakeholders should be able to contribute to policy direction. ICT-based modeling techniques could be crucial for improving governance and policy-making processes, but the fact that it would be dangerous not to consider the risks and vulnerabilities involved in the expansion of ICTs. [4]

The research examined the effects of quality of e-governance service on trust in government by focusing on various groups of the digital divide in the era of a smart society and E-Government. The results show a partial correlation between the quality of e-government service and trust in government. In additional, the level of trust varied according to the type of digital divide group. It also suggests that governments need to provide policy remedies for overcoming obstacles in information sharing surrounding issues of privacy protection, network security, collaboration among governance structure, and officially authorization processes or providing information on individuals. [5]

ICT must be viewed in two different dimensions – ICT development and ICT for sustainable development. A congruent and powerful policy must be made by integrating various policies that cover the application of technologies in information, communication and broadcasting. The policy with an appropriate institutional umbrella must promote these as vehicles for the sustainable development of the rural and remote areas. Appropriate policies focusing the improvement of the 4C dimensions of ICT – connectivity, content, computing and capacity building can promote the sustainable development through ICT. The study concentrates on the second dimension, that is, ICT for sustainable development. The scope of the study has been looking at the policy level how ICT enabled services can be promoted in rural areas through increased participation of the private sector in a market system dominated by the poor.

Experiences in PPP are available in infrastructure development. This model may be applicable in sectors which involve management of natural resources such as irrigation, energy, forest or basic infrastructures such as roads, telecommunications and terminals. In sectors such as ICT enabled services in rural areas, PPP concept may be difficult to apply when it comes to operating the telecentres as profitable enterprises. However, a two-pronged approach is possible for establishing and expanding telecenters in rural areas. [6]

Karnali state has rolled for digitization. Karnali government has planned to digitalize 24 schools in the country for achieving these various plans have been presented which consist of bringing fiber optics, establishing Wi-Fi hotspot, establishing IT departments, e-libraries and many others. Digital Wallet Khalti on its blog has written ten interesting facts of Digital Karnali initiation i) Establishment of IT Department and spread of internet access ii) Mobile apps and websites for all ministries iii) CCTV Cameras and Digital Attendance iv) Digital Libraries and Computer Labs v) Establishment of data center and Tourism Information Centers vi) Digital payments in government corporation vii) Digitization of several government related works [https://ictframe.com/karnali-goes-digital-all-set-to-launch-regional-radio-and-tv-station/]

III. **Methodology**

The main objective of this research is to find out the status of the ICT in the local governing bodies and how are they implemented and their impact on the society to complete the government plan of E-Governance. We have followed multiple steps.

i) Data Collection:

It is the first step of our research; we have collected the data by various approaches which consisted of study details about the governing websites and apps. We prepared some questionnaires in local language as well as in English which was sent to IT officers as well as engineers of the related office via mail as well as calls and messages.

ii) Structure Interview:

We have conducted some structure interview with the governmental official as well as engineers related with NEA (Nepal Engineers' Association) Karnali Province which consisted the questions about the past status, improvement in the recent time, difficulties faced and the future plans that they have to implement the ICT such that the major goals of E-Governance can be achieved without much of fuss.

For this research, we have taken the survey among 59 IT engineers via the email and calls. We also monitored the websites and different labs run by the governing bodies and for this we had help from some students of **Mid-Western University, MU** (Computer Department) Surkhet, Nepal. The details of the governing bodies that were involved in the Karnali Province during this research are shown in the table below

Out of 25 municipalities 17 municipalities of each District of Karnali Province have been involved during the research except Humla District, which has not any municipality and some rural municipalities were also involved.

