

Kerala Agricultural University

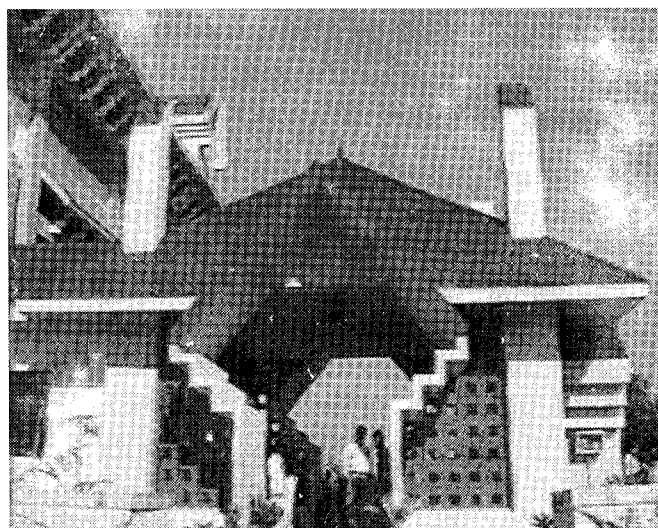
Library and Information Services

Vision 2020

Information plays a key role in agricultural education, research, extension and development. Recognising this role; ICAR Model Act for SAU's Provides for a unit for library and information services of equal status to other major units like Directorate of Research, Directorate of Physical Plant, etc in an Agricultural University. All State Agricultural University Acts and Statutes provides for this unit as per ICAR recommendations. Accordingly KAU Act of 1971 and statutes have provided for this unit.

The unit for Library and Information Services in KAU is solely devoted to information management in areas mandatory to the university as well as for undertaking research both theoretical and applied leading to new developments in agricultural information handling for bridging the gap in the application of current information technologies to problems of agricultural research and development.

The unit for Library and Information Services established in 1995 at KAU as per provisions of the KAU Act 1971 is responsible for managing library and information services in the university and also promoting and conducting research and education/training in library and information technology, computer application to library and information services, as well on areas like accessing, storing, processing and disseminating information in print and electronic formats. With the changing scenario of library and information service environment the mandate of the unit will be 1) to provide library and information service network consisting of electronic information stores of the university, central library, libraries in the headquarters of other units, libraries and information service divisions in the colleges, and research stations under the university, specialised information systems available to the university, and other information service or documentation units, 2) to



build up a repository of information on subjects mandatory to KAU (3) to develop at Central Library an advanced Centre for Information Science (4) to undertake research in current information technology and develop relevant information handling tools and techniques (5) to evolve standards and guidelines for various aspects of library and information systems and networks. (6) to prepare computerised databases in agricultural sciences and (7) to provide advisory and consultancy services.

The infrastructure of the unit at present includes the new university Library Building housing the unit's Administrative Office and various technical divisions of the unit, an Information Technology Lab, an Electronic Library, an exhibition hall, a seminar/lecture hall, and a well equipped central library and the Library LAN. The infrastructure also includes buildings or halls provided for functioning of libraries in eight colleges, the equipments and print and non print document collections in various library and information service divisions at colleges, regional agricultural research stations etc. under the university, rooms with furniture and other equipments where the books are kept in headquarters of other units and research stations and departments.

The Electronic Library, the unit is having at the headquarters has a storage capacity of approximately 6.5 crore printed pages approximate to 3, 00, 000 books containing an average of 250 pages each. It can also hold about 25 hours video or audio in addition to text. Already libraries copied under various MOUs and books and other documents acquired in electronic medium consisting of 5.5 crore pages and about hundred and twenty hours video/audio files etc. have been received from various national and international institutions for this electronic library. The storage systems with Alpha Server 1000 A; under high security stores very costly databases and agricultural research information worth about approximately 2.87 crore received and downloaded under various MOUs and licenses.

The central library has already completed a Building LAN, through which students and scientists using central library can access the electronic library online. With a leased line connection or V-sat at this unit; facility for Internet access for about 65 students/users at a time can be provided inside the library building at initial phase. A campus network is coming up through which students and scientists from any building, department, hostel in or outside the main campus can access this library. A back up generator is also available for the library when it is not used by the nearby auditorium. Hence the Electronic Library with books, video lecturers and databases can be kept accessible for 24 hours through Internet if V-Sat connection is available to this unit.

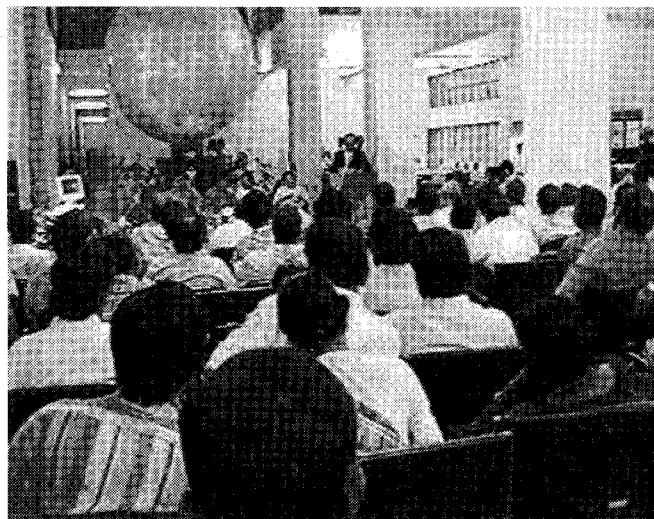
As the unit for library and information service was not established up to 1995 libraries functioned in headquarters of other units, colleges and stations independently. Hence there was no separate Budget for this unit up to present. The Annual Budget for library and information services and related activities at various stations under KAU in total varied between 25 lakhs to 1 crore between 1975 to 1985, 75 lakhs to 2 crore between 1985 to 1995, and 2 crore to 3 crore between 1995 to 1998. More than four crore was also spent towards establishing information networks in various campuses during 1995 to 2000. But up to 1995 the library and information system development activities are entrusted to and managed by different units and departments at various levels without any co

ordination as required by the provisions of the Act. The Managerial position of this unit, i.e., the University Librarian as provided in the KAU Act 1971 was filled up in 1995 only and staff was provided for preliminary office works related to establishment of a Central Library and administrative unit for bringing various library and information service divisions into a planned system. The budget allotment under annual plans for the years 1995-98 was utilised for the creation the physical facilities for this Directorate and for establishing the Central Library. All external aids received for library and information system developments were utilised for establishing campus networks under ARIS Cell.

The unit has made significant contribution in a number of challenging areas related to information handling in the university. Since its inception it has influenced the upgrading of computer and communication equipments used in the university and also popularised the use of latest softwares for various types of information processing and transmission. The first web site of any SAU was launched by this unit for KAU in 1997 which provided information on the library services, IT training facilities of the unit and also announced the IT programs offered by it from time to time. Provision for online registration and confirmation of selection was also established by the site. The Electronic Library and a computer network for the Central Library designed by this Directorate is of international standard and no system equivalent to this has been established anywhere in India at that time. But services could not be formalised and started due to lack of technical and other personal. If staff is provided for this Directorate and University Library the unit will play a leading role information handling in agriculture sciences, computer applications in agricultural research, and extension and related areas in the State, the country and also at international level.

