INFORMATION SUPPORT FOR THE RURAL COMMUNITY

1. Citizens of the developed world have not only got accustomed to, but even routinely take for granted, facilities that enable accessing information immediately and easily through the World Wide Web and mobile technologies. However, it has been estimated that there are over five billion people lacking access to Internet and Internet resources. If this could be labeled as *Information poverty*, there are a range of factors that contribute to this: The lack of technology and knowledge of how to use that technology is a pervasive problem; There are also factors such as the relevance of the content in the World Wide Web to the needs and requirements of large sections of people of the developing and less developed countries. That the resources available on the Internet is heavily biased to meet the requirements of the developed countries and their citizens and for people speaking and familiar with non-European languages and scripts, there is very little content of value is generally conceded. What is important is to realize that this *Information Poverty* affects the development of crucial information and computer literacy skills which in turn affect the exposure and educational development of children and quality of life of large sections of people in the developing and less developed countries.

India has the third largest online user population after China and the US. In terms of growth rate in online users India surpassed other nations in the Asia Pacific region (28.9%). It has also been forecast that India's Internet population will maintain double-digit growth rates between 2012 and 2018. IAMAI (Internet and Mobile Association of India) expects India's internet user base to touch 243 million by June 2014, projecting a year-on-year growth of 28%. As per TRAI data, the country's Internet subscriber base stood at 238.71 million as on December 31, 2013. However, as per a report that appeared in the *Times of India* on 05 June 2014, India has the lowest Internet penetration in the Asia Pacific (APAC) region at 17.4% of the population; compare this with South Korea (79%), Japan (77.3%), Australia (76%), China (48.5%) and Indonesia (33%). Evidently there is a clear divide between the developed Internet

economies of Asia Pacific, viz., South Korea, Japan and Australia, all of which have over 75% of their populations online and developing economies like India and Indonesia.

One major factor that hampers the widening of the Internet user base in India is the fact that there are many people in the country who need to access the Internet in their own language. According to a study by IAMAI and IMRB International reported in March 2014 Internet users in India could increase by 24% if local language content is provided on the Internet[1]. Over 40% of non users in rural India and 13% in urban areas mentioned that they would use the Internet if content is provided in local languages. The study identified local language content as the single largest driver of Internet growth, especially in rural India. 27% of the users in rural India used Hindi to access online content followed by Marathi and Tamil. Even in urban India 60% of the users accessed Web content in Hindi followed by Tamil and Marathi. These figures clearly indicate that there are many takers for Internet content in Indian languages. In the absence of any relevant content in Indian languages especially of value to rural India, entertainment, social networking and email are the primary purposes of using local language content. If relevant content is made available in the Indian languages the quality of Internet usage in India could be substantially enhanced. With more than 20 official languages this task is not easy.

Thus the task of widening the Internet user base in India has three major sub-tasks.

- Creating the necessary ICT infrastructure to extend Internet access to as wide a section of the population of the country as possible;
- Initiating programmes to improve *information literacy* and *computer literacy* levels among children and adults;
- Initiating programmes to generate relevant Web content in Indian languages and scripts.

2. First, let us examine the questions of *Information and Computer literacies*: Information literacy may be seen as 'the set of skills needed to find, retrieve, analyze, and use information'. An individual who is information literate is one who knows how to find information for virtually any task and, thus, how to

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[1] http://www.livemint.com/Opinion/zCFoFUXebEbxBOVq8a2UUJ/Need-more-local-language-content-for-Internet-to-bloom-in-In.html

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learn. *Computer literacy* is being continually redefined as computers become more and more powerful and sophisticated and the tasks that they can perform become more and more complex. In general a person is either computer literate or not based on how proficient he / she is at some basic computer tasks. For people around the world, computer skills are critical to be active, participatory members in the information age. But lack of computer literacy persists even today especially among members of the less privileged communities in India. Computer literacy should be seen as a beacon of hope as it has the ability to revolutionize and improve many facets of our citizen's life. It is important is to recognize that computer illiteracy also leads to information illiteracy, a problem that pervades vast sections of our population (just as in many other developing countries). This is something that has been taken note of by our planners; in the long run the only way to ensure that a large section of our country's population is *information and computer literate* is to make these skills an integral part of the school curriculum. These basic skills should be taught right from the primary school just as *reading, writing* and basic *arithmetic* are taught. These skills should also be made a part of adult education programmes.

