Bridging the Digital Divide:
libraries in developing countries

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Abstract

In this paper it discusses briefly on the situation of digital divide in general with special reference to libraries in the developing countries. It continues to describe how a situation called digital divide came into existence and became a global phenomenon and outlines the possible reasons for emergence of such a situation. It discusses on various issues those emerging along the entire spectrum of digital divide. To delineate various aspects of bridging the digital divide, the author uses the experience, information and data that was gathered during her recent educational visit to various institutes in India and uses the contexts in Sri Lanka and India as examples to explain how bridging of the digital divide could be dealt with in libraries in the developing countries. Special reference is being made on the role of library networks in bridging the divide with examples.

1. Introduction

Today we are living in the age of information. The information is a dynamic and unending resource that affects all disciplines and all aspects of life. It also supports education, research and development. The traditional societies are fast realizing the importance of knowledge in day-to-day life, thus converting into knowledge- driven societies. The Information Communication Technology (ICT) is bringing revolutionary changes across all sectors of society. By revolutionary change, it is meant that the total transformation, the adoption of new paradigms and the introduction of innovations that were never thought possible. In the ICT dominated era, people throughout the world are flooded with various kinds of information available through multiple sources such as TV, cinema, radio, telephone, E.mail, in addition to books, journals, newspapers, electronic media and Internet etc. This being a global phenomenon, the world today could be divided between

the information-rich and information-poor countries with regard to their capabilities in acquiring , controlling and utilizing information for nation's development and growth. As a result, people, societies, industries and countries those have easy access to knowledge become privileged and advanced where as those with poor access to knowledge remain backward. This situation gives rise to the Digital Divide among the nations, societies, institutions and individuals.

Existence of digital divide is now well recognized in almost every part of the world. The present concern is not that it exists but that the divide, instead of getting bridged seems to be widening. It is certainly so in the developing world. Non-availability of telecommunication facilities initiated this divide and the countries in the developing world, mostly in Asia are still in the process of improving tele-density and bridging the divide.

2. Some definitions of Digital Divide

Digital Resources - The resources of information which are available in the form of digital and electronic format are known as digital resources. The knowledge that becomes a dynamic resource is easier for global sharing than in any other form. Information and communication technologies allow access to more digital resources, faster and more cheaply across geographical and time boundaries.

Digital Divide – Access to digital information is not equally distributed among the nations, institutions and individuals. Motivation or ability to use ICT for their own social and economic benefit is varied. ICT is gaining importance and becoming a gateway to employment, markets, healthcare, education and other government and private services and a prerequisite for economic development.

Digital Divide is a term increasingly used to describe the social implications of unequal access of some sectors of the community to Information and Communications Technology and to the acquisition of necessary skills. In other words it refers to the gap between the 'haves' and 'have nots' in the information society.

The phrase seems to have its origins in the United State of America and according to what has been reported, Andy Grove one of the creators of digital divide networks has coined the term and the former US President Bill Clinton has first used the term in the discussions of the National Information Infrastructure in 1993[1]. Further the digital divide has been vividly described by several phrases like "Classic Apartheid" and "Technological Segregation" and "Digital Aparthied"etc.[2]

The Organization for Economic Cooperation and Development (OECD[3]) defines the digital divide as "the gap between individuals, institutions, households, business and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities".

The digital Divide being a global phenomenon, the situation could be generalized as 'societies that have less access to ICT and knowledge are less privileged and the

societies that have easy access to knowledge become privileged and advanced'. Among the societies, individuals with poor access to knowledge remain backward. Similarly, within countries, regions, either remote or tribal in population remain backward owing to lack of knowledge.

According to Jupiter Communications[4], the global pattern of the digital divide is shown in the following table.

International Digital Divide

Individuals with PC Internet Access*	
North America	41 %
Western Europe	19 %
Eastern Europe	3 %
Latin America	3 %
Asia/Pacific	2 %
Middle East	1 %
Africa	0 %
Worldwide	5 %

*not including wireless access
Source: Jupiter Communications

3. Reasons for Digital Divide: some observations

It is significant that the Divide exists among the rich developed countries and the developing and under developed countries. In a developing country, there exists a digital divide between the different sections of the society and even among the academic community working at different institutions.