The perspective of university library is to continue its efforts to acquire, store and manage information recorded in print and non-print mediums and disseminate information on areas mandatory to KAU, co ordinate information resource sharing and networking programmes within and outside the university and develop databases and special

information systems in university according to requirement. Teaching and training programmes on information handling in agriculture are provided using the facilities. A software library will be established to continuously watch the IT field and acquire and provide latest updates to all software utilised in the university. The libraries in the colleges and stations will be modernised. Computer and communication network facilities are extended and support will be provided for computer based training in agriculture and related areas in class rooms. Sponsored research, consultancy work and training programmes in information technology for resource generation also will be undertaken



1. Introduction

Agricultural research develops technologies that can increase food production and agricultural information systems access, store and disseminate the knowledge generated by research to the extension worker and also to the farming community. As a consequence of rapid developments taking place in science and technology, there is a virtual information explosion the world over. For achieving an optimal utilization of these developments, it is essential that the scientist in the KAU also have a quick access and free exchange of information at local, national and international levels. The Global Village, Shrinking World, Digital Revolution etc are some of the terms being used to describe the importance of information. In the fast developing world; time is a crucial factor and availability of timely information is necessary to provide cutting edge to the success of any research programme. Fortunately with the phenomenal development in computer technology we are in a position to accomplish the task of the information management so that the information is integrated; disseminated and shared.

Recognizing the role of library and information system in maintaining the quality of education research, extension and development in Agriculture the ICAR Model Act provides for an unit for library and information service system management equal to that of the units for management of research, physical plant, students welfare etc and a scientist with specialisation in library and information science at the managerial level who will be responsible to the university for the system. In Accordance

with ICAR Model Act Kerala Agricultural University Act of 1971 provided for the unit and the Officer to head that unit.

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. The Act and Statutes provide necessary classes required for planned development and coordination. The Act provides for the post of Librarian who is a statutory officer equal to the Registrar, Comptroller, Director of Research etc to control, co-ordinate and develop the system and its sub systems extending to constituent colleges and stations spread over the state. As per the Statute Librarian will be responsible to the Vice Chancellor and the Executive Committee for the system and all development activities related to library and information services; like the DPP for physical plant, DR for research and DE for extension activities. But till 1995 the post was not filled up and the concerned Directorate was not formed. The libraries in constituent colleges and stations under KAU functioned independently without the officer who is to coordinate and develop them in a scientific manner. So co-operation, networking and resource sharing among the libraries in the university was not possible which led to unplanned, irrelevant growth and waste of resources.

The university found that it has considerably strengthened its research in the past 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 education, research, extension and development. Dr. A.M. Michael the then Vice Chancellor decided to systematise things related to library services and develop a modern information system so that maximum utility can be extracted from the resources spent for library development under various heads of account in 48 campuses. As the first step in establishing a modern library and information system in KAU; he constituted a high level committee consisting members of the legislature and experts in various aspects .

The committee visited a number of universities in India and gathered useful information for the planned 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. It gave a proposal which recommended the immediate establishment of the concerned directorate as provided in the Act and for the establishment of a library and information system which is to be technologically intensive and beneficial to scientists and students of all colleges and stations. The estimated cost was about nine crore rupees. The post of Librarian as per the provision of 1971 Act which was to manage library resources in stations under the university was filled up for the first time in the university in 1995. Immediately Librarian also visited major high-tech libraries existing in India including American Centre. British Council Library, Indira Gandhi National Centre for Arts Library, IARI Library, ICRISAT Library and many SAU libraries. Based on the studies and discussions with experts a report on establishment of a library and information network for the university was submitted in August 1995.

On the basis of study made by the high level committee and also the 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 1997. The four storey building has a total plinth area of 4000 sq. mt. The furniture and equipments provided in the library are of international standards and are designed with a view to accommodate the developments in current information technology. As per the opinion of experts the physical facilities can remain functional and modern for at least the next two decades. 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 collections of printed materials for two and half decades within no time found to be on the springboard to Cyberspace.

On the basis of the recommendations of the high level committee and discussion and reviews made by various committees it has become possible to priorities areas of Library and Information System Development. In the Eight plan and in Annual Plans for 1995-96 and 97-98 establishment of the physical facilities required for the Directorate at the Head Quarters, establishment of central facilities like electronic library, database development division, training facilities, Central Library and modernising library and Information services in stations was given priority. University Library Building was completed in 1997. The headquarters of the unit was shifted to that Building. Immediately after the physical facilities for the Directorate was established Central Library was also completed and works for a Building LAN for Central library was started. The Library of College of Agriculture, Vellayani was also modernised and a Building LAN was established there, Equipments required for automating libraries of College of Panangad and KCAET, Tavanur were also acquired. Within three years from the establishment of this unit without staff and sufficient infrastructure; using voluntary services to add to its available man power it could succeed in setting up a Central Library of International standard for the university and also could design an unique Electronic Library.

This report traces out the history of library and information services in KAU since 1971, the systematic and planned development attempted since 1995 and its impact on various activities of the university related to information handling and use of computer and communication systems for that. It provides the mandate to be followed in the coming years in accordance with the principles behind the provisions in KAU Act. Based on the perspective of this unit and certain issues and strategies; programmes have been identified, With a proper review, reporting and evaluation of these programmes the unit will be able to meet its objectives, partly generate resources for its programmes and be a leader in the filed of information handling in agriculture and computer application to library and information services.

2. Mandate

Nature of the Unit: Statutory

Name of the Unit: Directorate of Library and Information Services.

Designation of Statutory Head: Librarian

Year of Establishment: 1995.

Current:

-to provide a Library and Information Service Network consisting of the libraries in the main campus, colleges, research stations, and also the specialized information Systems available to the university.

-to build up information resources on subject areas mandatory to the university, prepare computerised data bases on agricultural sciences 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 networks.

-to co-ordinate efforts to access information on agricultural sciences world wide including establishment of linkages with national and international agricultural information systems.

-to provide an active network mode in which agricultural scientists and students of the university get access to the world community of agricultural scientists, answer requests for information in an interactive and discussive mode and actively initiate dialogue on the fields of research and extension.

-to provide information retrieval services either online or offline in all areas of agricultural sciences and to give overall information support in all field of knowledge.

-to conduct training courses in the specialised areas of information handling in agricultural sciences to meet manpower requirements for handling various information services.

-to perform research into advanced methods of computer based information processing, retrieval; and dissemination in agricultural sciences.

-to implement user education programmes for scientists and students on subjects like information sources, literature

search, indexing and abstracting procedures, computerised information retrieval, etc.

-to provide in service training for library and information professionals.

-to generate data-base in agriculture, animal husbandry, fishery and allied subject areas.

-to update and modify information handling tools and techniques in the above subject fields.

-to conduct training courses in agricultural information handling and computer applications.

-to collaborate with national and international agencies in achieving the above objectives.

Proposed for Future.

-to undertake research leading to new developments in Library and Information Technology and related fields for bridging the gaps in application of IT in education, research and extension.

-to develop computer software to cater to the requirements of information handling in agriculture

-to assist in the development and strengthening of State Informatics System for providing information support to agricultural sector.

-to conduct graduate, post graduate and in service training courses in Information Handling in Agriculture.

-to provide advisory consulting services to agricultural scientists, planners, policy makers and others on their statistical and computing requirements.

-to act as a State Repository of Information on Agriculture for research and dissemination of that information to other universities and agricultural research institutions in the state and the country

-to develop the Central Library as an Advanced Centre of Excellence for education and training in Information Handling in Agriculture and Computer Application to library and Information Services.

-to Liaise with ICAR Institutes, SAU's and other departments to under take sponsored research and training on agricultural librarianship and Information Technology for national and international organizations.

3. Development

Infrastructure

Building: The Office of the unit started its functioning in May 1995 at the Administrative Block, KAU Headquarters. The University Library Building was Completed in 1997 and the headquarters of the unit was shifted to the new Building in 1997. In the same year the works related to the physical facilities of the Central Library was also completed. The major book collections which remained at the headquarters of other directorates like Directorate of Extension, Directorate of Research, etc was shifted to Central Library. The unit has also established an Electronic Library, an Information Technology Lab, and IT training facilities at the headquarters.

