# 6.  Nepal

Nepal is officially known as the Federal Democratic Republic of Nepal. It is bordered by the People's Republic of China and Republic of India. The capital of the country and the largest metropolitan city in the country is Kathmandu.

Nepal is highly diverse and has a rich geography. The country has eight out of the world's top ten mountains including the Mount Everest.
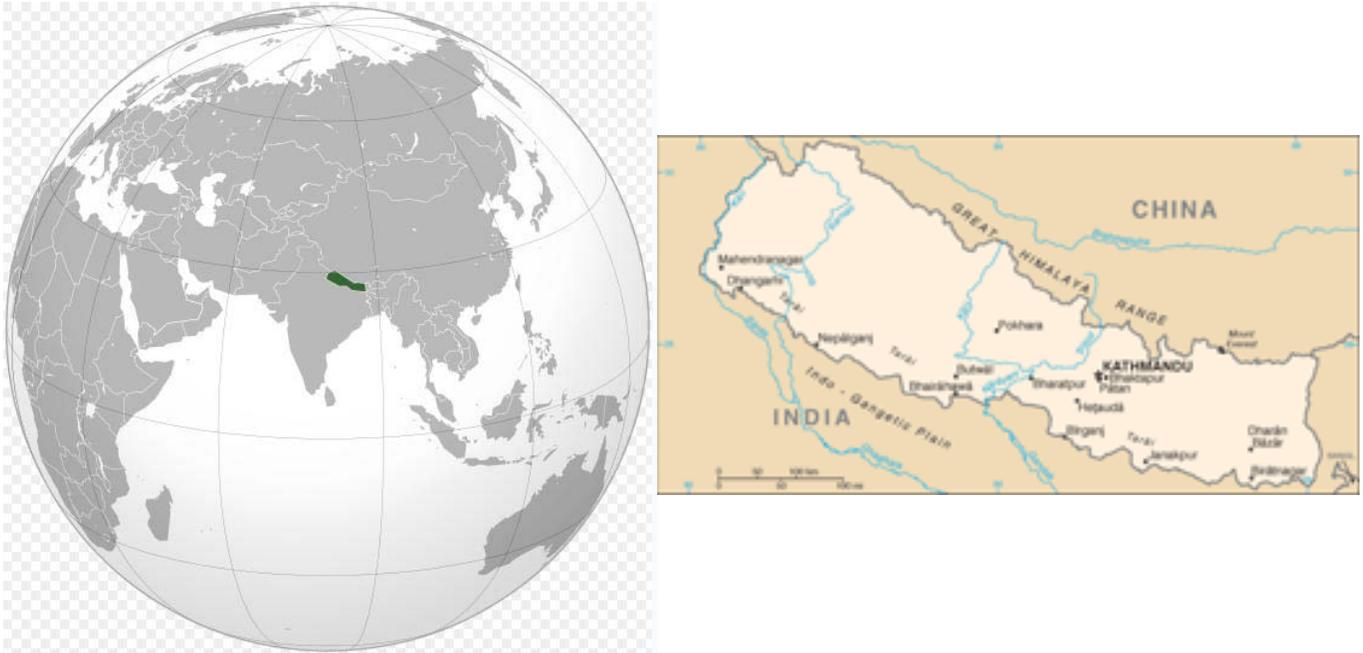


**Figure 7***:* Map of Nepal
Source: www.wikipedia.org; www.cia.gov

Agriculture accounts for around 40% of Nepal's GDP, services comprise 41%, and industry around 22%. Almost 75% of the citizens are employed in agriculture. The spectacular landscape and the diverse culture has been a driving force in the area of tourism in the country.

