

# IMPACT OF INFORMATION SUPERHIGHWAY ON LIBRARY SERVICES IN KERALA AGRICULTURAL UNIVERSITY

---

R Raman Nair, Kerala Agricultural University, Thrissur – 880 654

## 0 Introduction

The emerging technology of the Information superhighway is changing forever, the way we live, learn, work and connect to one another. The rapid developments that have taken in the field of information handling, have paved the way for revolutionary changes in higher education in terms of both methodologies and concepts. The new technologies have basically provided access to a vast volume of information, helped in handling this information more competently and have consequently assisted in improving both quality and productivity. Evidently if the possibilities of Information Super Highway and related technologies are to be fully taken advantage of by an university than there have to be major changes in our library policies as well as policies regarding teaching, research and educational administration. A corollary is that there has to be a revamping of the infrastructure and appropriate changes in the procedures and methodologies.

Internet is a landmark achievement in many ways, in crossing cultural, linguistic and geographical borders it has brought about considerable global unification. It is in fact the present day information Superhighway. It is estimated to be the primary mode of communication which could carry more mail than the combined total of the postal services of all the countries of the world. It has also become the most reliable primary source of information access. It disseminates hundreds of times more educational and research information than all the libraries of the world together transmit through print mediums.

Traditionally library was considered as a place which collects, organizes and makes available books and other printed documents for use. The present popular definition of a library is a refined version of the traditional concept and it considers library as an institution which collects, organizes and disseminates recorded information. But Internet and

Information Superhighway have come with solid threats to the first two functions. Unless librarians are prepared to accept the challenge the profession will become extinct within a shortwhile. Unless education and research institutions are not prepared to transform their library and information systems and make them capable of existing in the Superhighway, maintaining the system will be a resource waste.

## 1 March to Cyberspace

Kerala Agricultural University (KAU) has also accepted the challenges offered by current developments in Information Technology in a befitting way. But the history of library and information system development in KAU is a good example for Noriss theory that even though history suggests an evolutionary gradual development, it is not the same with the knowledge dissemination systems. We find an immediate revolutionary change. The KAU Act of 1971 which brought the university into existence envisages a good library and information system which can be effectively coordinated and developed in a planned manner.

In 1993 Dr. A. M. Michael a scientist of international repute took charge as Vice chancellor. He found that the university has considerably strengthened its research in the past three years and further development in research has been becoming increasingly difficult without the effective support of a modern information system which is to be the backbone of any institution engaged in research and teaching. He constituted a high level committee consisting experts in various aspects. The committee visited a number of universities in India and gathered useful information for the planning and development of the Library and Information System of KAU and establishment of a Central library which is to be the central hub of the system.

## 2 Establishment of a High-Tech Library

On the basis of study made by the high level committee and also information collected by the university detailed programme for the central library building was forwarded to the CPWD. Mr. Koragaonker prepared the concept design for the university library building and the construction was completed in 1996. The four storey building has a total plinth area of 4000 sq. mt. The furnitures and equipments provided in the library are of international standards and are designed with a view to accommodate the development in current information technology. The computer and communication system used is also of an emerging technology which can be further upgraded in accordance with future developments in IT. KAU Libraries which existed as a cluster of independent uncoordinated libraries with collection of printed materials for two and half decades within no time found to be on the springboard of Cyberspace.

## 3 To Information Superhighway

The recasting of the library and information system in KAU into an integrated system connected by computers and communication network was due to the influence by the developments like Internet is a global network connecting millions of computers in more than 100 nations. KAU has decided in 1995 to establish an Integrated Library and Information System and Network with the intention of utilising all possibilities offered by Information Superhighway and Internet for accessing information to support education, research and development in the agricultural sector.

## 4 Objectives

Unlike any other university library existing in SAUs or traditional universities KAU has very clearly defined the objectives of the new system in 1995 at the time when modernization project was initiated. The Major objectives of the integrated library and information system which KAU has established are the following

- \* To provide a library and Information Service Network consisting of the libraries in the main campus, colleges and research stations.
- \* To build up information resources, prepare computerised data bases and to develop relevant information handling tools and techniques.
- \* To continuously assess the information requirements of the University and to create necessary infrastructure to provide information support to the scientists and students.
- \* To evolve standards and guidelines for various aspects of library and information systems and library networks.
- \* To co-ordinate efforts to access information world wide including establishment of linkages with national and international agricultural information systems.
- \* To provide information retrieval services either online in all areas of Agricultural Sciences and to give overall information support in all field of knowledge.
- \* To implement user education programmes for scientists and students on subjects like information sources, literature search, indexing and abstracting, computerised information retrieval, etc.
- \* To provide in service training for library and information professionals.

