




# Human Resource Development in IT

## *Case study of NEPAL*

 UNCTAD	 HMG-MOST	 Information Technology & Telecom International	<p><i>Round Table on</i> <b>Electronic Commerce &amp; Development for the Least Developed Countries (LDCs)</b> 30-31 May, 2000, Kathmandu, Nepal</p>
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# Importance of IT for Nepal

Nothing has ever influenced human civilization as Information and Communication Technology in modern times. With the rise of information and communication revolution, a paradigm shift is taking place in the course of human development. For Nepal, the ICT sector may provide an opportunity to overcome the geographical disabilities. IT might enable Nepal to achieve the goal of being a prosperous and self-reliant nation.

- \* Opportunity to overcome the geographical disabilities.
- \* Help to be self-reliant/prosperous nation.
- \* Key Asset: PEOPLE. For Nepal, Human resource is the real asset.
- \* Faster national development.
- \* Knowledge Industry

# Nepal's endeavor in developing human resource

- First computer in 1971. About 15 staffs got trained.
- Establishment of NCC (National Computer Centre) in 1980. 2nd Main Frame computer. About 25 staffs got opportunities for higher education and training in foreign countries.
- Apple PC was introduced. Training unit at NCC around 1982. Private sector followed.
- DSI, 1st foreign investment in IT, trained some of its staff in the US.
- Technical education started in early 40's. Technical courses in Electrical Engineering in mid 60's. B.E. in Electronics and Electrical Engineering was started after 25 years by IOE.
- KU (private) started Computer Engineering in '94 and IOE (govt) in 1998. Bachelor level computer education by private sector by early 90's.
- Govt trained staffs are working in higher positions and running own enterprises.

# National Scenario

## ■ HR situation

- Higher Level - ~ 1,000 Bachelor's and above
- Middle level - ~ 3,000 Intermediate + Computer Application
- Lower level - ~ 7,000 from short term courses

## ■ IT manpower produced so far

Polytechnic graduates in E&E from IOE of TU	600
BE graduates in E&E from IOE of TU	86
BE graduate in electronics from KU	24
BE graduates in CE from KU	24
National Computer Center until 1998	10,000
Private sector trained	more than 50,000
Foreign educated	All most all till date

\* Some of the figures given above may not be accurate.

# National Scenario..contd

## ■ IT education in schools

- No of students: more than 4.6 million schools in Nepal.
- Schools of 35 districts offer computer as an optional subject.
- About 8000 students appear in SLC in computer subject.
- About 200 high schools all over Nepal offer computer as an optional subject or as extra curricular subject.
- Likewise about forty 10 plus 2 schools offer computer education as an extra curricular subject.
- More than ten 10 plus 2 schools are offering computer courses as an optional subject.

# Educational scenario

Levels of Education		No. of Schools/campuses	No. of students	No. of teachers
Pre-primary		N. A.	N. A.	N. A.
Basic & Primary		23885	3587665	91878
Lower Secondary		6617	842762	22095
Secondary		3624	375076	16677
Higher Secondary		504	29021	N. A.
Tertiary Education	T. U.	216	122957	5913
	K. U.	14	2407	144 (Constituent)
	Pur. Univ.	4	71(Constituent)	16 (Constituent)
	Pok. Univ.	8	142	7 (Constituent)

# IT in higher education and expected production by 2003

Institution	Poly Tech E&E	B.E.			Other Bachelor Courses	PostGrad
		CE	Electrical	Electronics		
IOE	550	160	160	120		
KU		100		100	50 Info. Tech.	
TU affiliates		150		150	500 Com Sc.	
Pok. Univ. and it's affiliates		250		250		90 Diploma in Com Apl.
Pur. Univ. and it's affiliates					250 Com Apl	

*In addition, an estimated number of 10 plus 2 and SLC graduates who may opt for computer education are around 10,000 and 50,000 respectively.*

# National Vision

- **Human capital in digital age:**
- **Computer Education for all: *Sabai-ko lagi computer shikchya by 2020.***
- **A model agency for the digital age:** For real-time strategic planning and the implementation of various initiatives in a co-ordinated and rational way at the national level.