However, the problem especially in a country like India is more complex. A major concern of education planners is the very high rate of school dropouts and also the fact that only a very small percentage of school graduates enter higher education institutions. According to a UNICEF report, a summary of which is published in the *Economic Times (*March 11, 2014) the school dropout rate is extremely high in India[2]. As per the report over 80 million children are not completing the full cycle of elementary education, while eight million are out of school over a period of years. The report also indicated that the dropout rate among girls is very high and that the dropout rate in rural India is higher than in urban areas. According to UNESCO, India has the biggest literacy problem in the world. India initiated a series of programmes and projects to meet the goal of 'Education for All'. Adult education initiatives in India are primarily aimed at providing education to the adult and aged people who, somehow, had failed to receive the elementary education during their childhood. Thus we have three groups of people who, if their needs are not

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[2] http://articles.economictimes.indiatimes.com/2014-03-11/news/48118325_1_dropout-unicef-full-cycle

adequately addressed, may relapse into functional illiteracy: *the school dropouts*, *the neo adult literates*, and the very large proportion of high school graduates who do not enter the college for some reason. The information literacy and continuing education needs of all these groups need to be addressed.

3. Let us look at the subject of expanding and enhancing the existing ICT infrastructure to extend the reach of the Internet. India, especially rural India, in the last couple of decades has been a test bed for some interesting experiments and projects in the innovative use of ICTs. The initiatives of the Chennai-based M.S. Swaminathan Research Foundation, e-Choupal, Gyandoot and some others are efforts along this[3]. An examination of some of these projects carried out in the Department of Computer Science & Engineering, Indian Institute of Technology, Mumbai has identified, among others, the following major deficiencies[4]:

   • Low usage; Absence of useful local content;
   • While every project has benefited some user groups, none has had a generic village-wide impact;
   • Lack of awareness among users; and
   • Certain segments of the population are sometimes excluded.

It should, however, be clearly noted that many of these initiatives were experimental in nature. More importantly the initiatives have established that ICTs can overcome rural India's social, administrative and political challenges to a certain extent and enable provision of information, education, e-governance, etc services to the rural community. However, infrastructural and hardware problems could affect reliability of such services. An equally important issue in extending the benefits of ICT-based services to the rural community relates to identification of an appropriate and suitable institutional base for locating such facilities and providing access to information services to the rural community on a regular basis.

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[3] The emphasis on different kinds of services varies; e.g., e-governance services may not be as important a component of one initiative as in another

[4] http://www.cse.iitb.ac.in/~cs671/paper_presentation/bhanu_ICT_PPT.pdf

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4. The two major issues examined in the preceding paragraphs, viz., making people information and computer literate and sustaining this literacy, particularly among the rural population, and building the necessary ICT infrastructure to extend the reach of Internet especially into rural India have important implications for policy makers and planners. It is important to realize that the high cost of implementing the programmes for enhancing and improving literacy levels makes it absolutely imperative that Governments at the centre and state levels need to provide support for these. There are several ongoing programmes / missions of the government aimed at enhancing literacy and access to information including those suggested by the National Knowledge Commission (e.g. National Mission on Libraries, National Literacy Mission, Right to Information Act, Right to Education, E-Governance, etc). As mentioned earlier the important issues are to sustain literacy among neo literates, among school dropouts and building a mechanism which ensures access to information resources. It is difficult to conceive of any agency other than the local public library which can act as a gateway to all such knowledge resources that are useful to the members of the community particularly in rural areas. Unfortunately there are efforts at setting up parallel systems at great cost to the exchequer. The public library is the most economical and effective means for ensuring free and effective access to information for all and to serve as a portal for all information needs of citizens. Of course, certain services such as *e-governance* can only partly be provided by a public library as addressing citizens' grievances will require action by a government department or agency. However, the public library can facilitate by providing connectivity. The public library could also serve effectively as the forum to bring together NGOs that provide a range of services to the citizens, government agencies and other service providers. In fact the creation of a National Virtual Library of India is one of the major component schemes of the National Mission on Libraries with the aim of equitable and universal access to knowledge resources. The National Virtual Library of India would provide digital resources by digitizing the relevant reading material in different languages, will acquire and make accessible digitized information available with various Government Departments and other Non – Government Organizations, build a comprehensive data base for this information and present it as a user-friendly service including multilingual services. While launching the National Mission on Libraries, honourable President of India emphasized that the target users of NVLI should include the educationally, socially, economically and physically