S.N	Name	District	Website
1	Birendranagar	Surkhet	www.birendranagarmun.gov.np/
2	Bheri Ganga	Surkhet	www.bherigangamun.gov.np/
3	Dullu	Dailekh	www.dullumun.gov.np/
4	Chamunda Bindrasaini	Dailekh	www.chamundabindrasainimun.gov.np/
5	Bheri	Jajarkot	www.bherimalikamun.gov.np/
6	Shaarada	Salyan	www.shaaradamun.gov.np/
7	Bagchaur	Salyan	www.bagchaurmun.gov.np/
8	Chandan Nath	Jumla	www.chandannathmun.gov.np
9	Raskot	Kalikot	www.raskotmun.gov.np/
10	Tilagufa	Kalikot	www.tilagufamun.gov.np/
11	Musi Kot	W. Rukum	www.musikotmunrukum.gov.np/
12	Chaurjahari	W. Rukum	www.chaurjaharimun.gov.np//
13	Aathbiskot	W. Rukum	www.aathbiskotmun.gov.np/
14	Chhayannath Rara	Mugu	www.chhayanathraramun.gov.np/
15	Thuli Bheri	Dolpa	www.thulibherimun.gov.np/

Table 1: List of Municipalities involved in research

S.N	Name	District	Website
1	Chatreshwari	Salyan	https://chhatreshworimun.gov.np/
2	Kapurkot	Salyan	https://kapurkotmun.gov.np/
3	Mugum Karmarong	Mugu	https://mugumkarmarongmun.gov.np/
4	Soru	Mugu	https://sorumun.gov.np/
5	Palata	Kalikot	https://palatamun.gov.np/
6	Chaukune	Surkhet	https://chaukunemun.gov.np/
7	Ban Phikot	Western Rukum	https://banphikotmun.gov.np/
8	Dungeshwor	Dailekh	https://dungeshwormun.gov.np/
9	She Phoksundo	Dolpa	https://shephoksundomun.gov.np/
10	Simkot	Humla	https://simkotmun.gov.np/
11	Tatopani	Jumla	https://tatopanimun.gov.np/
12	Sinja	Jumla	https://www.sinjamun.gov.np/

Table 2: List of Rural Municipalities involved in research

IV. Data Analysis and Visualization

E-Governance has been a major motto of all the local governing body as it is also the whole world is shifting to the digital world. From our survey data and the documents available, we found that all of the local governing bodies in Karnali Province have their own official website which was made with the help of central government and UNDP. Most of these websites are on working state with some information about the community, duty and services of governing bodies.

In terms of manpower, the ICT of the local governing body is led by ICT officer who most have the passed bachelor degree in Computer or Information and communication technologies or

passed Bachelor level in any of these (BIT, BIM, BBIS, BCA, BCIS, BEIT, B.Sc. CSIT, or B.ED. ICT. And is selected by the local governing through written exam followed by interview among the qualified candidates.

Some of the research results that were collected from the survey by the local government in the Karnali Province are presented below in the form of graphs and pie chart
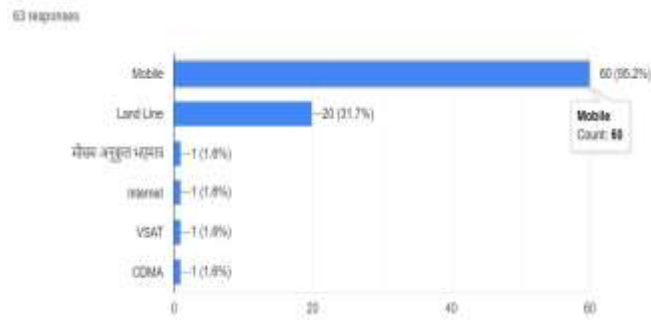

Figure 1: Medium of Communication

Almost 99% of the local governing bodies have the availability of the communication facilities which is lead by the Nepal telecommunication which provides the wired and wireless communication. Ncell is another service provider that is playing a vital role to provide the communication medium.

Most of the governing bodies have an official Landline number and some of the remote rural municipalities are connected with GSM and CDMA. CDMA is losing its scope, though it exists in some areas till date.