Laboratories: The unit has established an Information Technology Lab with facilities for customising library and information service packages, database development and for generating information products according to the requirement of users. The unit can provide software support for DOS, Dgital UNIX WINDOWS, WINDOWS NT, WORD PERFECT, MS OFFICE, CDS/ISIS, BASIS PLUS, TECHLIB PLUS, SPIRS, etc. for various library and information management applications.

Electronic Library: The unit has already designed an Electronic Library. Various national and international institutions have provided support toward this. The Library and Information Science Professionals joining with IT solution providers have customized some search engines according to requirement which will enable automatic pooling of resources in a subject group and retrieving information from that at a single stroke of the key. In this Electronic Library; the storage systems with Alpha Server 1000 A; under high security stores very costly databases and agricultural research information worth about approximately 2.87 crore received and downloaded under various MOUs and licenses. The Electronic Library, the unit is having at the headquarters has a storage capacity of approximately 6.5 crore printed pages and it already has libraries copied under various MOUs and books and other documents acquired in electronic medium consisting of 5.5 crore pages and about hundred and twenty hours video/ audio files in its storage systems. The electronic library has all the facilities for hosting a virtual university on agriculture. This is the first such system in India which KAU and ICAR can be proud of.



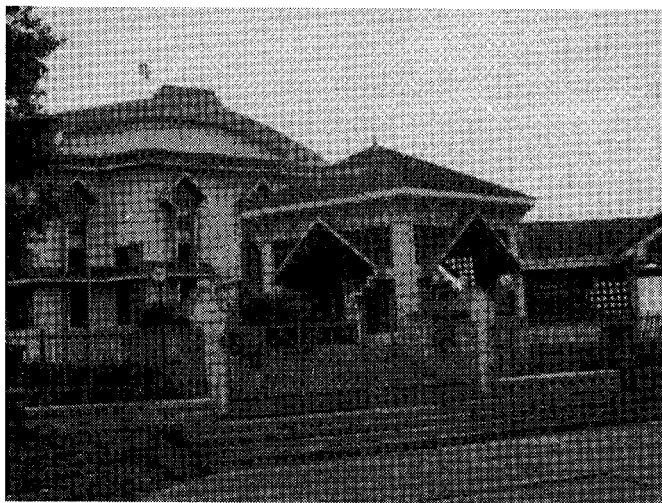
Central Library LAN: The Central Library LAN is already complete and text and video from the electronic storage system can be accessed by any of the student or scientist through systems provided in Central Library LAN. The LAN cabling was done during the construction of the building and the plug in points were provided in most of the points identified to be those were users and staff will be working in different positions of the three floors of the building. It is a plug and play type of LAN and up to 65 systems can be plugged into the LAN without any up gradation and according to increase in usage, more systems can be added with minimum addition of network components. While a VSat forming part of the project is installed at the university library the books and other information stored here in digital form will become accessible from any distant campuses or Krishi Bhavans.

Campus Networks: Campus Network are coming up under ARIS and other programs in Main Campus and distant campuses at Vellayani, Panangad Mannuthy etc. The Central Library can be accessed online through these campus networks when they are commissioned; from any building and any station. For using the information stored in electronic mediums in the central library, it is not essential for the user to come to the Central Library.

Central Library: The unit has established a Central Library at the Headquarters. It will serve as the main library for the colleges and stations in the main campus. All costly

reference books, foreign journals and other documents which are required for more than one station will be acquired and kept here for common use and to avoid duplication. General collections, reading materials for entertainment and education of administrative and other staff, training materials and resources for supporting the students to prepare for IAS, IFS, ASRE and other competitive examination will be built up at the Central Library.

Conference Facilities: In the library Campus there is a fully air conditioned high-tech auditorium with all modern facilities. As per the plan of the Library cum auditorium complex the Library LAN will cover the auditorium also and the video and sound files of all conference proceedings will be recorded directly from the venue to the digital library. The conference can be viewed at all stations of the university and will be available in the Internet. The digital recording



was first time experimented with a temporary cable connection during IASLIC 98 conference.

Power: For sophisticated library equipment that need high power protection UPS backups are available. A back up generator is also available for the library when it is not used by the nearby auditorium

College Libraries: There are eight college libraries coming under the unit. All of them have required minimum infrastructure like building, equipments and collections of print and non print documents. Library at College of Agriculture Vellayani was automated with a college library LAN and information resources in electronic media to serve the campus and nearby stations. Equipments for automation had already been acquired for College of Fisheries, Panangad, College of Agricultural Engineering, Tavanoor etc. Library modernisation programs are on the anvil in other colleges.

Department Libraries: Various Departments of the Colleges are served by Department Libraries having small collection of books on the subjects specific to those department which are required for day to day use.

RARS Libraries: Regional Agricultural Research Stations are served by libraries established in the concerned RARS with collections on subjects specific to that agro-climatic region and projects managed by them.

Research Station Libraries: Research stations are served by small libraries established in those stations with collections on topics in which projects are undergoing at that station.

4. Achievements

Even through, it is a very short period of existence to assess the activities of this unit, its achievements can be found to qualitatively and quantitatively incomparable. Since its inception in 1995 as the Statutory Directorate for Library and Information Service System of the University the unit's aim has been to bring the library and information service divisions working independently under various units and stations into a planned system and develop them in the same line for the common objective as per the requirements of ICAR recommendations and University Act and promote the establishment of an Integrated Library and Information System. To meet these objectives, various efforts were made.

Inter Departmental Participation in Development

Information is the most important constituent that helps to maintain quality in management, as well as education, research, extension and development activities in the agricultural sector. Hence need based development of information support services to all directorates and institutions under KAU is important. To enable continuous active participation of all the units of the university which are users of information in the system; to enable the Head of the unit to have a consultative mechanism and make development need based, a committee named KAULIS Advisory Committee with the heads of other units as members was constituted at university level in 1995 by

Dr. A.M. Michael the then Vice Chancellor. All the library and information system and network activities are discussed by this apex body which ensures full participation of all directorates and subject fields in the need based development of the library and information systems and networks in the university. Participation of the various projects and divisions under other units are ensured by the managers of those units represented in the committee.

KAULIS Advisory Committee has the following members:

Pro Vice-Chancellor,
Vice-Chancellor, Chairman; Vice Chairman;
University Librarian, Convener.

Members: Registrar, Comptroller, Director of Research, Director, Academic & PG Studies, Director of Extension, Director of Physical Plant, Dean (Veterinary & Animal Sciences), Dean (Agriculture), Dean (Fisheries), Dean (Agricultural Engineering), Dean Cooperation, Banking & Management), Associate Dean (College of Horticulture) Associate Dean (College of Forestry), Director of Physical Plant, Special Officer, CODS&Tech., Special Officer, COV&AS, User Representative (Scientist) and User Representative (Student.)

Participation of the departments under various institutions are ensured by the next level committees constituted in the campuses whose recommendations are brought to the high level committee by the Chairmen of those committees.

College Level Committees

College Level Committees forms Department/Division Level consultative mechanism for development. As the college campuses are established at geographically different locations, and they have some earmarked subject areas. Research, extension and development activities of the region normally depend on information support activities provided from college campus library and information service facilities. Hence for the need based development of the systems in colleges participation of all departments of the college is essential. So a committee at the College level was also formed in 1996 immediately after the establishment of this unit. This committee for college level participation has the following members.