There are several factors that have been identified as reasons for the Digital Divide in developing countries:

Lack of literacy and knowledge in IT
Poor economic conditions
Lack of access to necessary and sufficient information
Language barriers
Lack of skilled personnel
Political instability

Although it is observed that these factors are common to all developing countries, the extent of each barrier could vary from country to country. For the purpose of the article,

situations in Sri Lanka, India and Bangladesh are considered to be examples and are summarized as follows:

In Sri Lanka computer literacy of the general public is very poor. Younger generation is fast in grasping the technology than even educated elders. Availability of computers in the state sector and house-hold level is much less than the private sector. As such providing internet facility even through telephone line is rather remote in the state sector. Due to scarcity of funds, establishing necessary infrastructure facilities and thus obtaining network connectivity has been a difficult task especially in the government departments. The situation in the private sector is somewhat developed and it is noted that use of computers and internet facilities in routine procedures is common in private enterprises. Another factor is that 80% of Internet content and software are available in English though the literacy in the English language is limited to a small group of the entire population in Sri Lanka.

In India, despite its potential to emerge as software and IT power-house, nearly a quarter of a million villages lack even a single telephone. Almost 70% of one billion population of India live in villages[5]. Nearly 40% of Indians are illiterates and 30% live below the poverty line (family of five members who live with less than In.Rs.50.00/day) who do not have basic facilities like electricity. Only a meager 3.63 % of the total population, have access to telephone and less than 1% have a PC [1]. At present, Internet as a major source of digital information is accessed by 0.37% of users in India, most of whom are from professional/corporate sector, universities and schools/colleges in urban areas which includes major cities of India. In these areas both government and private sector departments are equipped with IT and skilled personnel to handle the technology. Therefore the communities in these cities are at a more advanced situation in their lifestyle when compared to villages.

In Bangladesh the main reason for digital divide is the poor telecommunication infrastructure. The economical factor is one of the vital issues for computer use and Internet connectivity. Only 5 persons out of 1000 have access to fixed phones which is the cheapest media to access Internet[6].Usually wealthy and educated as well as young population and urban people have access to Internet. In addition, due to the literacy problem and the language barrier, Bangladesh is facing an acute crisis of skilled computer users. Especially the local female community of Bangladesh has limited web-access due to social and political environment and family obligations. On the other hand as Bangladesh is approaching slowly the digital era, the demand for human resource development is enormously increasing both for users and professionals.

3.1 Digital Divide in the context of Libraries

In the context of library and information scene it differentiates those libraries which are automated and have online global access for journals and other databases and those which are not developed to that level. The reason may be due to demographic variables of individuals and prosperity of the institutions and geographical location of the place in the country in addition to the most significant reason the lack of finances.

Even with given limited funds the use of IT in information management in developing countries is gradually increasing. The challenges for library and library professionals continue to grow at a pace, sometimes beyond one's capabilities.

The extent of Digital Divide in libraries depends basically on the nature of the libraries concerned. Especially in developing countries a tremendous gap with regard to the availability and use of ICT facilities is seen between academic and research libraries and the libraries in other sectors.

For example in the Sri Lankan context where University libraries are in the process of computerization and networking while the government and rural public libraries in that respect are in a very primitive stage. There are total of 6443[7] established libraries in Sri Lanka, which includes 15 university, 790 public, 4831 school,640 pirivena,66 training and technical colleges,34 departmental and 67 special libraries. Out of these, the libraries in different universities are at different levels in terms of their infrastructure facilities for IT and skilled personnel to handle the ICT.

India, being a Nation strives hard to develop facilities for ICT on a national basis and is equipped with skilled personnel has a situation much better when compared to Sri Lanka. When network infrastructure is concerned, India does have a good network infrastructure in place for academic libraries. In India, there are a total of 71,069 established libraries[8], out of which 8,267 are considered as Academic Libraries (223 universities,37 deemed to be universities, 07 open universities and 8,000 college libraries).Even within these libraries the gap exists between technology 'haves' and 'have-nots'; technology 'knows' and technology 'not-knows'.

The existence of such divide is inevitable due to different levels of availability of infrastructure facilities and competent staff. Academic libraries in developing countries face the following common problems as reasons for Digital Divide:

>Financial problems – sufficient funds are not available
>Human resource development - lack of skilled and required manpower
>International Conferences – less opportunities to attend to such forums for improving knowledge and skills.
>Software – inability to acquire qualitative housekeeping software.
>Technical problems – lack of user forums for discussions and to solve technical problems.
>Information resources–unavailability of adequate resources in digital and other forms including E- journals and E-books etc.

The challenges for libraries with respect to digital divide is to proactively participate in bridging the digital divide paradigm and justify the role of libraries in the information society. Libraries have already been organized and structured to address some of the digital divide problems and issues.