Apart from these Internet is also rising as a method of communication. VSAT communication is used in the upper region where the GSM and CDMA couldn't provide its service due to the geographical difficulties and weather worsens condition.
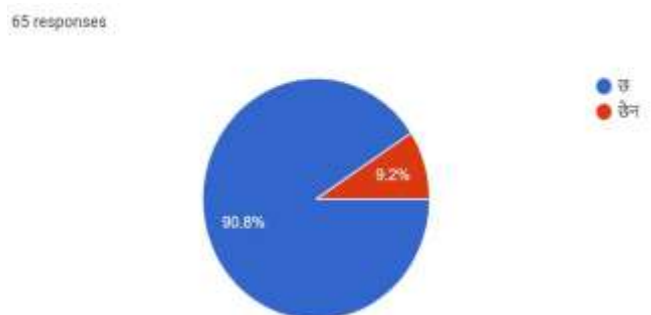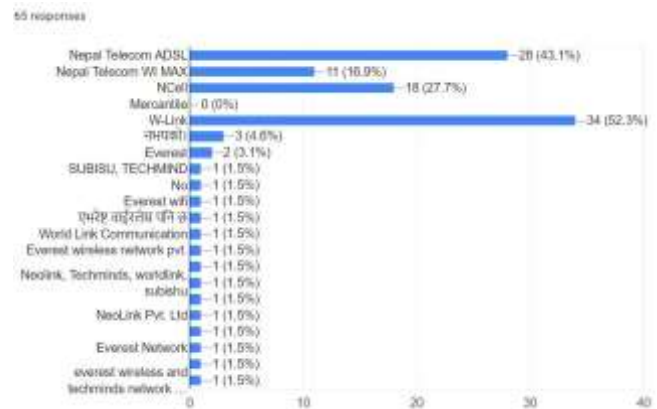

Figure 3: Availability of Internet

Figure 4: Internet Service Provider

In recent world Internet has been a prime factor in transferring the world into the digital world. The internet facility is provided to almost all local governing bodies. The municipalities have the facility of optical fiber, but the rural municipalities are depending on different other medium which are ADSL, Wireless and Satellite.

The major internet service provider in Karnali province is World link which covers 52% of the total service providers in the market. It is followed by ADSL, WI MAX and NCELL with other share a low percentage. The internet speed is varied vastly and has been improved drastically with the introduction of the optical fibers. The ADSL before the introduction of optical fibers used to have a speed of max 128kbps which has been significantly improved and have now reached an average of 1-2 Mbps on a dedicated line. The fiber service is provided by mostly Worldink and NTC but some other vendors are subisu, neolink, techmind, everest wire.

4G service is also now taking place in the available area, but most of the regions in the Karnali province don't have the access of 4G even though Nepal Telecome has said they had expanded the 4G service almost every corner of the country but in real case that is not applicable for this region.

NCELL is another service provider that also provides 4G service, but similar to the NTC it also has its 4G limited to the urban areas and most of the Karnali province falls to the rural areas so the 4G communication is good only in papers and data but
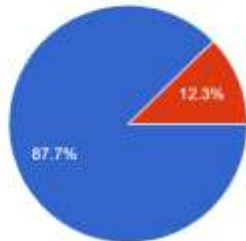
not as effective in the real world. Most of the rural municipalities are still having the service of 2G or 3G, which is largely governed by NTC followed by NCELL.

65 responses

Figure 5: Effective use of available website

The website for all municipalities and rural municipalities are designed and developed by central government with the help of UNDP. Most of these websites are operational and provide basic information about the municipalities and their services. Notices related to the concerned office are available on the respected website. Data digitization and online operations are lacking though. E-Payment isn't implemented by any of the municipalities.

65 responces

Figure 6: Tele-Center availability

A tele-center is a public place where people can access computers, the Internet, and other digital technologies that enable them to gather information, create, learn, and communicate with others while they develop essential digital skills. While each tele-center is different, their common focus is on the use of digital technologies to support community, economic, educational, and social development—reducing isolation, bridging

the digital divide, promoting health issues, creating economic opportunities, and reaching out to youth for example. [Wikipedia]

All muncipalities have a common theme to establish and run tele-centers, they are controlled by IT-Officer and is well maintained by the governing bodies. 90% of the municipalities have tele-center is somewhat operable i.e. either they are providing internet facility or e-libraries. Notices are now provided by these tele-centers and communication are made stronger.
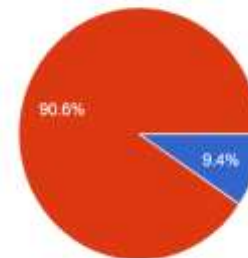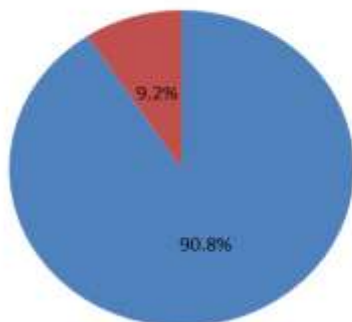
64 responses