Chairman: Dean/Assoc. Dean of the college, Vice-Chairman: One professor/Assoc. Prof. to be nominated by the Chairman, Members: Three Heads of Departments of the College to be nominated, Student Member: Post

Graduate Student representative, Member Secretary: Library Professional in-charge of the Library..

So the Directorate of Library and Information services has already devised a mechanism which can ensure full participation of all directorates and subject field in need based development of library and information system and networks and information resources on subject areas mandatory to KAU.

Intra Department Participation in Governing:

Developing capabilities to fulfill the pressing demands set on the library system; in these days of unprecedented progress in agricultural research and development and resultant information explosion necessitates intra-departmental participation in library and information system management. To enable this, KAULIS Management Council with the following members has been constituted in 1999.

Librarian, KAU: Chairman; Administrative Officer KAULIS: Convener.

Members: Deputy/Asst. Librarian, College of Agriculture, Vellayani, Deputy/Asst. Librarian, College of Fisheries, Panangad, Deputy/Asst. Librarian, College of Vety. & Ani. Scs., Mannuthy, Deputy/Asst. Libn., Kela. College of Agril. Eng. & Tech., Tavanur, Assistant Librarian, College of Vety. & Ani. Scs., Pookodu, Assistant Librarian, College of Dairy Sciences, Idukki, Assistant Librarian, College of Horticulture, Vellanikkara, Assistant Librarian, College of Forestry, Vellanikkara, Assistant Librarian, Coll of Co-Op., Banking & Mgt, Vka, Assistant Librarian, College of Agriculture, Padanankad, Deputy Librarian, University Library, Vellanikkara, Asst. Engineer E & C, Library LAN Admn. KAULIS, Asst Libn., KAULS Serials, & Services to Colleges, KAULIS, Library Assistants/in charges of all, RARS andRRS.

The KAULIS Management Council shall examine proposals for planning and development of all aspects of library and information services under KAU provided through University Library, Libraries in Colleges, RARSs RRSs and other units/Institutions under the university and evolve priorities. KAULISMC acts as the platform to consult university's library and information system's management, administrative, research and finance matters.

University Library, College Libraries and RARS Libraries have their own Management Councils with all staff of concerned division as members. Policies/programmes, budgeting, prioritisation, and other operational issues for the successful management of the college/RARS/RRS

libraries shall be discussed at the concerned council to take up issues and concerns of the respective library to the KAULIS Management Council. All aspects related to Library and Information System development shall be discussed by intra-departmental councils before it is placed in any inter-departmental councils.

Book Collection Development: An evaluation of the book collections existing in various stations done immediately after the forming of the unit showed that many important reference materials in agriculture and related areas were not included in the collections. But many unimportant books were acquired in dozens of copies and many remained unused for years on shelves. Hence the matter was discussed in the Library Committee and clear and detailed book purchase procedures were framed for maximising the utility of expenses towards purchase of books.

Journal Subscription Policy: University used to subscribe serials and journals worth approximately 52 lakhs annually for colleges and stations in total. It was found that major portion of this goes to foreign journals which were subscribed in duplicate by different stations. It was also found that many essential journals could not be subscribed due to lack of funds. Hence in 1996 at the Advisory Committee, it was decided to centralise the journal subscription from 1997 as per university rules and subscribe to maximum number of required titles avoiding duplication between stations on very costly foreign journals. Such journals required by different stations will be detained at Central Library; and information service based on them will be provided by Central Library to all stations which require that journal. It was also decided to acquire journals available in electronic medium in electronic medium only which is cost effective and convenient for speedy and efficient service. This policy enabled the university to subscribe to an additional 60 Indian and Foreign journals without increasing total recurring expenditure. Change to CD ROM versions have reduced the recurring expenses towards subscription to some foreign journals by 60%.

Computerized Information Services: The unit has already started computerised information services using the electronic documents as well as resources existing outside; shared under various MOUs, through Internet. Experimentally, a nominal charge that covers consumables, telephone charges and part of maintenance was fixed. As staff was not yet provided the service was done experimentally from 1998 and the response was

highly encouraging. Even though it was announced that the service was offered temporarily to test the systems developed and will be discontinued after trial run period for further development; due to the high pressure of users it was not closed after testing and is provided at present within the limitations.

Centre for LIS: While visiting the Head Quarters of the unit during the progress of the work and going through the concept design the Director General of ICAR remarked that the unit if completed as per the plan will be an unique model and can be utilised by other institutions also for training in current information technology. ICAR has reported KAU Library System as one of the largest multimedia libraries existing in the country. Evaluating the facilities university has decided to establish a Centre for Library and Information Science at the unit for providing training programmes and consultancy services on information handling particularly in agriculture and science and technology areas and offer courses on Library and Information Technology and Information Handling in agricultural sciences.

Evaluating the facilities available at the unit NISSAT under DSIR Government of India has offered to meet partial expenses for offering courses at subsidised fee. INFLIBNET and Information Service Package Division of NIC, under planning Commission have also agreed to support the unit for conducting training programmes for which university have already signed an MOU. It is also obligatory for this unit to train apprentices in library and information science for which Board of Apprenticeship, Government of India is providing Financial support. Various self sustainable programs were offered and were noted and appreciated throughout the country.

Repography: Some of the libraries under this unit are already offering reprographics services at subsidised rate which can generate the resources required to maintain that service.

Farmers Division: At the headquarters the unit has established a farmers division with reading materials specially prepared for the farmers, facility for offering video programmes, interactive multimedia programmes, and conducting exhibitions. It is the first agricultural university library in India to design and implement a high tech farmers information service division. The division has a collection of about two thousand five hundred books specially prepared for the farmers in simple language, three hundred posters, five hundred and fifty video films and

interactive multimedia programs on sustainable farming, animal rearing and other subjects,

Information Technology: This unit can be considered pioneer in introducing Information Technology culture in the university which has helped in adopting current technologies and improving agricultural education, research, training and extension by the use of computers. The unit has already customised a software for database development promoted by UNESCO in consultation with NISSAT of DSIR, Govt. of India, and INFLIBNET. Standards supported by Common Communication Format prescribed by UNESCO that can enable information exchange and resource sharing with national and international institutions has been implemented for database development. Already a sample database was developed.

The project on union catalogue database of all libraries under KAU is getting implemented. Complete catalogue of holdings of the central library has already been computerised and is available on the network. The unit has provided training in IT worth approximately 30 lakhs to librarian and other staff at various national level institutions. The unit has also trained staff of various stations for working in automated library and information systems. The unit has the most modern IT environment with Information Technology Lab, electronic library, a building LAN for Central Library and computer based training facilities. A temporary ERNET connectivity has been established for use till the campus to campus network becomes functional. All Divisions of the unit have been provided with computers and specialised packages for automation of the works related to those divisions and for providing services to users.. Various Abstract and Index databases are available on computers for Selective Dissemination of Information. An OPAC catalogue had been provided for the users. Textual, graphical and video access terminals have been provided at various points at the Central Library for users.

IT Research and Publications:

Information Technology research conducted for developing the system has resulted in hundreds of publications by the staff of the unit. Various projects were presented as papers, discussed and modified in national level technical seminars, workshops and meeting before applied.. Some of the publications by the staff of the unit are the following.

Books: Staffing Agricultural Information Systems, Computer Application to Library and Information Services, Academic Library Development, Academic Library

Effectiveness, Academic Library Automation, Sustainable University Library Development, CDS/ ISIS for DOS, Internet for Library and Information Systems.