4. Bridging the Digital Divide

Admitting that the problem really is lack of infrastructure, education and literacy, the authorities or the governors should find solutions to curtail the issues concerned and move towards the future. Naturally the questions that could be arisen are: how to bring technology to the masses? How could the networks be in place? Solutions are the attempts to address the issues those emerging along the entire spectrum of digital divide.

4.1 Digital Divide Spectrum

The divide in the information community has been summed up by M.Rao[9] eight Cs :

Connectivity, Commerce, Capacity, Cooperation, Capital, Culture, Community and Content.

Connectivity : One of the major causes that creates digital divide is the poor connectivity. The lack of affordable access to PCs, Internet connections, and telephone lines is a great barrier. Initiatives should be taken to overcome the situation by establishing cheaper access devices, lowering tariffs on the import of computers and other equipments, Internet Access Centres (with leased lines) and by bringing down access prices through competitions among Internet Service Providers.

Commerce :   There exists an E-commerce gap, as advanced Internet economies have moved beyond basic Internet infrastructure to a dynamic E-commerce infrastructure in the form of payment gateways, secure channels, digital certification authorities, overnight courier services, third-party audit services etc.. E-commerce gap could be reduced by effectively building a domestic Internet economy and promoting on-line transactional capabilities for the consumer, business and government sectors.

Community :   Community divides exist, as the proper use of technology varies from community to community. Technology is most used by the educated and urban community while its use by uneducated and rural community is rather remote. Online and offline forums need to be actively promoted in order to bring in larger and more diverse sections of communities to discuss issues of common interest.

Capacity : Ability or the capacity of the workforces to adapt to new roles in emerging digital era is vital in reducing the digital divide. The so called 'digital skills divide' could be minimized by improving the Internet access and including IT related courses in schools and colleges, creating digital libraries for lifelong learning and instructional courses and promoting human resource development programs to train professionals in the field.

Capital : An Internet economy can best be survived if it is economically self-sustaining. Thus governments should release sufficient finances to relevant professional organizations to improve ICT initiatives to the levels that they can generate funds for functioning without external financial support.

Culture :   A difficult challenge in bridging the digital divide is posed by culture. Especially in developing countries more hard work should be done towards changing lifestyles and removing cultural inhibitions and insecurities about developing competence for surviving in the Internet community.

Cooperation   : Cooperation at all levels is essential in bridging the gap between societies, governments, academia or international organizations. Individuals, organizations at local, national, regional and international levels need to cooperate by resource sharing, organizing various activities such as national conventions, workshops and training sessions etc. to narrow down the digital divide.

Content : Content of the digital resources mainly the Internet may be current, national, regional or international and may be targeted to selected group of communities. It may not be always useful for the common user. The imbalance of the content extends to number of areas such as local language content, use of online content by key sectors, local relevance and usefulness of the content and the number of websites in developing countries. These issues should be addressed to at the national level.

Having identified the spectrum of digital divide, it reveals that the Information Communication Technology (ICT) can play a vital role in transforming digital divide to digital opportunities. Four priority areas, namely participation of government, infrastructure development, human resources development and enhancement of ICT literacy draw particular attention in addressing the ICT in the developing countries. In this context, infrastructure development and human resource development constitute the fundamental building blocks of the development in the ICT sector. In addition in developing countries there exists an acute shortage of ICT specialists and needs assistance from the international and regional organizations to train the professionals.

Further, appropriate technology should be made available for low cost, high quality ICT facilities so that the maximum number of users can access to it at an affordable cost. In this context, it is the responsibility of the government or the higher authorities of the institutions / organizations to provide the necessary funds for the development of the ICT on a national basis.

It is universally accepted that information is the core of all the development activities. Obviously, one potential channel of acquiring information would be the libraries and information centres of a country. Many of the technologies are developed for the literate class thus, there is a need to depart from this situation and build technologies for the masses. In this regard libraries and library professionals can play a role in bridging the digital divide through their contribution to build a well-informed and literate society.

Library Network Systems have been proven to be one of the most appropriate approaches for reducing the digital gap. These networks through their contribution to the growth of network culture can enhance effective use of ICT by the members.

4.2 Role of Library Networks

Library and information network is a cooperative endeavor among the participating libraries and information centres in developing, sharing and utilizing resources at the local, national and international level. It facilitates easy availability of information resources and services to all its potential users by establishing mechanisms of access to information, transfer and exchange information in order to support all academic activities.

