

Knowledge Networking for the Unreached

Author : Dr. Hakikur Rahman, Bangladesh

Abstract

Despite global apprehensions and interventions to reduce digital divide, gap of technology is broadening at the periphery. Electronic divide is widening between developed and developing countries; between reached and unreached in even developing countries. About 218 million of world population uses English (45%) as their medium of communication, while 266 million uses other languages (55%). But, the first cluster is representing a community of English spoken countries of about 500 million (44%) and the other cluster is representing the rest of the global population of nearly 5600 million (5%) (Global Reach 2001).

During the last years Internet subscriber has been increased by manifolds in the United States, Europe and Asia. Though in recent years Asia has been emerged as a potential Internet market, but, real implication at the remote end has not been seen any significant achievement.

In the context of the Sub-continent, Bangladesh, India, Sri Lanka, Pakistan, and specially Nepal has achieved success in IT initiatives and drawn an increasingly number of Internet subscribers in recent years.

It has been estimated that by the end of 2001, there will be 1 billion Internet users, but statistics reveals that, the users are comprised of predominantly male (61%), affluent (with annual household income of around 6000USD), median age (age group of around 38), better educated (64% are graduates) and skilled personnel (manager, educator, professionals) (eStats 97).

These figures would not have been improved much if the typical Internet user's profile can be obtained in 2001. However, it is a motivating fact that majority of Internet users use the media for gathering news/information, email and research purposes. Internet usage for ecommerce has been found as the lowest in the demand.

To reduce the digital divide integrated approach is needed to establish tele-centres at the grass root level. A few programmes as pilot projects have been working in this aspect, but national drive is needed to put potential thrust for mass information generation and dissemination at the remote end for establishing knowledge networks. The paper has been focusing on different ICT initiatives to apprehend activists in this part of the world to participate and formulate policy issues, including performance of diversified tasks to extend knowledge networking among the Internet unreached.

Background

Though in very recent weeks global dot com market is in a downtrend, but initiatives and interactions between international leaders acting for extending their support for ICT development and ICT communities of developing countries still remains the distribution of "have's" and "have not's".

Numerous factors influence the extent and speed of social and economic development- not least political stability, physical infrastructure, basic literacy and basic health care. There is no suggestion that ICT can eliminate the need for these or offer a panacea for all development problems. But detailed analysis of experience around the world reveals ample evidence that, used in the right way and for the right purposes, ICT can have a dramatic impact on achieving specific social and economic development goals as well as play a key role in broader national development strategies. The real benefits lie not in the provision of technology per se, but rather in its application to create powerful social and economic networks by dramatically improving communication and the exchange of information (DOI2001).

According to a Washington, DC based research group TeleGeography, Inc., international Internet bandwidth grew 174% between 2000 and 2001. However, the overall rate of growth has slowed from last year, when cross-border Internet links increased by 382% (TeleGeography 2001). To apprehend about current oversight, Internet bandwidth by region and Internet users by region are depicted in Tables 1 and 2.

Table-1: International Bandwidth and its growth

International Internet Bandwidth by Region, 2000 -2001			
Region	2000 (Mbps)	2001 (Mbps)	% Growth
Africa	649.2	1,230.8	89.6%
Asia	22,965.1	52,661.9	129.3%
Europe	232,316.7	675,637.3	109.8%
Latin America	2,785.2	16,132.5	479.2%
USA and Canada	112,222.0	274,184.9	144.3%

Source: Telegeography, Inc. 2001

Table-2: Internet Users by Region

Region	Internet User (in million)
Africa	4.15
Asia/Pacific	143.99
Europe	154.63
Middle East	4.65
Canada and USA	180.68
Latin America	25.33
World Total	513.41

Source: Nua Internet Surveys, April 2001

It is expected that the G8 will play a key role in the development of ICT for downtrodden regions. The potentiality of DOI partners need a laudable apprehensions for their activities. Among the three partners, Accenture, is a US\$10 billion global management and technology consulting organization whose mission is to bring innovations for improvement of the methodologies through which the world works and lives. The Markle Foundation, the other one who works to realize the potentiality of emerging communications media and information technology to improve people's lives and does so through its own programs of grants, investments, research and public education. UNDP being the third partner, is committed to the principle that development is inseparable from the quest for peace and human security and supports technology transfer, adaptation and access to the most effective technology.