Research Papers: Agricultural and Farm Information System for Kerala. In HR in Librarianship, Vijayawada, 1996; Development of an Academic Database and Network. Proceedings of AIU Conference, Calcutta, 1996; Priorities in information management systems for agricultural research and development in India. Proceedings of ILA Conference. Calicut, 1996; Information needs of Agricultural Scientists in India: Problems and prospects. Proceedings of IASLIC Conference., 1996; Automating Agricultural University Libraries: Need for Standards and guidelines, Proceedings of CALIBER 97, Patiala, 1997; Sustainable Management of Library and Information Systems in Agricultural Universities. Proceedings of National Seminar on Sustainable library and Information System development. Chandigarh, PU, 1997; Modernising Agricultural University Libraries. In Sustainable university library development, 1997; Impact of information superhighway on library services in Kerala Agricultural University. Proceedings of National Seminar on Internet and Information Superhighway. Coimbatore, TAU, 1997; 'Study in India' Website at INFLIBNET using BASISplus/ TECHLIBplus and BASIS Webserve: A proposal. Proceedings of CALIBER 97, Patiala, 1998, Who should manage Information Technology in Universities, ILA Conference Proceedings; Establishment of an electronic library to support agricultural research education and extension in India. Proceedings of the 49th FID Congress, 1998; Strategic Plans for Designing Information Systems under Local Government. Proceedings of the IASLIC Conference and seminar on Right to Information, 1998

Software Development: The unit has customised various library packages by the research and development activities undertaken during 1995-2000. Standards for various library and information processing activities have already been formed in consultation with INFLIBNET and other standards are under preparation.

Database Development: A database of the holdings of the central library had been developed. Database project for developing a union catalogue of documents available at all stations under KAU had already been initiated. Standards were also developed for Serial and PhD dissertation databases. Full text database of Phd Thesis of KAU has also been developed.

5. Impact of the System

The research carried out by this unit on integrated information system development, library automation, content development and the system developed can contribute towards the establishment of similar systems in ICAR Research Institutes, other SAU's and traditional universities in the country. Director General of ICAR who visited the central library during the initial stage of the system development has after evaluating the concept design remarked it as an unique system and ICAR Annual Report has projected it by claiming it as the biggest Multimedia Library and Information System in the country. Some SAU's and other institutions have already sought technical advise and support to establish similar systems for them. NIC under planning commission, NISSAT, INFLIBNET and VSSC have supported the development of various softwares for application by this system and this unit is considered one of the excellent sites coming up under their support. The unit has given consultancy services for automation projects on library and information services of various educational institutions in Thrissur which were already completed and commissioned. For the project on "Information System on Kerala Culture and Literature" of Government of Kerala and the building up of Web site for Kerala Sahitya Academe, technical support was provided by this unit. Training was also provided to Library and Information Service professional from in and outside KAU which have an impact on modernising concerned information systems. Joining with District Library Council and Bharat Yuvak Samaj; familiarisation programs on current techniques for information services was offered to librarians working in rural libraries of Thrissur District. With financial support from Board of Apprentices Govt of India, nine Graduates in Library and Information Science are also trained every year at various stations by this unit in application of computers and communication systems in libraries. Various national level Information Technology literacy programs for students, teachers, librarians, managers and other groups of people were conducted by this unit with support from Ministry of Science and Technology. Workshops, short courses and seminars on different aspects of IT applications were regularly conducted by this unit which has a profound impact.

The unit has carried out necessary research and developed and customised various packages for library application. Projects on development of packages for various house keeping operations in library and information system is

under development with support from various institutions. Some modules of information management package developed by international organizations were customised for our applications with the technical support of original developers under MOU's. Standards for hardware and software, have been prescribed and implemented in all library and information service divisions under the university existing in various stations to enable exchange of information, pooling of electronically stored information and easy and smooth access to centrally stored information..

Various projects initiated by the unit have brought a computer and information technology culture in the university. The automated data search for research facilitated by the unit has benefited students, research scholars teachers and scientists heading various projects for meeting their information requirement efficiently. Many research projects given up or discontinued due to lack of data were revived within a short period after the implementation of online data search facility provided by this unit. Time required for preliminary data search for project works of PG students, Ph D Scholars and externally aided projects were shorted by 75%. As the softwares and databases used by the library are latest, produced by specialist groups on IT applications and international agricultural research institutes; the unit has to adopt latest technology in hard ware and software to enable the use of such packages at databases at the unit. This has given an awareness in all institutions under the university regarding latest developments in computer and communication technology and influenced updating of existing machines as well as adoption of latest technology while acquiring new machines. The users of the automated system which included students and teachers doing research as well as project heads were given formal and informal training in use of computers for information retrieval which has immensely helped them to increase their productivity through use of computers in their research and other activities.

The research done for developing various aspects of the system has also resulted in many research papers and other publications which has generated interest in the field in and outside KAU on the information systems developed here as well as have given an awareness about the possibilities of IT among, students, scientists and information workers.

Input-Output Assessment

The input in Library and Information System development and maintenance has been in terms of building up the infrastructures like, central library, college libraries, electronic libraries, Building LANs, collections of information resources in print, non print and digital storage mediums, education and IT training of library staff at different levels, recruitment of professional and other manpower etc. The Out put is improvement of quality of education, research, extension and development work made possible by the availability of current relevant information support received in time. The impact can be assessed in terms of growth in use of current information and also the use of the tools and techniques of information technology in activities of the university as well as growth in the subject of information handling itself.

Library and Information support play a very important role in agricultural education, research, extension, planning and development; all of which have an inherent need for not only information but also information technology. Research in agricultural information handling has led to the development new storage technologies, retrieval systems and evaluation and processing methods. The systems designed by the unit can help in building up and strengthening not only the State's agricultural information systems but can support national system also and can be used by all agricultural research institutes for forming policies in their research projects. The methods suggested by the unit for information access, storage and dissemination are being used by many other institutions in and outside the State.

The exposure to modern information systems developed by the unit has helped in improving our human resource development activities also. Since the establishment of this unit and exposure to current technology, Computer Application and Information Science has been introduced or updated in various programmes offered by the university.

Short comings

Even though the unit can claim several achievements in the short span, there are many grey areas where more could have been achieved. A good collection of printed materials, textbooks and journal collection to meet requirements of UG students as in central libraries of other SAU's could have been developed here also. A general collection meant for leisure time reading and for general reference for competitive exams etc could

have been developed here. Even though staff is not provided the services also could have been extended using voluntary services so that the academic community would have become aware of the resources and its usefulness which would have served as a pressure to staff the system. A major constraint for not making the system functional is necessity of appreciation of information support in education, teaching, research and related activities.

Another short coming is the failure of the unit to bring the libraries in various stations of KAU, and other information networks and documentation activities under the unit and develop them in total as an integrated system and manage them as per the Act and Statutes as the divisions of an integrated system as in other units like Directorate of Physical Plant, Directorate of Extension, Directorate of Research etc.

In order to properly provide the information support for teaching, research, extension development etc this unit should have been associated in all the major functions of the university involving information components. However there is lack of consultancy with this unit in all programmes and functions where information factor is crucial. Even in development of libraries which are to be co ordinated by this unit as well as in development of information service systems, networks and documentation activities sufficient consultation is not there. Reason for such a situation to develop are that when the statutory managers for all directorates of the university were filled in seventies itself as per KAU Act and concerned directorates were established at initial stages of university development; the statutory post of the scientist who was to manage the library and information services unit was not filled up for about twenty five years. Hence library, documentation and information system development and maintenance activities were entrusted to different units and officers and it has become difficult to systematise them and bring them under the unit for developing into a planned integrated system at a single stroke. More than that even though the statutory post of scientist who is to manage the unit was filled the directorate\office was not formed as in other statutory offices which also has prevented the effective co ordination and management of the system.

There has also been a lack of proper exposure to scientists of the university to current information technology applications and services, as well as sufficient information technology orientation programmes could

not be taken up due to lack of sufficient number of staff as well as non finalisation of rules of membership etc for opening the central library. All these have adversely affected the unit.