## 5 Component of KAULIS

### 5.1 KAULNET

The support for Campus networks was obtained in 1995 through ICAR under its Agricultural Research Information System (ARIS) programme which was financed by World Bank. Collaboration among scientists in India, systematic access to research information available in India as well as in other countries, better project management of agricultural research and modernization of the office automation tools used by the scientists and administrators are

the major goals of ARIS programme. It envisages point to point connectivity to all State agricultural universities, research institutions under ICAR, project directorates, national research centres and zonal research stations through a national network. ARIS consists an important information module; Agricultural Research Library and Information System (ARLIS).

When the library and information network of KAU is completed it will consist of a Local Area Network (LAN) for the Central Library Building which will be connected to the main campus network and automated libraries in distant campuses of the university connected to concerned campus networks. These campus LANs will be interconnected to form a Wide Area Network which will be linked to the outside world using satellite technology. KAU has ordered for a 64 kbps VSAT for main campus and another VSAT is available for Nilesvaram campus. This will give to these campus networks strong communication capabilities to access information from various sources. All Research Station libraries will have minimum computer facilities which will be connected to the Public Telephone Network (PSTL) through dial-up modems and through that to the college libraries or the Central Library. Terminals will be provided at class rooms, staff rooms and hostel reading rooms so that users can access information at their convenience from anywhere.

University has started the works for automating libraries in all constituent colleges and stations and to connect them using available communication networks. The building LAN already installed in the Central Library has the following possibilities.

- \* the network fabric encompasses the central library building and integrate into the premises network being built currently with the option to connect remotely and avail off library services over urban dial-up telephone lines.
- \* in the not too distant future this network is envisaged to interconnect several other campuses located elsewhere in the state, starting with those at Vellayani, Trivandrum and Nilesvaram.

- \* The server platform will host the legacy library management system alongside emerging application technologies and ensure the smooth and nondisruptive migration of the incumbent system into a futuristic one that will keep them on the leading edge of the technology.

The Central library Building LAN consists of the following communication stacks.

- \* 15 graphical workstations
- \* 25 dumb terminals
- \* 4 concurrent dial up connections
- \* application server for LMS
- \* Internet server
- \* interface gateway to premises network
- \* wide area connection to other campuses
- \* Internet GIAS link

The KAU Central Library is housed in a four floor structure and the access devices are scattered uniformly across the length, breadth and depth of this building. Connections to the distant campuses also are envisaged within a shortwhile. Automation of two College Libraries had already been completed. The College Library System will be connected to the college campus network to be implemented under ARIS programme of ICAR. All other libraries, or library service outlets under KAU existing at different geographical locations will be provided with a pentium based system with CD Drive and printer as minimum facility and all libraries will get Internet connection. Besides several users intend to dial through the services offered. Global access is planned through VSNL/GIAS Internet facilities as well as DoT/InetX.25 packet switched connectivity.

## **5 2 Internet Services**

KAU Library System had acquired in 1996 an LMS Server for locally mounted resources and an Internet Server for use as gateway to other resources available elsewhere on the Internet. They are located at KAU Central Library in the main campus at Trichur. The division has necessary search engines, devel-

opment tools, packages required for creation of Web Pages, and forms compatible with various browsers of WWW. They support graphical user interface also.

KAULNET is connected to various other information networks like INET, ERNET, NICNERT, INFLIBNET and others. The following Internet services are available at KAU for scientists at present which will be extended to all students also within a shortwhile.

- \* E-mail which enables communication with other scientists by sending messages to specific persons at specific computer addresses.
- \* Telnet enables connection and log on to remote computers providing access to opac catalogues, databases, information sources of various kinds and softwares stored in them.
- \* FTP which means file transfer protocol and is used to send and get files of text, computer programmes, pictures, games and music to and from remote computers.
- \* Mailing lists which allows scientists to exchange E-mail on topics of interest for example; tribal medicine, lake watch, glove infections, sustainable farming.
- \* Electronic documents access that enables the online use of encyclopedias, books, articles and other documents available as full text documents.
- \* OPAC connects to online public access catalogues in libraries and educational and research institutions world wide.
- \* Bulletin Boards and Newsgroups which allows open or controlled discussions on specific topics like conservation, biofertilisers, GATT, Drugs etc.
- \* Archives which connects to holding of bibliographies, documents, news letters, softwares and the like.
- \* Freenets which connects to thousands of community information networks.