# Nepal's strength

- **SUPPORT:** Supportive government, Democratic Govt. IT has friends @ high places...PalaceMinistry and NPC level
- **LIBERAL POLICY and PROGRESSIVE REGULATION:** **NTA**
- **Pro-active private sector:** Growing usage in all sectors <GO, I/NGO>
- **High awareness:** Nepal is the first country for internet publication and among the leaders to introduce Internet in this part of the world.
- **High potential** for local e-commerce<over coming geographical barriers>
- **Privatized Telecom and Internet sector:** <PSTN-in process, ISP, Pager, GSM, Data services, TV, Cable TV, Radio, FM, VSAT>
- **Telecom infrastructure:** Good. 100 % digital
- **Higher bandwidth:** More to grow >10MBPs. More than 7 POPS
- **Low Internet usage cost:** More that 10 ISPs, Internet usage charge has gone down drastically ...less than USD 30 per month

# Nepal's strength.....contd

- **VSAT** @ private sector's premises, Private VSAT service providers
- **Plenty of raw manpower:** Should be trained in short time
- **IT education:** IT educational institutions on the rise <4 Univs>. IT trainings by MNCs and local institutions
- **IT Platform:** Wide range of IT technology platforms in Nepal
- **EXPORT:** More than five software/digitization companies with foreign investment/market
- **FIs:** Many Foreign banks, FIs, MNCs, INGOs, Insurance companies
- **Low labor cost:** <Engr gets less USD 100/month>. Neighbouring countries are getting expensive.
- **IPR:** Software is recognized
- Growth of English speaking professionals

# Nepal's weaknesses

- **National ICT policy** : In formulation process
- **IT HRD Training**: Not recognized as **SERVICE INDUSTRY**
- **Academic and non-academic IT**: Growing in demand, Most sought studies. SLC case. Lack of teachers.
- **Development of IT industry**: Spreading locally and looking for international markets.
- **Computer literacy program**: Not compulsory till now.
- **Brain Drain** : Reversing the brain drain is the most important issue. May be countered by producing large pool of IT professionals.
- **Financial constraints**: Tax, Venture capital, soft loans.
- **Lack of one Window Policy**:
- **IT Park**: Yet to take off
- **Quality Control** : Though quality, curricula and effectiveness of their programs are in a questionable form, Asian standard are being met through MNCs.
- **High Telecom usage charge**: No toll free lines

# Recommendations

## Organizational Structure:

- ▶ **NICTB**: A high level national board, “National Information and Communication Technology Board” (NICTB), be established under the Chairmanship of the Prime Minister for overall guidance and directives in ICT HRD.
- ▶ **NACIT**: An autonomous body, “National Centre for Information Technology” (NACIT), be established for all round development of human resource in ICT. This organization be developed as a focal point and think tank in ICT.
- ▶ **MOST**: Ministry of Science and Technology be designated to play a role of a liaison office between the high level body (NICTB) and NACIT.

# Policy and Planning

- ▶ National policies for the development of human resources in ICT be formulated in tune with the aims and objectives.
- ▶ Appropriate strategies and implementation plans be developed for the realization of policies in ICT.

# Financial:

- ▶ **Conducive atmosphere:** Entrepreneurs should be offered special financial packages to set up IT educational facilities. A conducive atmosphere be created to attract national as well as foreign investment in ICT.
- ▶ **EDU-CASH:** Banks and Financial Institutions should be instructed to float special bonds “Edu-cash” (Vidhya Dhan) to raise capital for investment in IT education and training. This fund should be made available to IT HRD institutions as well as to students opting for IT education on low interest rates.
- ▶ **FDI:** Foreign Direct Investment (FDI) brings efficient technology and management into the economy. To attract investment in the country “soft” infrastructure like educational system will be made appropriate.
- ▶ Provision for soft loans from banks and other financial institutions be made for education institutions or students opting for IT education.

# Financial.....contd

- ▶ **TAX EXEMPTION:** There should be tax exempt for IT HRD institutions and companies for at least for five years.
- ▶ **NO CEILING ON INVESTMENT:** There should be no ceiling on investment for IT HRD institutions and companies. Multinational IT HRD companies should be given freedom to open similar companies in Nepal on the condition that they reinvest upto 25% of the revenue in Nepal.
- ▶ **TARGET USD1 BILLION:** A large pool of manpower, 200,000, should be produced to export software worth US\$ 1 billion, manpower requirement for national and international IT sector with in 15 years. For this government should provide support to companies in this sector.
- ▶ A provision should be made so that no tax is levied on donated computers and accessories to local academic institutions by national and international bodies and individuals.
- ▶ Problem of brain-drain be reversed by incentive packages and by producing big pool of professionals.