disadvantaged groups in order to empower people with information and thus move the country towards a knowledge society[5]. The most appropriate agency that can serve as a portal to all these services is the local public library. Unfortunately the development of public libraries in the country has not been uniform and satisfactory. There are many states which have enacted public library legislation and have established a network of public libraries including in rural areas. There are also many states that are yet to enact public library legislation. Even in states that have public library legislation the development of public libraries especially in rural areas has not been very satisfactory. The public library is often seen as a place to visit for reading newspapers and magazines or to borrow recreational books for reading. There are no accurate estimates of the number of public libraries in the country. According to a survey by ORG – MARG there are nearly 55000 public libraries in the country[6]. Realizing the importance of developing an effective and extensive public library network in the country, the Government of India established the Raja Rammohun Roy Library Foundation (RRRLF) in 1972. The Foundation extends financial support to public libraries and also functions as the national agency for coordinating, monitoring and developing public library services in the country by working with state governments. In the last 40 years since its establishment the Foundation has extended assistance to over 30000 public libraries in the country. It has recently been made the agency responsible for implementing the National Mission on Libraries. The task of providing the necessary computer facilities in public libraries, especially in rural and semi-urban areas so as to prepare them to serve effectively as portals for information and knowledge resources needs to be taken up by the Foundation as a priority. The RRRLF should identify public libraries in every state and union territory, prepare and implement a plan for upgrading them to serve effectively as portals for a wide range of e-resources in the next few years. The agencies responsible for extending the required band width to rural areas need to accomplish their tasks. India is still in an early stage in the deployment of broadband in rural areas. A decade ago Internet connectivity was considered a luxury, but the outlook has changed. Internet access is a human right in France. Finland has gone further and mandated access to a minimum of 1Mbps Internet connection a legal right to its citizens. The task of providing Internet connectivity to the 1.2 billion citizens of India is not easy. A sizeable

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[5] http://rrrlf.nic.in/nml_president_speech.asp

[6] http://rrrlf.nic.in/current_pub_lib_sys.asp

proportion of this population living in far flung villages does not have access even to electricity. The situation is better in the metros and urban areas. Even by 2015, when the overall Internet penetration in India is expected to reach 28 percent of the population, rural penetration is expected to be just 9 percent. This again emphasizes the importance of extending Internet services to citizens through an appropriate institutional mechanism such as the public library especially in rural areas. The kind of revolution that took place in extending telecom services to a sizeable portion of the population by allowing STD / ISD booths to come up following prioritizing telecom sector during Rajiv Gandhi's time as Prime Minister (Telecom was defined a "*Mission Area*" along with provision of drinking water, oil seeds, etc in our Five Year Plan document at that time) needs to be initiated in extending Internet access to the rural community via public libraries.

5. Finally, we come to the question of relevant content. There is very little Web content in Indian languages. About 56% of all content on the Web is in English. Hindi content on the Web is just about 0.1%. At present, no Indian language figures in the top 10 languages on the Internet, though Chinese, Arabic and Russian figure in the list.