Lessons Learned and Future Development

To keep pace with the changing situation, efforts are required for the collection development programs taking into account the changes in the information needs as well as changes in infra structural set up of earlier existed library and information system. Efforts are needed to fill up the gaps in collections and services. Users studies are also to be continuously undertaken to develop and maintain a need based system. A significant achievement of the unit has been the popularisation of use of computers in information storage and retrieval. In this area much more remains to be done. More electronic databases that may be of use at under graduate level also is to be added. The library and information service units in colleges and stations also require to be modernised. It is also essential that students scientists, extension workers and managers in SAU should be exposed to new Information Technology.

The utility of information generated is to be fully extracted. The unit should also get sufficient professional staff, if it is to enable the full utilisation of resources and meet the needs of information access storage, dissemination and creation of agricultural databases.

Most library science courses are not having specialization in computer application or agricultural information handling. In view of the acute competitiveness of

employments of trained man power in library and information technology and other constraints; getting adequate number of technical and other staff remains remote. The possible course of action is through training available professionals and by organizing special training programmes for preparing the new staff to be recruited for this new unit.

Financial resources is another constraint which seems to be adversely affecting the library and information system. As the statutory unit could not be established by the university as per act and rules till 1995; for twenty years the services at different institutions and stations were developed in an uncoordinated and unplanned manner.

Hence the collections have not developed qualitatively and are not reliable. The Central Library as in other universities could also be not established for about 25 years. Now the libraries in various stations are to be reorganised to form an integrated system. Their collections are to be improved by adding minimum important updated reference materials. The printed collection of the central library is to be built up. All these are to be done in this plan period and the fund meant for library and information services, documentation and information networks are to be pooled together and used strictly according to a set plan to extract maximum utility of the amount spent. The unit can also generate its own resources through sponsored research, information processing, consultancy services and teaching and training programs in information technology.

6. Information Handling Scenario

Even though India has been a leading country in agricultural production for a long time, in Agricultural Information Systems initiatives were taken only very recently. The role of library and information systems in education, research, extension and development has never got it due recognition as in developed countries; in agriculture or even in the other highly information dependent areas of science and technology. IARI has recently modernised its library and information system but building up a high tech system in one corner of the basement for a huge traditional system has created many hurdles and limitations. Even though Swaminathan Foundation has done some research on theoretical aspects no university or organization has come up to apply that due to the constraints given by existing attitudes to library and information systems.

It is in such a scenario that the unit was established in 1995. The delay of about 25 years in establishing this unit has

even though caused unplanned utilisation of the resources meant for that during the period, it contributed for its efficiency in another way. Information technology, an area of recent development which has absorbed all related fields into it and developed into specialised subject area has finalised and formalised most of its methods and techniques by the mid nineties. This enabled the unit to build up the major facilities from the foundation itself in a way in which they are completely in accordance with latest prescribed standards and guidelines that can enable the harnessing of all the possibilities of computer and communication technologies.

Strength

The establishment of the Directorate level office and filling up the statutory managerial position has ensured the future planned development of the library and information system.

The establishment of the University Central Library which is to serve as the central hub of any information system and play a leadership role in the application of current information technology has placed the unit on the threshold of information explosion in agricultural related fields. Technology, infrastructure and expertise now available at the unit is competent to provide information support to agricultural education, research, extension and development activities undertaken by all institutions and organizations in the State. The institute has expertise and models that can assist the National Agricultural Research Information System also.

Some of the research findings of the experts in the unit in the field of information handling have been incorporated in books published which serve as text books in various teaching programmes on information sciences at many universities and training institutes. Some of the research work conducted by the staff have generated a lot of interest in field and have been published as research papers.

Weaknesses

There is a contention that the unit has failed in effective coordination and management of various libraries, information service systems, networks and related activities. The main factor responsible for this is the system in which the unit has to operate. Among offices of the units for which KAU Act 1971 provides; except this unit all other units were established in 1971 and managerial positions for those units were filled. Various functions this unit has to undertake was spread among other units and resources were also allotted to them for undertaking the work. So that has by precedence become a way of functioning and other units consider library development as their mandate for which funds should be earmarked to them. Hence various libraries and information/documentation service units and information networks functioned as independent units in an un coordinated way for 25 years duplicating various activities and without achieving full utility of the resources.

Hence when the statutory unit was formed in one morning it has become difficult to systematise things against tradition and precedence of 25 years. The various units which controlled library have also developed a possessive nature which also hinders planned development and coordination of library system by the concerned directorate as per the Act and Rules. The unit is also not being consulted by various other units and their sub units that presently handle library information, documentation and information network activities, which hinders the management to develop them with a common objective of an integrated information system. The staff required for the unit to co ordinate these functions and manage various libraries and information service functions is also not yet provided which hinders effective functioning.

Threats

Information service is the vital factor that determine quality of education and research. It is the mandatory responsibility of this unit to provide that service. But this was the only unit required as per the provisions of the Act, the establishment of which was delayed for 25 years. Even after the establishment of this unit, and filling up the managerial position, the full functioning of the unit and co ordination activities mandatory to the unit cannot be ensured due to the technical reasons and non availability of staff. The net cost of the resources the university has built up for library and information systems and related activities is worth approximately RS. 1619 lakhs. The modernization efforts and possible integration was achieved by the unit through sheer perseverance and voluntary effort contributed by the staff in addition to available man-hours. If the unit fails to transcend the hindrances and get sufficient manpower as well as to control the resources within a prescribed time-limit, the system is likely to be forced back to the earlier state which may cause deterioration as well hinder the full; planned utilisation of the resources worth crore of rupees and will result in a huge capital loss to the university and the state.

7. Perspective

Libraries are the institutions on which the impact of IT or the technology related to recording storing or disseminating data or information is first felt. Most such inventions were influenced by library and information system's requirements. Paper, printing press, camera, typewriter, computer, telephone, fax machine, modems, communication satellites etc have immediately on their invention influenced librarianship and library services tremendously. Now library and information technologists

predict a paperless society and an electronic future for libraries. At least in the libraries supporting research this is going to become true very fast and before we could realise it they will shed away their traditional form. Librarians are moving away from the idea of building up large collections to facilitating access to maximum information. Speedy access to information is more important than storing information or documents. Information superhighway and Internet enables access to maximum area of the whole

universe of knowledge from any place at any time at the touch of a finger.

Higher education in agriculture provides trained manpower for the agricultural development. Agricultural information systems contribute to national development through dissemination of specialized knowledge and skills. It is, therefore, a crucial factor for survival. Science and technology and agricultural research has made a substantial contribution to the development of modern technology leading to increased food production, industrial development, revolution in communication technology and advent of life-saving medical techniques.

Pinpointing the seriousness of problems in higher education World Bank's study opines that the current situation is not sustainable in the medium and long term. According to World Bank, higher education is in crisis throughout the World in terms to low quality, inefficiency and inequity. Further, it adds that there can be no doubt that without serious attention at the institutional level, i.e. management, leadership, the use and accountability of public resources, etc little progress can be expected in higher education reform.

UNESCO points out three important worldwide trends - enormous quantitative expansion which has nonetheless not led to increased equality of access and has not resulted in a proportionately large product of engineers and scientists; inadequate diversification of institutions and academic programmes that do not comply with minimum standards and have not led to significant educational innovations; and expansion in an increasingly constrained financial environment.