### 5 3 *Electronic Library Division*

Digital libraries have become important for education and research. Digital libraries can dramatically advance the means to collect, store and organize information in digital forms and make it available for searching, retrieval, and processing via communication networks, if providing users access to documents. Electronically is cost effective than providing paper documents electronic access will become accepted in spite of all objections. Various Electronic Information Sources developed by KAU as well as acquired under resource sharing programmes will be available in the Division. A project to prepare an electronic full text library of publications issued by Agriculture and Farms Department and other agencies of state government, KAU and research institutions of the state on agriculture and allied areas and making them available on the Internet is under consideration. There is also a proposal to provide access to a network version of an encyclopedia on agriculture to scientists and students of KAU.

KAU has also found that use of many materials it acquires in duplicates for various stations is very low. Hence it will be cheaper to store them electronically at university central library rather than at each college station. Remote access to electronic publications will be so easy and fast and so lack of local storage will not give problem to the users. Several digital library development projects initiated by academic and research institutions have already been completed and are available through Internet and other networks. One such major venture in the field of agriculture is that of Consultative Group on International Agricultural Research(CGIAR). It supports a network of 16 international agricultural research centres. One of those centres, ICRISAT, is located in Hyderabad in India. CGIAR has developed the largest full text electronic library on agriculture and biosciences. In 1996 KAU had received an electronic version of this huge collection for its library system. It gives practical problem solving research in key areas like productivity, management of natural resources, improving policy environment, institution building, germplasm conservation and

building linkages in agricultural system. This electronic library contains all the publications originally brought out by 19 international agricultural research centres including ICRISAT of India. It contains in full results of 24 years agricultural research recorded in documents including key books, serials, conference proceedings, reports, maps, graphs and photographs produced by research centres worldwide. In print the estimated cost of the items will come to Rs. 60 lakhs. KAULNET will be acquiring a CD Server within a short while for its Electronic Library Division and this collection will be available for use online from terminals at any station.

#### **5 4 Collection Development**

Information Superhighway has influenced at KAU also several aspects of collection development by bringing into discussion at library meetings aspects like ownership verses access and cooperative efforts and evaluation. The university has decided in 1995 that a duplicate copy of no book should be purchased in the system. It also decided that any publication available in Electronic medium should be acquired in that medium only and costly information sources available for reference at Internet sites should be accessed online.

Fifty percent of the reference materials acquired by KAU since 1995 are in electronic mediums. Others were acquired in print because their electronic versions are not yet available. KAU started giving importance to accessing collections at other sources than possessing almost all documents required. Many documents are available on electronic libraries that can be accessed through Internet.

Acquisition has become greatly simplified with the Internet. Price checks, ordering and claiming can now be done with minimum paperworks and effort. All forms such as suggestions, order processing from requests, catalogue maintenance etc could be done online. New acquisition can be displayed to the users possibly arranged by subjects. Acquisitions could get immediate feedback.

Internet gives access to the bibliographic records of millions of books and details on the holdings of

academic and research libraries around the world. Using that we can locate bibliographic information or an obscure title or paper for users, prepare bibliographies, compare subject specialities of libraries in different countries do hundreds of other such processings. One can also check on new titles and even order them from a number of sources. Many universities and publishers make available their catalogues of books and orders can also be placed through E-mail.

#### **5 5 Journals Subscriptions**

One of the major influence of Information Superhighway and Internet on KAU libraries is on journal subscriptions. KAU used to subscribe to about 52 abstracting journals in agriculture and allied subjects for libraries in its constituent colleges and stations. More than one copy of many of these journals were to be subscribed for different colleges and stations under KAU situated at distant locations. Approximate total cost of the subscriptions to printed journals with duplication that can not be avoided came to forty lakhs per year. In 1995 KAU has decided to discontinue the subscriptions to their print versions and decided to subscribe their print versions and online database and also to ensure access to their full back files from 1970. Now besides above 52 journals ninty percent of the abstracting journals on agriculture and biosciences and abstracts of research works on subjects mandatory to KAU published in other science journals are accessible to scientists and students through KAU library and information system.