- It has been mentioned earlier that local language content holds the key to widening the Internet user base in India. There is no question that the Internet even at present has a huge volume of information resources in English of value to different communities of India. We need to explore the feasibility of translating content of value in English to Indian languages so that it benefits a larger proportion of the population[7]. There are several useful approaches:

  - Crowdsourcing — the idea of using a large online community to contribute content and assist in editing content; Crowdsourced content – both on a commercial and voluntary basis - is becoming increasingly popular. *Wikipedia* is an excellent example of what can be achieved within a short span of time through crowdsourcing;

  - An interesting experiment that is in progress at the Centre for Knowledge Analytics & Ontological Engineering (KAnOE), PES Institute of Technology, Bangalore has as its objective the quick

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[7] It is estimated that over 88% of India's population is unable to read / understand English

translation of resources in English to Indian languages[8]. The ongoing experiment demonstrates how resources in English language could be quickly translated into Kannada; with some minimum editing the content will be ready for publishing on the Web. For example, the Kannada version of *Wikipedia* has less than 0.01% of the documentary resources available in the English *Wikipedia*. Filling this gap by manually translating every resource to generate a more comprehensive Kannada version of *Wikipedia* is a tedious task requiring enormous amounts of human effort, knowledge and time. If the process of translating and generating documentary resources in Kannada could be automated it will be possible to generate a large number of documents in Kannada (or for that matter, in any other language) quickly. The mentioned project is relevant in this context. The major contribution of this project is the development of a procedure for automatically generating a large number of documents which can be further refined and enhanced by users. Again, crowdsourcing could be effectively employed to edit, add to, modify, refine and enhance the content.

- Many government documents (state as well as centre) are already being created in two or more languages. These include a wide range of prescribed forms in which people need to apply for obtaining information under RTI / making specific requests, etc. These are made available on the respective government websites.

- There are also some other ongoing projects aimed at creating content in Indian languages which range from digitizing books and other resources in Indian languages to '*born digital*' resources. For example, a massive project for digitizing newspapers of the Northeast region of India (from 19th Century) has been initiated by the Media Archives Assam based in Gauhati. In this ongoing project, value addition is made by way of adding metadata to support search and retrieval. Another proposal to digitize editorials that were published in

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[8] The project is being carried out by Mr. Ananthakrishna Thantri, a student of M.Tech. (Web Technology) at PESIT under the supervision of Dr. Kavi Mahesh; although the present experiment is limited to creating Web content in Kannada language, the methodology is applicable to translating available Web content in English to any language

newspapers in the region is under consideration of funding agencies. Similar projects need to be initiated in other parts of the country especially with regard to material in Indian languages.

5.1 An important pre-requisite for generating and publishing relevant Web content in Indian languages is an understanding of the information needs of the different target user groups especially in the rural areas. A study supported by UNDP was carried out before the dawn of the Internet era in India[9]. In 1989, 10 Village Information Centers (VICs) were established on an experimental basis in Manipal, Karnataka, India, by the Manipal Industrial Trust (MIT). The centers were designed to address the lack of development information in the villages. From 1990 to 1992, the number of VICs was increased to 30 through the project, "Rural Information Support System" funded by IDRC, Canada. The project identified the information needs of various groups of users such as information on local management and training opportunities, information on laws relating to women, government anti-poverty schemes and health related issues and programmes, the village organization, on Mandal Panchayat or Zilla Parishad Act, etc. While clear and distinct categories of information needs have not been established by this study, the study has identified local and national sources of information relevant to the needs of the target user groups and has adapted these to benefit them. The study suggests that village information centres have a high potential to support adult education activities and to sustain the newly acquired reading skill of the neo-literates. The village information centres also help fill the information gap in areas where there are no extension workers.