Some of the key demographic and economic indicators are given as follows:

**Table 17:** Key Demographic and Economic Indicators - Nepal

| Parameter | Value | Year |
|---|---|---|
| Population | 28,196,000 | 2007 |
| Gross domestic growth (million US $) | 11,815 | 2007 |
| GDP per capita (US $) | 419 | 2007 |
| Human development index ranking | 144/182 | 2009 |
| Population below poverty line | 30.90% | 2004 |

Source: http://unstats.un.org; www.cia.gov; http://hdr.undp.org

## 6.1.  Background

The MoE coordinates education activities throughout Nepal and is responsible for educational planning and management, as well as improving service delivery systems across the country. The Department of Secondary Education (which includes the department for primary education) has a goal of building a pool of human resources familiar with the national tradition, culture, and social environment in daily life; aware of scientific issues; creative, cooperative, and industrious; and able to contribute to economic development. To bridge the vast gulf of gender disparity, EFA (Education for All) has formulated policies that will try to eradicate the gender and social discrimination, will work toward the improvement of women's literacy status. Further to this, the Government of Nepal has initiated the Secondary Education Support Programme (SSRP) and the School Sector Reform Programme (SSRP).

> *SSRP document produced by MoE gives a policy level directive to consolidate grade 1-8 as primary level education and grade 9-12 as secondary level education among other government agendas to improve education system in Nepal. The SSRP document also mentions ICT in education or ICT based education, albeit briefly, but it fails to provide any direction whatsoever on what should be the plan and how the education mechanism should address the issue. Due to lack in policy level directive, sporadic efforts can be seen around the country, primarily in private schools where resources mobilization for such type of education delivery is relatively manageable but has been largely limited to providing students with "computer education" and not education delivery by integrating ICT in daily teaching learning process.*
>
> **Rabi Karmacharya, Executive Director, Open Learning Exchange, Nepal**

There are two types of schools in the country: Community Schools (depend on government grant) and Institutional Schools (organized either as a non-profit trust or as a company). A third type of schools is the schools run by the local people enthusiastic to have a school in their localities. This group does not receive regular government grants and most of them do not have any other sustainable financial source. The public and local schools lack the basic infrastructure to sustain ICT-based educational facilities. But the private institutions can boast of meaningful incorporation of computer courses in their curriculum. The education structure includes Primary, Lower Secondary, Secondary and Higher Secondary and Tertiary education. Primary schooling is for five years (grades 1-5). Lower secondary includes grades 6-8. Grades 9 and 10 are attached to secondary. Higher secondary education comprises grades 11 and 12 as extension of the school education.

The net enrollment of rate of students has reached 87.4%. The participation of girls has increased significantly during the tenth year plan. Although there has been increase in the number of students enrolled for primary education, there are nearly 12.6% of children in the relevant age group still deprived of primary education. The main constraints faced by the MoE in the development of education are the lack of basic infrastructure, supply of teachers, wide disparity between community, and private school passing rates.

Some of the key education indicators are as follows:

**Table 18:** Education Indicators - Nepal

| Education parameter | | Value | Year |
|---|---|---|---|
| **Adult literacy rate** | Male | 62.7 | 2000–2007 |
| | Female | 27.6 | 2000–2007 |
| **Youth literacy rate** | Male | 85 | 2000–2007 |
| | Female | 73 | 2000–2007 |
| **Gross enrollment ratio (%): Primary education** | Male | 129 | 2000–2007 |
| | Female | 123 | 2000–2007 |
| **Gross enrollment ratio (%): Secondary education** | Male | 46 | 2000–2007 |
| | Female | 41 | 2000–2007 |
| **Expenditure on education (% of GDP)** | | 3.4 | 2003–2006 |

Source: www.unicef.org; www.cia.gov

The vast digital and quality divide is a matter of concern for the policy-makers. In order to achieve a synchronized growth, it is important to implement ICT-based education at every stratum. The telecommunications infrastructure is good in urban areas, and because it has been installed recently, it is mostly digital. Though the use of ICTs in public administration and government is limited, its potential for driving development and economic growth has prompted the Ministry of Science and Technology to include strategies in its ICT policy of 2000 to further develop its use in the public sector.

The liberalization of the telecom sector has paced up economic growth as well as expedited improvement in the ICT services. There are currently 39 licensed ISPs, of which 32 are operating in the Kathmandu valley.