UNDP's mission is to assist countries in their efforts to achieve sustainable human development by helping them to build their capacity in designing and implementing programs in poverty eradication, democratic governance, employment creation, the empowerment of women, and the protection and regeneration of the environment giving first priority to poverty alleviation.

Global ICT Initiatives

Knowledge and information have become significant production factors in their own right. Indeed, they are a global public good. They affect the international division of labor, bring about new patterns of economic engagement and interaction (such as electronic commerce), determine the competitiveness of economies and corporations, generate new growth patterns and spawn hitherto unknown products, jobs and livelihood. Unless the developing world succeeds in jumping on the knowledge economy train, further marginalisation looms and the gap between North and South is bound to deepen further (d'Orville, 2000).

Knowledge networking has become a fundamental demand of the developing society. To make the readers aware of the global initiatives in the field of ICT development, the following table (Table-3) is trying to portrair the major ICT initiatives taken by renowned institutes.

Table-3: Global ICT Initiatives

Organization	Website	Program/Activity
European Commission (EU)	www.europa.eu.int/comm/index_en.htm	The activities of EU in the field of information technology are executed through the Information Society Activity Centre (ISAC)
Inter-American Development Bank (IADB)	www.iadb.org	The Information Technology for Development Unit is part of the IADB providing technical advice and technical guidance to borrowing client governments and private entities in the area of information technology
International Telecommunication Union (ITU)	www.itu.int	The Telecommunication Development Bureau of ITU encourages and enables ITU member states, especially emerging markets, to draw maximum benefit from technical, financial, and regulatory changes in the telecoms environment
United Nations Development Program (UNDP)	www.undp.org	The Sustainable Development Networking Program is part of the UNDP's effort to address the issue of the increasing "information gap" between industrialized countries and developing countries
UNV and ICT for Human Development	www.unv.org	The United Nations Volunteers programme is a multisectoral development organization, administered by UNDP and one of the strategic and growing areas for UNV is the application of ICT for human development
Canadian International Development Agency (CIDA)	www.acdi-cida.gc.ca	CIDA's assistance has concentrated on helping developing countries build up their human resources and restructure their institutions to assist them achieve effective, efficient and equitable access to information technology and its applications
International Development Research Centre (IDRC)	www.idrc.ca	In the realm of information technology, IDRC is dedicated to reduce the information gap, and supports research on applications of ICTs in problem solving, decision making, and knowledge access; networking and the use of ICTs to meet the needs of local communities and to promote equity in development.
Institute de Recherche et de Development (IRD)	www.ird.fr	IRD is a French research and development organization focusing on sciences and technologies
International Institute for Communication and Development (IICD)	www.iicd.org	IICD assists developing countries to utilize the opportunities offered by ICTs to realize sustainable development
US Agency for International Development (USAID)	www.usaid.org	USAID has dedicated itself to empowering developing countries with the knowledge and technology to not only survive but also to thrive in the global networked economy
Association of Progressive Communications (APC)	www.apc.org	APC has been offering a wide range of services in software and hardware support, enabling thousands of activists and organizations to access the Internet, collaborate online and set up a web presence
Commonwealth of Learning (COL)	www.col.org	COL is an intergovernmental organization created by Commonwealth Heads of Government to encourage the development and sharing of open learning/ distance education, knowledge networking, resource management and technologies.
Digital Dividend Project Clearinghouse	wriws1.digitaldividend.org	The World Resources Institute's project Clearinghouse is a new online platform for networking and solution-sharing among digitally-enabled development projects worldwide.

Organization	Website	Program/Activity
International Institute of Communication (IIC)	www.iicom.org	IIC explores leading edge issues on the challenge of new communication technologies and their commercial cultural and political impacts among policy makers, regulators, academics, content providers, technologists and industrialists.
Global Information Infrastructure Commission (GIIC)	www.giic.org	It is a project under the Center for Strategic and International Studies and works toward promoting involvement of developing countries in the building and utilization of open information infrastructure
Netaid	www.netaid.org	Utilizes the unique networking capabilities of the Internet to promote development and alleviate extreme poverty across the world.
OneWorld	www.oneworld.org	A global gateway for development issues.
Satellite and HealthNet	www.satellite.org	An international non-profit organization uses satellite, telephone, and Internet technology to serve the communication and information needs of the health sector of developing countries.