Our higher education system has rapidly grown both in size and accessibility after independence. Organised instruction in agriculture at the university level was also introduced in India from the beginning of the twentieth century. Immediately after independence it became clear that our agricultural underdevelopment was largely the consequence of institutional under development. It was realized that lack of both trained scientists and effective institutions was resulting in under-utilization of natural resources and in many cases wastage of investment capital. It was also clear that increased food production was imperative to India's survival, and so application of science and technology in agriculture was an inescapable necessity. Hence Government of India set up an Expert Committees to review the then existing agricultural research and education systems. The earliest of this; popularly known as the Dr. S. Radhakrishnan Commission, recognised the inadequacy of

existing system and strongly recommended the establishment of rural universities. The commission has clearly identified the role of library and information services in determining the quality of education and research and recommend the development of library as heart of all academic work in a university. For research in agriculture and related areas in the state traditional universities and other organizations have to depend on the information generated and disseminated by agricultural university.

Library and information systems in SAUs can be made more productive and responsive to needs of agricultural education, research and development if they are managed on the principles which have led to achieving excellence in many industrial and nonprofit organizations. Different commissions and committees constituted for improving library systems in universities have stressed the evolvement of organisational system and management practices based on contemporary societal environment and requirements .

In west the library and information systems managed through the application of modern management techniques have excelled in realizing their goals. Unfortunately in most of the SAU's library management has been considered as any one's task. They hardly utilises the well trained management concepts in library systems. It is observed that the decision making personnel are hardly endowed with the requisite professional knowledge, managerial skills and appropriate temperament. Library managers tend to believe that knowledge of rules and regulations is sufficient to manage effectively. The management principles relevant to library systems cannot remain static. They tend to change over different periods as a result of changes in the objectives, size, societal aspirations, scope of activities, and practices of management. In earlier days, teachers used to be the managers of the collections of academic institutions where a few disciples used to come for higher level of education. Library management derived its techniques from the obedience of the students and academic pursuits of the teacher librarian. Even the libraries of Takshasila and Nalanda universities has the flavour of this principle. This period was dominated by the intellectual library managers designated as Sarasvati Bhandarikas who proved their worth in academics. They managed libraries by management principles which stressed intellectual excellence. Most of the techniques were paternalistic in nature.

Present day library systems are the outcome of the constellation of worldwide changes and are encountered with the phenomena which were never anticipated in the past. The university environment is facing serious changes. Increasing thrust on education crowded the universities.

Democratic secularism posed entirely different challenges. Students and their parents started questioning the relevance of education. Politicians entered universities to propagate their ideologies. Liberalization, globalization and privatisation have virtually converted universities to business firms struggling to raise adequate finances and survive in competitive environment. Information technology and electronic revolution have created a dominant class of neo literate. Worldwide explosion of knowledge expected universities to be sensitive absorbents and it gives very important role for university libraries.

As a university library is different from other divisions of the university or business organizations, the management practices developed elsewhere can not be transplanted as such in the libraries. What is required is adaptation of management principles in the library and information system as per the emergent situations.

University Library Management is the process of planning organizing, leading and controlling the work of staff of the library and information systems and of using all available library and information resources to reach stated goals of the university'. The library managers direct the utilisation of all the resources of the library, its finance, equipment, information and people to attain stated goals. This means that managers of any library and information system let it be in an agricultural university or traditional university try to attain specific ends. These ends are of course unique to each library system. Whatever the stated goals of a particular system may be, management is the

process by which these goals are achieved. And the managers are those persons who get these goals accomplished with and through people.

Library management can be understood as the process of identifying the objectives and ensuring their achievement through the solution of problems and utilisation of resources with the application of appropriate management techniques. Library and information systems are designed to achieve specific goals. The task for the practitioners and thinkers is to continuously study the emerging situations, revise goal-structure, search appropriate strategies and evaluate the performance. The foremost task of a manager is to clearly identify these goals. At a particular moment, say, a university library may be pursuing the goal of all round development of information support systems for students or research in some specified fields. After pinpointing the goals, one has to diagnose the situation both existing and anticipated. This necessitates proper understanding of the system and environment around it. Keeping in mind the emergent situation, library manager should apply suitable management techniques, in order to achieve stated objectives.

All aspects covered in this document are important to knit together various components of the system identified and unidentified existing under different units without coordination and common goals; to uphold the objectives as per mandate and contribute to quality in agricultural education, research, extension and development in the state and the nation.

8. Issues and Strategies

The issues requiring concerted efforts in development of library and information systems and networks are (1) to bring the libraries, information service units, networks and documentation activities under the statutory directorate which is to be responsible for this function

(2) to reorganize the system and services at various stations as per the standards set by the unit (3) ensuring application of current information technology for cost effectiveness and (4) customisation of automated systems for user friendliness.

9. Programmes

The programmes identified by unit for the years to come is based on the information need of the university and the requirement of UG, PG and research students, scientists, extension activities projects and administrators. Library and information services at various stations are to be modernised, reorganised and developed qualitatively and brought into an integrated

system as per the Act and Statutes. All these will include programmes such as

- Reorganizing the divisions to be brought under the unit as per Act and Statutes to enable application of current Information Technology
- Evaluation of existing collections and Identifying gaps

- Development of subject specific collections at research stations
- Building up required reference collections at colleges
- Strengthening of textbook collections at college libraries and central library
- Development union catalogues of holdings of different libraries under KAU.
- Development an electronic library of PhD thesis accepted by the university
- Building up an electronic collection of Back files of Indian journals at the Central Library
- Internet dedicated line connectivity to the LAN of the central library and provision of Internet access to college and research station libraries.
- Development of Website on research done on agro climatic regions of Kerala in Kerala as well as world wide and provide Internet enabled services on that aspect
- Establishing library networks for different campuses
- Human resources development in the area of library and information technology
- Instituting resource sharing programs within the university and outside.

Detailed Programmes

Programme 1: Infrastructure Development for Library and Information Systems

Short term: The short term perspective will be to develop an infrastructure consisting of physical facilities and manpower for the functioning of the unit which consists of different library and information service divisions managed by various institutions under the university existing in different localities.

Long term: The library and information service institutions existing at different stations will be reorganized and modernized according to a prescribed standard to function as service outlets of an integrated library and information system. Required physical facilities and manpower as per the standard will be provided. All libraries will be computerised and networked and connected to the central library which is the central hub of the system.

Program 2 : Information Resource Development for UG programmes:

Short term: Available Indian text books for various UG programmes offered by the university will be identified and a master list will be prepared and one set each of these UG level text books will be acquired for the colleges and kept strictly for reference so that a copy is available in all colleges for reference and use of any UG student at any time. Minimum one set will be put in lending section of each college. One set will be made available at Text book section of University Library.

Long term: Sufficient number of all available Indian Text Books for UG programmes will be acquired in libraries functioning in each college for lending . Minimum one copy each of all text books useful for UG programs will be made available in libraries of every college, Costly Foreign Text Books or Reference Books which are to be highly used will be acquired in electronic medium or copied into electronic medium with permission from publishers and made available online through library network

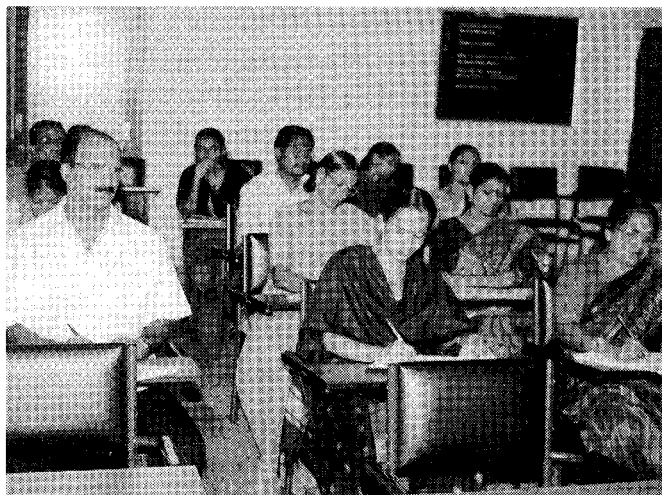
Programm 3: Reference Collection Development:

Short term: One copy All Indian publications on subjects mandatory to KAU published by ICAR Institutes, other research organizations, SAU's, and commercial publishers will be acquired and made available for reference at the central library. One copy of such publication coming under the subject areas on which programmes and projects are available in colleges and stations will be made available to the libraries of colleges and stations. Very essential foreign publication will be made available in central library collection .