Some of the key ICT indicators are given as follows:

**Table 19:** ICT Indicators - Nepal

| ICT parameters | Value | Year |
|---|---|---|
| **Internet users (per 100)** | 1.4 | 2008 |
| **Internet subscribers (per 100)** | 0.28 | 2008 |
| **Broadband subscribers (per 100)** | 0.04 | 2008 |
| **Mobile coverage (%)** | 10 | 2007 |
| **Mobile subscribers (per 100)** | 11.6 | 2007 |
| **Personal computers (per 100)** | 0.49 | 2006–2007 |
| **Internet affordability (US $/month)** | 8 | 2007 |
| **Mobile affordability (US$/month)** | 2.1 | 2007 |
| **Radio subscribers (per 1000)** | 30.3 | |
| **Households with TV (%)** | 13.1 | |

Source: www.itu.int; www.mdgs.un.org; World Development Indicators Database; www.cia.gov

## 6.2.    Policy Framework and Delivery Mechanism

The Information Technology Policy of Nepal, 2000, aims to build a knowledge-based society. It has been framed with an objective of making ICTs accessible to the general public and to provide employment in the ICT sector. Specific strategies are framed keeping in mind the objective of establishing a knowledge-based society and keeping the education sector abreast with the newest technology. Some of the strategy articulations are as under:

- Computer education to be incorporated in the academic curriculum, restructuring the course and education structure
- Accord high priority to research, development and extension of IT with participation of private sectors
- ICT to be spread to the rural areas
- Availability and accessibility of ICT education to be enhanced

Up-skilling of a large section of the population and bringing out measures of capacity building is a prime concern for the policy-makers.

- Incentives should be provided to poor and meritorious students from rural areas to pursue higher education in IT
- Computer education for all by 2010 is the present catchword
- Public secondary schools will have computer education as an optional subject
- Computer knowledge will be made compulsory for teachers as part of pre-service and in-service training

A High Level Commission for Information Technology (HLCIT) was formed under the chairmanship of the Prime Minister of Nepal in 2003 with an objective of providing strategic direction and guidance to the policy framing bodies of the Government. This body had been responsible for analyzing the feedback and success of the implemented policies.

The government is working toward crystallizing strategies and policies that provide enough opportunities for the private sector to participate. With the healthy intervention of the private sector, there would be provision for better infrastructural facilities. The private sector investment would also help in bridging the vast digital gulf in the rural and urban areas.

Nepal is behind its regional neighbors in spending on education, IT education specially. The policy addresses this issue and also emphasizes distance learning. The set up for distance learning is created in a scientific way, keeping in mind the various pedagogical models. The coursewares are created in order to suit the delivery method of virtual classroom training. The government had been working toward inventing models specific to ICT education in collaboration with various international organizations. The media had played an important role in popularizing such initiatives. The course contents are localized for the consumption of a larger population.

## 6.3.    Initiatives

Various initiatives have been taken and formulated to successfully enable ICT in the education machinery of the country. Some of those are:

- Private sector is encouraged to produce middle-level manpower in the IT sector and also toward research and development.
- Institutions offering graduate and postgraduate courses of international standard on computer science and computer engineering will be encouraged and supported

### *Radio Sagarmatha*

This is South-Asia's first community radio. A radio-browse model, it broadcasts internet over the radio. People in villages are explained the benefits of ICT. Many website owners and people from all walks of life were interviewed and their experiences with Information Technology were broadcasted. **The School on air a project** was a major initiative targeting the children in government schools (classes IX and X) to help them prepare for their examinations. It also broadcasted specialized episodes to guide and counsel school teachers .The **Radio Teaching Program** is another educational programme. Promotional events are undertaken to create awareness among the masses about the radio teaching programs.