Many other development agencies like, UK's Department of International Development (DFID), Japan's International Corporation Agency (JICA), Swedish International Development Corporation Agency (SIDA) are also involved in supporting networking initiatives in developing countries. It is expected that respective organizations from this part of the world would be able to engage themselves participating in different programmes of the above mentioned organizations.

Regional ICT Initiatives

In contrast to global initiatives, there are regional activities in this thrust sector worth mentioning. Table-4 is describing a few of them.

Table-4: Regional ICT Activities

Organization	Website	Program/Activity
Asia Pacific Networking Group (APNG)	www.apng.org	An Internet organization dedicated to the advancement of networking infrastructure in Asia Pacific region, and to the research and development of all associated enabling technologies.
PanAsia	www.panasia.org.sg	Initiative of IDRC Canada and assists in ICT projects in developing countries
APDIP	www.apdip.net	Asia Pacific Development Information Programme, a UNDP programme for Asia Pacific Region on development of ICT
APRICOT	www.apricot.net	Asia Pacific Regional INTERNET Conference on Operational Technologies is a not-for-profit event focusing network deployment, planning tools, techniques and sharing of experiences within this region
ARIN	www.arin.net	American Registry for Internet Numbers, a non-profit organization established for the purpose of administration and registration of Internet Protocol and assists in IP related affairs in this region
APIA	www.apia.org	Established in 1997, Asia Pacific Internet Association is a trade association aims to promote business interests of the Internet-related service industry in the Asia Pacific region
APTLD	www.aptd.org	Asia-Pacific Top Level Domain Forum deals with technical details on TLDs of Asia Pacific region
APAN	www.apan.org	Asia Pacific Advanced Network established in 1997 for research development in advanced networking applications and services in Asia Pacific region

Organization	Website	Program/Activity
APPLe	www.apng.org/apple	Asia Pacific Policy and Legal Forum is acting to promote and facilitate exchange of information and consultations between the Internet industry, governments and regional/ international organizations
APNIC	www.apnic.net	Asia Pacific Network Information Centre, addressing the challenge of responsible Internet resource distribution in the Asia Pacific Region

SAARC Context

In the SAARC region there are two similar initiatives, which are note worthy.

Table-5: SAARC ICT Initiatives

SAARC	www.saarc-sec.org	Established in 1985 by the Heads of State or Government of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. South Asian Association of Regional Cooperation provides a platform for the peoples of South Asia to work together in a spirit of friendship, trust and understanding
RPO	www.rainbowsaarc.org	Rainbow Partnership Organizations in the SAARC countries is responsible for funding and extending the needed support to governments, NGOs, institutions and individuals working on IT related projects to promote education and development

To give a general overview of Internet usage and related information in SAARC countries, the following table (Table-6) has been compiled from ITU report.

Table-6: Internet Usage and PC Density in SAARC countries

Country	Total Hosts in 2000	Hosts per 10,000 inhabitants in 2000	Users in ,000 (2000)	Users per 10,000 inhabitants (2000)	Estimated PCs in ,000 (2000)	Estimated PCs per 100 inhabitants (2000)
Bangladesh	3,500	0.25	50 (1999)	3.94	130 (1999)	0.10
Bhutan	794	11.75	0.5 (1999)	7.61	3 (1999)	0.46
India	35,810	0.35	5,000	49.39	4,600	0.45
Maldives	265	9.85	6.0	223.04	5 (1999)	1.89
Nepal	1,101	0.48	50.0	21.70	60 (1999)	0.27
Pakistan	6,467	0.46	133.9	9.48	580 (1999)	0.43
Sri Lanka	2,155	1.14	121.5	64.21	105 (1999)	0.56

Source: ITU (Internet host data: Internet Software Consortium, RII), 2000

Increased interactions and extended activities among governments, organizations and even community level participation can establish creative tools for development in this region.