In bridging the Digital Divide, library networks have a major role to play. Some of the activities that Library Networks could engage in are:

- Networking information and knowledge resources :
  Interconnect various library and information centres for efficient sharing of information resources available with them.

Develop appropriate content by matching the available resources with the needs of the users.

Manage content for effective dissemination by handling information in suitable formats that are universally accepted.

- Promoting use of appropriate infrastructure:
  Provide uniform standards and guidelines in techniques, methods, procedures required in the basic framework of the system, and in selection of hardware and software etc.

- Improving access to information resources:
  Provide easy access to all types of information resources by creating online union catalogues / databases of both printed and non-printed versions.
  Introduce user-friendly retrieval systems.
  Establish efficient Online Public Access Catalogue systems for participating libraries.
  Establish appropriate and efficient document delivery systems for both digital and printed forms.

- Providing information support for research and development:
  Expand the range of research content by increasing the quantity, breadth and depth of research literature.
  Provide efficient access to research information through electronic formats and network access/delivery mechanisms.
  Increase capacity to connect researchers to global information repositories.
  Adopt national strategies for securing access and usage rights to primary electronic journals and databases.
  Create consortia for member libraries with a view to subscribe to more journals at a low cost.

- Promoting use of international standards and national policies:
  Use universally compatible formats (MARC 21) for bibliographic records of databases those created for network libraries and other international standards such as AACR II , LCSH and DDCS etc.
  Work in accordance with national policies, press for changes if improvements are needed.

- Promoting International Cooperation:
  Build up mechanisms for easy payments on exchange of information among library networks and individuals in order to make use of resources freely by the users.

- Contributing to the national development:
  A library network could support the growth and development of electronic/digital libraries at a national level.
  Create databases of digital resources or digitize contents of member libraries using local languages to meet their needs.

- Managing security and preservation of digital resources:
  Take initiatives to address the range of legal and regulatory issues including security of the content, privacy rights, intellectual property rights, censorship issues etc.
  Take measures to preserve the digital resources and guide the other institutions in this regard.

- Contributing towards human resource development:
  Organize workshops, seminars and conduct training courses to train library professionals to handle the expanding knowledge and to use ICT effectively in delivering library services.
  Educate people by initiating programs in ICT awareness to increase the general literacy in IT.

At national and international level several countries have developed robust resource sharing programmes through library networks. If the library networks cooperate effectively, there is much to be gained from a coordinated approach.

4.3 Sri Lankan Context

Library and Information Networks have been in existence in Sri Lanka for the last two decades. In this regard, networks such as Health Literature, Library and Information Services (HELLIS) Network Sri Lanka; Agricultural Information Network (AGRINET); Sri Lanka Scientific and Technical Information Network (SLSTINET); Environmental Library Network (ENLINET); Information Network in Social Sciences (INNESS); National Information Network on Education (NINE); Technical Information Network (TECHNINET) and Trade Information Network Sri Lanka (TRADENETSL) can be considered as examples of National Networks in the country. These networks have been established with a focal point in Sri Lanka. Asia Pacific Information Network in Social Sciences (APINESS); Development Information Network for South Asia (DEVINSA); Cultural Information Network for South Asia (CINSA); Occupational Safety and Health Information Network (OSHINET) and Asian- Pacific Information Network on Medicinal and Aromatic Plants (APINMAP) are examples of Regional Networks established in Sri Lanka with either national focal points or coordinating centres with a regional office which manages the focal points/coordinating centres.

HELLIS-Sri Lanka is a network of 23 Health/Medical libraries in Sri Lanka which is supported by the funds made available for the government of Sri Lanka by the World Health Organization. Through initiatives of this network several measures have been taken to narrow down the gaps between the member libraries by resource sharing and training library personnel in IT applications. Its contribution in the area of Selective Dissemination of Information (SDI) through the Current Content Page Service and Inter-Library-Loan Service has been very beneficial for the health professionals especially in the academic community. Moreover, HELLIS-Sri Lanka has been active in organizing various seminars, workshops, training sessions both for library professionals and users of health/medical libraries in the country. The activities of this network also includes provision of reading materials and equipments needed by the member libraries and supporting publication of various bibliographies, indexes, union lists and holdings lists of periodicals available in the member libraries.

Lanka Educational, Academic and Research Network **(LEARN)** formed by the University of Moratuwa and Economic and Banking Library Network of Sri Lanka connected via e-mail (EBankLibNetSL), formed by the Central Bank Library are the examples of well established electronically linked networks in the country. Computerized networks are yet to be established in the country though establishing such networks linking the libraries in universities has been initiated and is still at a primary stage.