Figure 7: Tele-Medicine availability

A tele-medicine is used to describe remote clinical services, such as diagnosis and monitoring. When rural settings, lack of transport, a lack of mobility, decreased funding, or a lack of staff restricts access to care, telehealth may bridge the gap as well as providing distance-learning; meetings, supervision, and presentations between practitioners; online information and health data management and healthcare system integration. [Wikipedia]
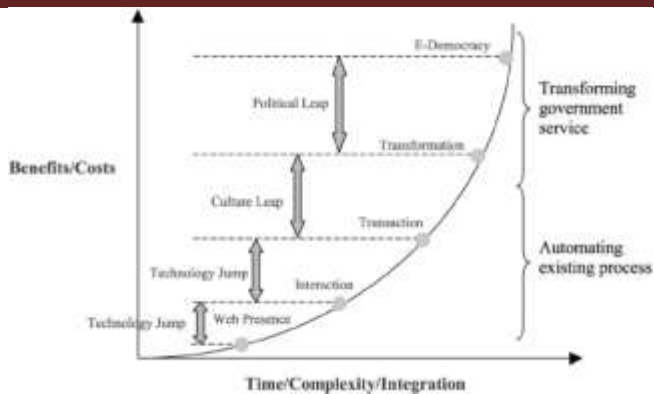
This functionality is almost lacking in every local governing bodies, some of them have tried this concept but couldn't proceed due to the various reasons. This can be a breakthrough for the medical field in the remote areas who don't have facilities of well-maintained hospital and road services to reach hospital in time. By our survey, we could see that 90.6% of the municipalities and rural municipalities don't have the base or have not started this service while the remaining also have only limited services.

Figure1: Five stage model of e-government

The five stages of e-governance includes

i) Web Presence

ii) Interaction of governing bodies and local with the help of ICT

iii) Performing Transaction using the ICT

iv) Transforming the community work and development process

v) Finally Providing the E-democracy to the citizens.

Comparing to the above figure and the survey we had a rough image that most of our local governing bodies in Karnali Province are in the first stage and only some of the municipalities have reached the second stage and are lagging far behind in terms of the e-governance implementation

1. Challenges and Policy Implementation in future

From the above general survey, we have got a generalized view that Karnali provinces, local governing bodies are moving in the right path to implement the e-governance but it is lacking a pace. The governing bodies are in the beginning phase and with the time span they took the motto of e-governance, we are far-far behind from where we could have been.

The major challenges that improvement of the ICT sectors in the implementation of E-Governance are facing in Karnali province are

1) Lack of knowledge about the ICT sectors and its effectiveness among the leaders

2) Misunderstanding the concept of E-Governance

3) The geographical difficulties are also playing a vital role to pull back the growth of the ICT sectors and E-Governance

4) Lack of skilled manpower who can handle and lead the sector.

For the future we have suggested some of the task that need to be done in recent time if we have to achieve the goals of E-Governance

The first thing that all the governing bodies need to perform is data digitization. Some of the municipalities have digitized their data, but most of data are still lagging. Data digitization not only helps to get information on the bodies but also helps to manage the information in more effective and efficient way

The digital payment and digital submission of the general task like birth certificate, death, marriage, citizenship referral must be made. This not only reduces the complexity but also help the locals to save their time and efforts. This step definitely helps in the data digitization process also

Expansion of the services like tele-center, tele-medicine, e-library, wifi-hotspots not only provide assist but also helps to increase the awareness among the locals about the importance of ICT and E-Governance

From above conclusion, it implies that this research isn't sufficient for a core conclusion and further depth research is required for better understanding of other aspects that can affect the performance of E-Governance by ICT advancement as well as test in a huge number and more depth in validity.

2. Acknowledgement

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