Other socio-economic consensus to raise knowledge networking

Agenda 21: Agenda 21 is a statement of willingness by developing countries to interlink between economic growth, social equity and environmental protection for sustainable development. 178 countries adopted Agenda 21 at the United Nations Conference on Environment and Development (UNCED) held in June 1992. The Commission on Sustainable Development (CSD) was created in December 1992 to ensure effective follow-up to the UNCED meeting. In 1997, a 5-year review of Earth Summit (Rio+5) took place and a 10-year review is in progress, to be held in 2002, known as the World Summit on Sustainable Development.

Country Gateways: World Bank initiative infoDev has been acting in development of ICT and other activities varied and evolving towards development. Each is designed to provide a sense of the Country's culture, economic status, type of government and especially adaptation of information technologies for development objectives.

Capacity 21: Launched at the 1992 UNCED (United Nations Conference on Environment and Development) works with developing countries and countries in transition to find the best ways to achieve sustainable development.

Many other similar initiatives will be able to lead the intended stakeholders towards the global ICT super corridor by forming community based knowledge network.

Future collaborations

Three key recommendations are here worth quoting cited from GKD e-discussion held in November 2000 with more than 2000 members from more than 100 countries.

Knowledge networks

- should provide information that help people gain access to cost-saving and income-generating opportunities (direct communication channels between financial institutes; information about technologies which reduce costs; and market information)
- should provide an integrated database with information on donor programmes, performance and trends, aid effectiveness, project cost and outcome data
- offer global public goods (ranging from means to reduce environmental pollution, to manage global capital flows and to ensure effective peacekeeping)

The number of Internet users in India is likely to double to 7.9 million by the end of the year, making it the fastest growing market in Asia. A US-based research firm, Gartner Inc., said that India had four million Internet users at the end of 2000, more than triple the total a year earlier. Gartner said cyber kiosks were the top Internet access channel in India, providing affordability and availability (IndiaExpress Bureau 2001).

Conclusions

Through effective approaches ICT interventions can be made available to the grass root level of the communities in this region, which ultimately would bring better governance through propagation of information at ease with improved access to the stakeholders.

A very crude collection of information on Internet usage is available through personal contacts and included here to showing promising future for Internet penetration in SAARC region (Recent data from Bhutan and India were not available through this personal contact until writing of the paper).

Table-7: A recent picture of Internet in following countries

Country	No. of ISPs	Maximum Bandwidth	Internet Account Holder	Internet User	Total bandwidth
Bangladesh	65	4 Mbps	100,000	500,000	
Maldives	1		4,000	6,000	3 Mbps
Nepal	15	4 Mbps	25,000	50,000	
Pakistan	80	12 Mbps	6,000,000	3.2 million	
Sri Lanka	29	3 Mbps	53,000		168 Mbps

References

DOI2001, Creating a Development Dynamic, Final Report of the Digital Opportunity Initiative, Accenture, Markle Foundation and UNDP, 2001.

d'Orville, H., 2000, "Knowledge and Information- New Levers for Development and Prosperity in the World Economy of the Future", UNDP, March 23, 2000.

eStats 97, <http://www.emergeinc.com>, April 1998

Global Reach 2001, <http://www.glreach.com>, June 30, 2001

IndiaExpress Bureau 2001, <http://www.indiaexpress.com>, October 28, 2001

Nua Internet Survey 2001, <http://www.nua.ie>, October 4, 2001

TeleGeography 2001, <http://www.telegeography.com>, October 2, 2001

Biography

Engr. Md. Hakikur Rahman, PhD. has been working as the Project Coordinator of the Sustainable Development Networking Programme (SDNP) of Bangladesh, an UNDP global initiative in Bangladesh. Before joining the project he has been working as the Director, Computer Division, Bangladesh Open University. Written several books on computer education, especially for informal and distance education. He is the Founder-Chairperson of Internet Society Bangladesh Chapter, Editor of the Monthly Computer Bichitra, Principal of ICMS Computer College and involved in activities related to establishment of an IT based distance education university in Bangladesh.