NATIONAL LIBRARY NETWORK OF SRI LANKA - NATNET LANKA is a network formed by the National Library and Documentation Centre, Sri Lanka in 1996 with the objective of co-ordinating the activities of existing library networks in Sri Lanka[1]. The National Library serves as the focal point while all other library and information networks serve as members of the umbrella organization. Activities of NATNET LANKA includes improving co-operation between library networks, co-ordinating training programs, assisting new and less active networks to improve their performances, assisting to solve the problems encountered by these networks and organizing awareness programmes on the network activities. One of the important activities undertaken by the National Library and Documentation Centre is to assist other networks in their Cooperative Acquisition Plans (CAP). For example, under the Cooperative Acquisition Plan for abstracting and indexing journals of the SLSTINET, on behalf of the National Science Foundation, the National Library has been subscribing to the CD-ROM version of the Science Citation Index since 1992 to date. Similarly, under CAP of the AGRINET, the National Library subscribed to the HORT-CD (Horticulture and Plantation Crops) for the library of the Council for Agricultural Research Policy in 1995/96.

With the contributions made by the libraries participating in almost all library networks, National Library and Documentation Centre has been able to compile the National Union Catalogue since 1986. In 1996 it was converted to a computerized database of over 300,000 bibliographic records. This is a cooperative database of 75 major libraries of Sri Lanka.

National Library and Documentation Centre conducts training programmes, workshops and seminars for library personnel, upon requests made by the participating libraries of Networks.

4.4 India as an example

Among developing countries India can be considered as a major contributor of information technology professionals at the global level. In the library situation both traditional libraries and wall-less digital libraries coexist with a significant digital gap which expands to rural areas of the country. Despite the fact that India is a large country having population of one billion out of which 30% live below the poverty line, the government of India has already taken steps to develop Information and Communication Technology Infrastructure in the urban areas of the country by initiating its $8.6 billion IT industry[5].

Networking systems for resource sharing has been functioning since 1930 in developed countries while India started networking activities in 1979 mainly for inter-library-loan services (Gopal[11]). Consequently, initiatives have been taken at different levels towards reducing the technology divide in Indian libraries by forming different telecommunication, information and library networks across the country. Department of Telecommunication

(DOT), Bharat Sanchar Nigam Limited(BSNL), Videsh Sanchar Nigam Limited(VSNL) and the Government of India are responsible for providing and maintaining national and international telecommunication facilities (S.Rao[8]). A few examples of the existing library and information networks are INFLIBNET (Information and Library Network), DELNET (Developing Library Network), BTISNET (Biotechnology Information System Network), SIRNET (Scientific and Industrial Research Network) , ADINET (Ahmedabad Library Network), BONET (Bombay library Network) ,CALIBNET (Calcutta Library network), MALIBNET (Madras Library Network), MYLIBNET (Mysore Library Network) and PUNE-NET (Pune Library Network).

The paper discusses only the role of INFLIBNET-Centre and DELNET in bridging the digital gap in libraries in India through various activities.

4.3.1 Role of INFLIBNET-Centre

INFLIBNET-Centre can be considered as a national institute in the area of Libraryand Information Science which functions under the University Grants Commission of the Ministry of Human Resource Development, Government of India[8]. The objectives of the centre is to establish a national network of libraries and information centres of universities, institutions of higher learning, research and development, for the purpose of resource sharing, promoting library automation and cooperative development in various areas at national level. INFLIBNET is the computer communication network that was formed, linking these libraries and information centres with the same objectives. To date, 184 universities and 23 deemed universities, 6100 colleges and more than 200 other academic libraries are linked by this network. Some of the activities of the network are summarized as follows:

> *Financial support by INFLIBNET :* In bridging the technology divide, by the end of year 2002 about 142 university libraries have been financed by the INFLIBNET to establish the necessary infrastructure for automation of their libraries and to be linked through the network. Moreover, the network has been providing an initial grant to about twenty selected university libraries to purchase computers, telephones and other necessary hardware and software. These selected university libraries have been provided with a recurring grant for the first five years after the installation of the systems.

> *Human resource development :* The initiative has been taken during 1992-93 itself to conduct training courses for library staff so that they could implement the technology in their libraries by creating databases for various resources. Library personnel have been trained at different levels, through series of workshops, seminars, training programmes and on-site training across the country on a regular basis from 1993 through 2003. For example university librarians have been trained in workshops wherein the focus has been on managing automation, networking and implementation of INFLIBNET activities in university libraries.