5.2 Another important development that has a bearing on content creation is the spread of education through distance education mode at all levels. Students of distance education programmes must get equal access to quality learning resources as are available to mainstream school students interacting with teachers and friends in the

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[9] An evaluation of the village information centers in India / Conducted for the Manipal Industrial Trust (MIT) of India and the international Development Research Center (IDRC) of Canada by Cesar M. Mercado and I. K. Ravichandra Rao. -- UNDP Office for Project Services Asia and Pacific Programme for Development Training and Communication Planning (DTCP) : October 1992

conventional classroom environment. As the task is one of creating life-long learners, the rural students should be initiated to technology at an early age[10]. While there is scope for integrating digital libraries in classroom environment, this leaves out adult learners, school dropouts and neo-literates. Public libraries should pay special attention to the needs of young learners in rural areas. Unlike digital libraries for research, relevant content to meet such learning needs have to be either created or filtered. Age-specific, subject-oriented content to support learning process is a pre-requisite for this category of digital library. The NMEICT programme of MHRD, Government of India is premised upon developing quality content and sharing quality teaching expertise within the country – an objective that clearly aligns with that of public libraries. The principal advantage that the rural library has over other institutional mechanisms is that it accommodates the principle of learning at a pace that an individual learner is comfortable with.

6. **Conclusions and Suggestions**: 'Public Library service' is a state subject in India and as such the state of development of public libraries in different states is not uniform. To remedy this situation to a certain extent and to function as a coordinating agency, the Government of India established the Raja Rammohun Roy Library Foundation (RRRLF) under its Ministry of Culture. Since its establishment the RRLF has been supporting public libraries in all the states and union territories of the country. It is indeed very difficult to conceive of any agency other than the local public library which can act as a gateway to all such knowledge resources that are useful to the members of the community in their daily lives. Unfortunately there are efforts at setting up parallel systems at great cost to the exchequer. The public library is the most economical and effective means for ensuring free and effective access to information for all and to serve as a portal for all information needs of citizens. The public libraries in their present form, especially in the rural areas, address primarily the recreational reading needs of literates and are not adequately equipped to meet the information needs of a wide range of users. The need of the day is to:

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[10] In fact even mainstream school students in rural areas can benefit from access to quality learning resources and technology

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- Reposition and re-define the role of the rural public library in the rapidly changing context and transform it from merely being an institution to visit to borrow recreational reading material or to browse magazines and newspapers to something that can play an active role in transforming the society to a '*knowledge society*'. The library's present brand image as a provider of 'books' and magazines needs to change. There are interesting examples of what public libraries can do:

    - In Venezuela, e.g. where many schools do not have libraries, rural public libraries provide support for school students and teachers; The rural libraries in Venezuela provide information on agriculture and animal husbandry and meet the needs of the small farmers with limited resources with a view to improve their quality of life;

    - The Sabah State Library, Malaysia, provides electronic corners in its branch libraries (with access to Internet).

Former President Dr. Abdul Kalam had proposed PURA (provision of urban amenities in rural areas) to bridge the divide between urban and rural areas. Information empowerment projects implemented with right technologies and content can make a lot of difference to the members of our rural communities. The important thing is to ensure that appropriate institutional mechanisms that are sustainable in the long term are created / identified and as many of the *unreached* are *reached*. The vast network of public libraries is ideally suited for this and is the most cost-effective means for extending the benefits of ICT for *reaching the unreached*. It is important to ensure that public libraries in general and village libraries in particular do not continue to function as independent units but as a component of support communication system to promote all rural development-related activities including adult education, agriculture and irrigation, afforestation, cattle development, women and child welfare, health, etc. India's recent economic growth rates have generated much optimism; But is there corresponding progress in other indicators?

- Educational outcomes: Adult Literacy; school drop-out rate; Proportion of High-school graduates entering higher education stream
- Agricultural production
- Health awareness

- Civic Amenities

- Quality of Living in general

The RRRLF should seriously consider initiating a project on transforming a few existing village libraries, on an experimental basis, into functioning additionally as village information centres / community information centres also with a view to address the information needs of the various segments of rural population. Public library legislation is in place in as many as 19 states.

Let me conclude this piece by quoting from Gary Marchionini. In another paper in this issue he says: "*Some of the more interesting things that are happening, at least in the United States, are happening in public libraries that respond to their local community needs. They know their users, they know the children, the parents, the business people, the community leaders who have needs and they have developed specialized programmes around these needs*".

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