### *Open Learning Exchange:*

Open Learning Exchange (OLE) is a nonprofit organization, dedicated to improving the quality and access to the public education system in Nepal by developing freely accessible, open-source ICT-based educational teaching-learning materials that are available free of cost to all students in the system. The OLE Nepal's approach to OLPC is unique in that distribution of laptops is considered only one aspect of their approach, and there is equal emphasis on creating relevant local and English language content for students; training and supporting teachers to allow them to own the initiative, and providing a networked environment where schools are interconnected through an intranet and subsequently also internet. To this end OLE has undertaken different initiatives in Nepal, some of these are outlined as follows:

**OLPC Pilot:** The OLE Nepal launched a two phase pilot for the One Laptop per Child initiative in April 2008. With the completion of the second phase around 4,400 laptops are available in 26 schools in 6 districts in Nepal. By May 2010 the initiative would have expanded to 38 schools in 8 districts. The OLE Nepal implemented this initiative in the districts with the help of government officials and other partner organizations. OLE is also engaged in conducting detailed impact analysis studies comparing student achievements in OLPC schools and control schools, and it is expected that on completion of this phase the project might be scaled up across the country in a phased manner. One of the most critical aspects of OLPC initiative is Teacher's Training. When the laptops are provided to the schools, the teachers are provided with a training programme for a period of 11 days. For the first 7 days, the teachers are brought together at a residential campus and are trained on aspects of technology and pedagogy. The next 4 days, they are made to take real

classes in the schools under the guidance of the supervisor where they apply the methods learnt in the trainings.

**E-Paath and E Pustakalaya**: OLE Nepal is engaged in creating content at two levels. The E Paath consists of interactive learning modules, mapped to the topics in the curriculum as prescribed by the Curriculum Development Centre (CDC). A six member team consisting of subject matter experts from the CDC work closely with the OLE Nepal developers to create these interactive learning activities. This software, which includes multimedia elements such as text, audio, video, and animations, is then used by teachers and students to understand concepts as prescribed in the curriculum. The content contains lessons, exercises, as well as assessment tools to enable teachers to teach and evaluate students.

E- Pustakalaya is an electronic library which is a repository of reference material for the students, consisting of full text documents, images audio, video clips and software that are relevant for students. E Pustakalaya deploys a user interface that allows children to navigate, search and link different documents including reference materials, course related content, magazine and newspaper content etc. Students can download the content as well as read it online. Each of the schools in the OLPC pilot have a copy of the e Pustakalaya hosted on their servers, allowing students and teachers at the pilot schools to access the material through their school network. The repository is also accessible on the Internet to other users at http://www.pustakalaya.org.

Content creation in the E-Pustakalaya is an ongoing activity and OLE Nepal has collaborated with several national and international organizations to source materials, these include Room to Read, Rato Bangala Foundation, Madan Puraskar Library, Save the Children, World Education, E-Learning for Kids, and Azim Premji Foundation. OLE Nepal continues to work with other organizations to supplement this database.

**Network and Infrastructure Building:** The OLE Nepal aims to interconnect all schools to each other and to repositories through an intranet and eventually also provide Internet connectivity. To that end at present all schools in the OLPC pilot are connected through an intranet to each other and the OLE Nepal central server in Kathmandu. Internet connectivity is also made available wherever possible through service providers. In each school a server is provided, with copies of the E-Pustakalaya and E-Paath, and each school server in turn is connected to access points in each classroom with network cable. This allows students to wirelessly access content from the server in their classrooms. OLE Nepal also provided support to enable schools to set up this network and the wiring.

OLE Nepal is committed to strengthening the government's capacity to implement ICT-enabled learning in all schools and to make this sustainable at the school level. To that end it undertakes capacity building and training activities for all players in the system including government officials and teachers. OLE Nepal has been providing capacity building support through teacher training and Training of Trainers (ToT) packages for National Center for Education Development (NCED) and the Curriculum Development Center (CDC). In addition, an OLPC lab has been set up in the

Department of Education, which replicates the network/server infrastructure at the pilot schools, allowing the government officials to gain expertise in the operation of the network.