> *Projects undertaken by the INFLIBNET :* Five major university libraries of India have been identified and given a project to carry out retrospective conversion of records during a specified period so that duplication in creation of databases is avoided.

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The INFLIBNET Centre has set up six Document Delivery Centres and provided funds for delivery of full-text journal articles available from the collection of libraries in the network, to users of the member libraries. Under the project of "Developing and Managing a Web enabled Database of Experts Manpower in Science and Technology" The INFLIBNET has created a database of nearly 20,000 scientists, directors and other senior faculty members of universities and different organizations in the country.

Providing Software : A library housekeeping software named SOUL (Software for University Libraries) has been developed and distributed among several member libraries to automate in-house functions of those libraries. This software supports database creation in Indian languages and has been installed in more than 85 libraries in Chennai alone.

National Convention : The INFLIBNET-Centre conducts an annual national convention called CALIBER (Convention on Automation of Libraries in Education & Research Institutes) at different locations across the country. The convention is a better forum for library professional to discuss their problems and find solutions and to share knowledge and experience among participants.

Various Services through INFLIBNET : It provides access to all the databases of Books, Journals, Theses, Experts and Research projects developed at the Centre through Internet. It supports researchers and academics providing access to Union Catalogue of Resources of the network and to shared online catalogues (eg. OCLC) through the Internet. INFLIBNET–Centre subscribes to more than 70 bibliographic databases of OCLC at a reasonable cost, to supplement the existing information service of the network.

INFLIBNET regional training programmes : These programmes are being conducted in different parts of the country (in 2001 at 15 places and in 2002 at 21 places) and attended by 350-500 participants each year. INFLIBNET provides financial assistance to universities for conducting these programmes which enables the participants to get more exposure and enhance their skills in application of IT in their respective libraries.

4.3.2 Role of DELNET

DELNET (Developing Library Network) is a public switch network which is partly funded by the National Informatics Centre (NIC) of India. It has membership of about 515 institutions which includes 382 academic, 81 research/special, 5 public, 25 government, 9 diplomatic missions and UN agencies and 13 other libraries[12]. The required communication link has been provided by the NIC. DELNET provides access to its Union Catalogue and Union Lists based on the resources available in the member-libraries through the World Wide Web. The requests for photocopies of journal articles and obtaining books on Inter-Library-Loan are being placed through the online system. DELNET offers inter-library-loan service at both national and international level through an effective method of document delivery (information collected personally by the author).

The network supports the member-libraries in selecting appropriate infrastructure, hardware and software etc. For example DELNET has created a several software for different purposes such as DELDOS (for creating MARC records to be used in retro-conversion purposes), DELPLUS (a stand-alone library management software for small libraries) and DELMARC (a LAN-based library management software for big libraries). These software are sold at a very nominal price for member-libraries with upgraded versions free of charge.

DELNET supports creating of databases in member-libraries and use of international standards (eg. MARC 21 format, LOC-SH and AACR II) in creating catalogue records. For example DELNET has created 75,000 bibliographic records in four different languages English, Punjabi, Tamil and Telugu at three University Libraries in Patiala, Chennai and Visakhapatnam by the end of 2001[1].

Another exercise of DELNET is organizing seminars, workshops and training programmes at various levels especially in order to bridge the digital divide among the member-libraries.

5. Conclusion

It is accepted that there exists a digital divide in almost every part of the world. In developing countries the situation is more significant than that of developed countries due to many reasons. Poor economic conditions, inadequate infrastructure facilities, lack of skilled and trained personnel, IT illiteracy among the nation, cultural reasons to harness the technology are the main reasons for digital divide which are common to developing countries. Despite all difficulties, barriers and challenges discussed on bridging the digital gap in libraries in the developing word, at global level, a Universal Library is going to emerge by connecting all the libraries within countries that would be then connected to a global superhighway. As such, governments and institutes of higher education in these countries should be made aware of this situation and be ready to accept the consequences, to meet the challenge of generating sufficient funds for necessary infrastructure facilities and human resource development. It will be thus, a dream coming true as digital information resources of all types, subjects and formats would be available and accessible to anyone from anywhere at any time.

In this context, the challenges to the library community is critical and therefore they must move strategically and efficiently to position themselves to overcome all the bottlenecks and to help bridge the Digital Divide.

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