All the abstracts of research works published worldwide on subject areas like agricultural engineering, animal breeding, animal diseases, arid lands, diary sciences, forestry, forest products, horticulture, nutrition, vetrerinary science, entomology, plant breeding, plant pathology, soils and fertilizers, weeds and world agricultural economics available at National Agricultural Library of USA, and Indian Agricultural Research Institute Library are available in electronic version at KAU Central Library. The recouring cost of journal subscription was also reduced by about 80 percent. Many of the specialised

full text journals published in India and abroad are now available online or in CDROM versions. The same change will be effected in the case of full text journals also within a period of two years. Now hundreds of electronic journals and news letters are available on the Internet. They cover diverse topics from agriculture to zoology. They are very much like their printed counterparts. They appear on regular schedules, have a team of editors and reviewers and focus on specific topic. They publish original research. Subscribing many such titles on subject areas mandatory to KAU are under consideration. So libraries under KAU will never be the same in future if it continues and completes the transformation process which was initiated recently.

Presently KAULNET subscribes printed versions of about seven hundred journals in agriculture and biosciences. But there are thousands of other journals reporting research on agriculture, biosciences, and related areas. Information on these research reports is also essential for the scientists and students working under KAU. Hence KAULNET decided to subscribe to Current Contents in CD from January 1997. This supports access to more than 8000 research journals in all disciplines and provides abstracts and facilitates acquisition of full text of required articles or abstracts not available in libraries under KAULNET. As per the existing arrangement, this database will be updated every week. Seeking rights to mount some similar databases on KAULNET Server which can enable users from all stations under KAU access to such current information speedily and cost effectively is also under consideration.

Hundreds of online database vendors nowadays give connectivity through Internet. Telecommunication charges are cheapest via Internet. Search output can be send to users E-mail account at cheaper rates. But there will be connect time and document charges. Knight-Ridder Information Service is one of the largest commercial database vendor in the world with office in India also. Most of the databases to which they provide connectivity are full text including many major newspapers, patents etc.

KAULNET will be using their services also within a shortwhile.

### **5 6 Agriculture and Biosciences Databases**

Centre for Agriculture and Biosciences International is an intergovernmental organization. It maintains an electronic database covering subjects like agricultural engineering, animal breeding, animal diseases, arid lands, diary sciences, forestry, forest products, horticulture, nutrition, veterinary science, entomology, plant breeding, plant pathology, soils and fertilizers, weeds and world agricultural economics. The database contains information including abstracts of papers published in 8500 journals on the concerned topics in 37 different languages, and also books, reports, thesis, conference proceedings, patents, annual reports and guides. The coverage is from 1970. Over 1,60 000 items will be included in the database every year. The database on agriculture and allied subjects covering the period from 1970 to present consisting of 5,000,000 records can be accessed through the Electronic Library Division of KAU and it can support agricultural research and development programmes going on in the state.

### **5 7 Human Resource Development**

Library and Information Technology is a fast developing area and library professionals have to keep themselves abreast of those developments for making effective use of IT in constantly improving library services. Based on the proposal of Librarian KAU, Executive Committee has decided to establish a Centre for Library and Information Science in University Library. The Centre has an excellent training facility which includes a lecture hall, multimedia systems, CBT programmes, projection facilities, video equipments and others. The facility will be used to train library and information professionals in management of automated information systems, library softwares, Internet access etc. Continuous user orientation programmes will be offered to scientists and students from this centre so that the psychological barriers if any existing are removed

and users find it easy to retrieve required information by themselves speedily and efficiently.

### **5.8 Consultancy Services**

KAU provides consultancy services to other educational and research institutions in and around Trissur for automation of their libraries, database development, establishing multimedia collections etc. St Mary's College Trissur has established a Multimedia Library with technical support from KAU. Trissur Public Library was also automated with support from KAU. Many colleges, hospital libraries etc are also using the consultancy services offered by KAU library system.

### **6 Access to Users**

As KAULNET has already acquired documents bibliographic and full text running to millions of pages as well as have placed subscription for using many online databases; in the immediate future the requirement for the users to come into the library for their information search will become unnecessary. With minimum equipments users can access information at any time from anywhere. KAULNET is planning to mount the heavily used databases in the KAULNET Server. For those databases whose volume of use does not justify the expenses of mounting it on the server will be accessed online through Internet.

### **7 Metamorphosis of Librarian**

Library and information services have always been user oriented functions with information user as the central focus. However without appropriate clauses in University Acts and Statutes and Rules on nature of the library and information system, clear job description of the library executive and delegation of required powers to him, the system will never be able to meet the users requirements. The users will also not become aware of the wide range of library and information services the information superhighway has put at their disposal. KAU is the first institution in India to frame library policies that refer to users rights and expectations of quality, speed and efficiency made possible by Information

Superhighway. Frame rules and regulations on information management in line with research and development organizations of the technologically advanced countries of the west. The delivery of quality services using Internet and other facilities requires rules and regulations delegating necessary powers to the library and information system manager in the present context of developments in computer and communication technology and resource sharing programmes.