### ICT Project 2000

The ICT Project 2000 was initiated to bridge the digital divide by providing computer, connection and training to schools. Under this project, participating schools are provided with five to ten computers with internet access and one teacher from each school is trained on using the computer and the software installed. The school then offers free computer and IT training to its student during schools hours and is open to the community during non-school hours.

### Rural Information Centers

The government and various international organizations are collaborating in deployment of ICT for rural development through the establishment of rural telecentres. Its one of the focus area is providing useful information for pro-poor development. These telecentres would provide information on distance learning, telemedicine and agriculture information.

### Rural Information Gateway

A Rural Information Gateway for Internet users in rural Nepal is also being set up as a portal that provides information primarily in Nepali to rural users on key issues including health, education and agriculture. It would also provide mapping of existing telecentres with their profiles, along with general resources for setting up telecentres. The portal recognizes that since significant number of telecentres have shut down, a portal that provides information on best practices and different models for setting up telecentres might prove useful in reviving the concept.

### Teacher Education project

ADB funded the project aimed at assisting the government to improve the quality and efficiency in basic education through better-qualified teachers. Nine primary teacher training institutes were provided with multimedia resource centers. To complement the usual teaching training material, the study provided a laptop and digital video recorder each to mobile teams. The mobile training team provided standard teacher training and also utilized video equipment and laptops in ways that suited needs of trainees. The evaluation suggested that video learning was a good way to improve quality of teacher.

## 6.4.  Constraints

The use of ICT in development of Nepal is crucial. But there are a number of challenges that hinder the path of IT growth in the country.

**Geographical Terrain:** Given the difficult geographical terrain setting up ICT infrastructure is a considerable technical and financial challenge

**Lack of IT Professionals:** There is a lack of IT professionals and qualified teachers, who are trained in ICT-based instruction and learning.

**Budgetary Constraints:** A large portion of the population lives below poverty line. Thus, poverty alleviation becomes government's priority. There is inadequate allocation of budget in innovation and sharing of IT.

## 6.5.    Insights

Nepal has gained considerable experience in community broadcasting, enhanced by the use of ICTs. This experience may be leveraged so that convergent technologies can become the way forward in integrating ICTs at all levels.

As far as Internet connectivity is concerned, instead of proceeding with traditional ways of building line-of-sight and terrestrial systems and high-cost media infrastructure, a combination of wireless and satellite-based telecommunications with low-cost Very Small Aperture Terminal (VSAT) apparatus for downlink of data and images could be more effective in Nepal. Nepal Telecom (NT) has been expanding its ADSL service to more and more districts, and the rate charged by NT for connectivity is significantly lower than most other services for broadband connection. This has the potential to greatly improve connectivity especially in rural areas since NT already has nationwide infrastructure in place.

If Nepal is to gear towards introducing ICT-based education delivery system in its classrooms, a clear and distinct comprehensive policy will be needed on what the education mechanism intends to achieve along with timeline and milestones. various sporadic efforts by different state and non state actors to introduce different modules of ICT-based education and ICT education needs to be documented and studied to see what indigenously works best for Nepal.

## 6.6.    Select Bibliography

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- Sarah Lucas Pouzevara, Binita Parajauli: Using Video Technology for Primary School Teacher Training in Rural Nepal" www.unescobkk.org/

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**Links to Initiatives**

*Government Links*
- National Centre for Educational Development: www.nced.gov.np/
- Curriculum Development Centre: www.moescdc.gov.np/intro2.php
- Non Formal Education Centre: www.nfec.gov.np/
- National Information Technology Centre: http://nitc.gov.np/
- Nepal Telecommunications Authority: www.nta.gov.np/en/index.php
- Radio Broadcasting Development Authority: www.radionepal.org

*Non Government Organizations*
- Open Learning Exchange (OLE), Nepal: www.olenepal.org/

*Other Important Links*
- Radio Sagarmatha: www.radiosagarmatha.org/
- Nepal Wireless Networking Project: www.nepalwireless.net/
- E-Pustakalaya: www.pustakalaya.org
- Computer Association of Nepal: www.can.org.np/