# Curricula

- ▶ **HRD Curricula:** Curricula for schools, private training institutes and university level education on human resource development in IT be designed, standardized and implemented.
- ▶ **Virtual School:** Curricula for non-formal education on ICT to be provided via virtual system of education be prepared, standardized and executed.
- ▶ **SKILL:** Skill oriented curricula to be introduced as diversification from the mainstream of IT education from different levels such as SLC, (10+2) and bachelor's program be designed for diploma courses.
- ▶ **Higher Education:** Master's and Ph. D. level computer education be started within the next 5 years.
- ▶ Educational packages of ICT be tied up with national development activities.

# Universalization of IT literacy

- ▶ **COMPUTER EDUCATION FOR ALL:** Computer education be provided to all students, teachers, administrators and stakeholders under the scheme “Computer for all” by the year 2020.
- ▶ **Centre of Excellence:** Selected schools and campuses be developed as Centre of Excellence in ICT and be given the role of model IT centres for regional development.
- ▶ **IT Distance Education:** Distance education program in ICT be launched through Intranet and Internet within 2005.
- ▶ **Compulsory Computer Education:** Computer education be made compulsory in schools and (10+2) programs by 2020.

## Universalization of IT literacy....contd

- ▶ **EDU-NET**: A national educational network “Rastriya Vidhya Merudanda” should be instituted based on modern communication technology by which activities of all the HRD institutions are integrated.
- ▶ **EDU-POOL**: The center node of the network should be an educational information pool “Edu-Pool” (Vidhya Srot Kendra). This should be able to provide all sorts of information related to IT education.
- ▶ Interested sectors of the country should be allowed to invest in this network at the district and regional levels with special financial packages.

## Quality Control



- ▶ **Uniformity in the training programs:** Immediate measures be taken for maintaining uniformity in the training programs of ICT imparted by various entrepreneurs.
- ▶ Strict measures be taken for quality control.

## Linkages

- ▶ **Links:** Linkages be established with concerned institutions or organizations for exchange of knowledge and skills on ICT at the national, regional and international levels.

## Role of IT organizations:

- ▶ **Professional bodies:** Professional bodies such as CAN, NEA, SECEN, NIUG, etc should be invited by HMG and NICTB to play an active role in collaboration with industry in the process of evolving professional ethics and standards in IT HRD.
- ▶ **Employers' organizations:** Employers' organizations like FNCCI, HAN, TAAN, NATA etc should also be involved in maintaining quality of the output of HRD institutions.
- ▶ Local IT HRD organizations should be encouraged to start basic research in fulfilling the national target.
- ▶ All IT companies in the country should be encouraged to set aside 5% of their value-added revenue to support IT education in the form of scholarships and research grants.
- ▶ His Majesty's Government in collaboration with IT HRD institutions should aim to achieve cent percent IT literacy within defined time frame.

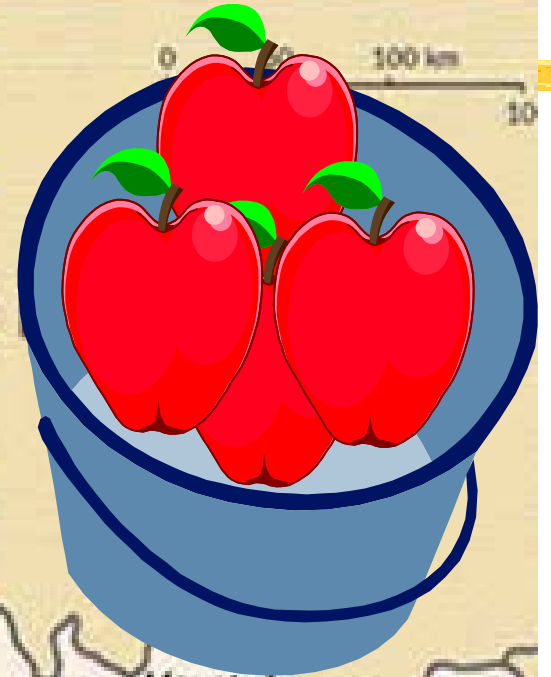
## Testing and Certification

- ▶ A system of testing and certification be developed and enforced.

## Miscellaneous

- ▶ Greater input of science and mathematics be given in schools.
- ▶ **Priority of IT by all:** Information Technology, except telecommunication, is still not in the priority of development organizations and donor agencies. IT in rural sector should be given a priority.
- ▶ **Support Gender:** Banks and financial institutions may be expected to support enterprising and professional women with financial packages to set up IT-led economic activities. SOHO and Telecommuting should be encouraged for women.
- ▶ A special educational program package should be introduced to increase the participation of women in IT HRD sector. A fixed percentage of quota should be set aside for women who want to take up IT studies.

Now the basket is ready to bear fruits.....



IT

The information technology

Placing Nepal in global IT map.....

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Thank you

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