KAU has started its work for modernization of its Library and Information system. Along with the attempts to redefine the functions of the LIS, the duties and responsibilities of University Librarian in the present context of Internet and Information Superhighway was also evaluated and necessary changes made.

### **8 From Resistance to Awareness**

When a sudden and revolutionary change occurs in a system it is only natural and common that resistance also will be strong. Resistance came from various sources. The libraries under the university which functioned without any library executive to control and coordinate them existed during the last two decades as outlets for throwing many books and publications by various distributors. Copies of the same books were used to be acquired in more than one copy at various stations. Suddenly the major groups which considered the system as outlet for their less popular publication found that the transformation was against their interest. It was not difficult for them to indirectly influence resistance. Different department heads who used to hold book collections and got periodical allotments from library heads in an uncoordinated system was not prepared to transfer the collections to the library under the control of the librarian or cooperate in the planned utilisation of funds. Library professionals who worked in various colleges, stations and divisions independently without any university librarian to control them were also not prepared to suddenly come under an integrated system.

Students were misled by various sources stating that the libraries which existed at various departments

are going to be abolished and that it will not be easy for them to use automated information systems. Hundreds of letters from users were received by the university authorities stating that they don't want the university central library with the modern facilities and that they are satisfied with the libraries existing at various departments. Cases were also filed against the appointment of the librarian, and also on the utilisation for the modern library and information system. But nothing could demoralise the library executive or the Vice Chancellor. The system was commissioned except for a few aspects which got delayed due to the resistance. Various automated information services were started which the students and teachers have not dreamed off two years before and the serious researchers who availed them understood that it is something different from what they have ever experienced. Information for which they have wandered to various places and spend years became retrievable within minutes. Many decided to continue the projects they have abandoned due to lack of information. Like the sudden and explosive change, like the immediate and strong resistance, awareness of the facts and change in attitude was also quick for those who did serious work and really starved for information. It is the way of the world and those who infuse change had to suffer for the common good.

### 9 Expectations

The Integrated Library and Information System KAU established in 1996 incorporates an array of electronic information sources like catalogues, abstracts, full texts of journals, books, encyclopedias, video films, and complete collection of various specialised libraries. It can be used on common web browsers within a shortwhile. Plans are underway to bring in other government departments and research institutions of the state in the fields of agriculture. Despite a number of challenges the future of KAULNET is bright.

Information Superhighway offers to scientist and also the common people possibilities for information access and interaction not dreamed of earlier. Librarians can take advantage of materials that may

be physically located thousands of kilometers away and using that they can bring together intellectual and physical resources. A statewide information infrastructure which can support agricultural research and development in Kerala and make possible the entry of our agricultural scientists, students and farmers to Information Superhighway is possible if KAU gets required support and cooperation from all concerned.

### References

1. Bride, Mack. *The Internet*. London : Hodder Stoughton, 1995.
2. Evenson, Robert and Jha Dawanatha. Contribution fo Agricultural Research systems to agricultural Production in India. *Indian J. Agr. Econ.* 28 (4) , 1973.
3. Padma V Upadyaya. Meeting the information challenge for development and self sufficiency. *In papers of the Eighteenth National Seminar of IASLIC.* 10-13, December 1996. Calcutta, IASLIC, 1996.
4. Powar, K B. Information technology and higher education in Indian context. *In the Proceedings of the National Seminar on Higher Education in the Era of Information Technology.* Calcutta, Rabindra Bharati University, 1996.
5. Rajasekaran, K. Computerisation of Kerala Agricultural University : a proposal. *In Academic Library Automation*, New Delhi, Ess Ess, 1995.
6. Raman Nair, R. Agricultural and farm information network for Kerala. *ILA Seminar proceedings*, Vijayawada, ILA, 1995.
7. Paman Nair, R. *Computer application in library and information services*, Delhi, Ess Ess, 1992.
8. Raman Nair, R. Nature and use of library history. *In Library movement and library development in India* by C. P. Vashist. New Delhi, ILA, 1994.
9. Raman Nair, R. Report on modernization of Kerala Agricultural University Library and Information System. Submitted to the University on 14.09.1995. Trichur, KAU, 1995. (mimeographed)