Long term: A complete reliable collection of Indian and Foreign publications in print on subject areas mandatory to KAU will be developed at the central library. Such collections limited to the subject covered by the different institutions will be developed also at colleges and stations under KAU.

Programm 4: Journals/Serials Collection Development

Short term : All Indian Journals on subjects mandatory to KAU required for use mainly for the UG programmes will be subscribed at all colleges One copy of very essential foreign journals required by various stations will be subscribed at the central library and services based on that will be provided to colleges.



Long term: All foreign Journals on subjects mandatory to KAU will be subscribed/copied in Electronic medium and kept in Electronic Library at unit Headquarters and online access to this will be provided to students and scientists of colleges and stations.

Programm: 5 Virtual Library Development

Short term: Very important reference materials and teaching-learning resources consisting of text graphics, animation, video, audio etc. available digitally will be acquired and added to the electronic library. Various computerised databases developed by the unit also will be added to the electronic library. Highly used reference and text books will be copied into the electronic library. Provisions for online access to these resources will be established.

Long term: The KAU publications and video productions will be merged into the electronic library. With ICAR support the unit will launch a virtual agricultural library that can be accessed from any SAU, ICAR Research Institute or from any village library or national library. The virtual library will be online 24 hours a day 365 days a year, providing to students, scientists, and academic administrators under KAU immediate access to library and information system; from headquarters, or from the university's regional locations or from their hostels or home where minimum access facilities are available. Some of the components of the system developed at the unit to increase efficiency of information services has proved to be highly effective.

Program 6 : Database Development.

Short term: The data on book, video and other print and no print collections held by various libraries under KAU will be entered into computer as per the standards

prescribed by the unit. These databases will be made available as computerised catalogue in concerned libraries.

Long term: These databases will be pooled together to form the union database of KAU's information resources. Highly used documents or portions of documents also will be incorporated into this database to make it more useful. The complete database will be made available as OPAC catalogues accessible from any building or any station under the university.

Programme 7: Teaching and Training in Agricultural Information Handling and Agricultural Librarianship

Short Term: The short term perspective will be to conduct user orientation programmes for students and scientists who use the library and information networks and to offer short term training programmes to raise the level of expertise currently available in the field of library and information science. Advanced level training programmes on specialized topics related to library and information technology will be organised for professionals working at ICAR institutes and SAUs. Refresher courses for Librarians' will be held periodically. The unit will also organize workshops, conferences, and seminars on information technology.

Long-term: Long-term perspective will be to aim for being a Centre for Advanced Studies and Research in Agricultural Information Handling and for offering Post Graduate Programmes in Agricultural Information Management, Agricultural Librarianship as well as offering advanced training programmes in specific areas of Information Technology for SAARC and other third world countries where infrastructures for IT training like the one KAU has built up is not available.

Programme 8: Training on Management of Community Level Information Centres/Farm Book Services

Short-term: Bringing the results of agricultural research to the farm requires extension of information services to the villages. The best method is to make community information centres and village libraries the service outlets for agricultural information services. This requires providing literacy on modern techniques of information handling to village librarians. Workshops and short term awareness programmes for village librarians will be organised.

Long-term: Service outlets for farmers will be maintained at all village libraries. Training programmes for village librarians will be offered through all campuses of the KAU spread over the length and breadth of the state.

Programme 9: Resource Generation

Short Term: The Unit will generate resources through the activities like marketing of information services and products, training programmes in current Information Technology etc. for which the institute will charge a fee as fixed by the University. Income will also be generated by taking up consultancy services and advisory work on information system development from other government and non-government agencies. Publications resulting from information services and documentation activities will be priced and will provide some revenue.

Long term: The Library & Information System Packages developed/customised for use in the university also will be marketed. Reprographics services will fetch income. Online information services will be charged and it will be the major source of revenue. During six months in 1998, while some services were tested, that itself has produced an income of about Rs.10,000/- for 30 man hours spent. The minimum resource that can be generated will be equal to the maintenance cost of Library LANs and information technology equipments.

Programme 10 : Library & Information Network

Short Term: The University Library and Eight College Libraries will be automated. Computer support will be provided to libraries in Research Stations also.

Long Term: Building LAN's will be installed at all college libraries. Internet connectivity will be provided. University Library and College and Research Station Libraries existing in different locations in the State will be inter connected through computers and communication networks to enable online access to the University Library from any station.

Programme 11: University Library

Short Term: Physical facilities for the University Library will be built up. Access terminals will be provided to the Building LAN which can provide at the initial stage online access to minimum 65 users within University Library to the electronic library of the university.

Long Term: A VSat or leased line connection will be established and the information resources at the university library will be made available through a web site. Facilities for online access to electronic library to 130 users at a time will be provided in the University Library. Access provision for 10 users will be established in each college library. Terminals will be provided at the hostels also for online access to books and video stored in the library.

Programme 12: Electronic Library

Short Term: An electronic library that can store minimum five lakh printed books and 500 GB essential video and audio files in digitised form will be established in the university library.

Long Term: The capacity of the electronic library will be increased to 10 lakhs books and journal volumes, 1000 GB video and audio files.

Programme 13: Development of Computer Software for Agricultural Information Services

Short Term: The short term perspective will to develop or customise existing packages for KAU's information service activities like developing database, searching required databases and electronic library.

Long Term: To develop a Library Package that can be utilized for pooling the resources in electronic library and other systems and searching it in a combined way. Softwares that can maintain full text of books, journals etc. to enable access to databases in different softwares will be developed with user friendly interfaces.

Programme 14: Marketing of Library and Information Services

Short term: Various services on charge basis will be provided to educational, research and development institutions and organizations in the agricultural sector and outside.

Long term; Information service products like library packages and databases developed will be marketed in print and machine readable mediums. Marketing of agricultural information services and HRD in IT for agriculture will be started in a large scale. All automated library and information services will be made self sustainable.

Linkages

In order to successfully maintain various library and information technology projects, close collaboration and appropriate linkages with many national and international agencies specializing in this specific field is essential. The University has already signed various MOUs with NISSAT under DSIR, Govt. of India, Information and Library Network Programme (INFLIBNET) of University Grants Commission, National Informatics Centre (NIC) under Planning Commission and institutes under Consultative Group on International Agricultural Research (CGIAR). The KAULIS projects have received their support. Support from ARIS of ICAR is

expected and with that as KAULIS has already built up excellent infrastructure can become a system that can provide information support at the national level.

International/National Resource Sharing Programmes

The unit has already entered into resource sharing programmes with library and information divisions of various national and international agricultural research institutes. The main achievement of the unit in this sector is the agreement and exchange programs with institutes under Consultative Group on International Agricultural Research (CGIAR) which contributes through research and dissemination of knowledge for promoting sustainable agriculture for food security in developing countries. The information division of the following CGIAR Research Centres have already entered into information resource sharing programme with the unit: All earlier publications of these sixteen institutions copied into digital media was also added to the electronic library of the unit. The digitised information sources received free of cost from various institutions kept in the Alpha server and other systems of the unit is worth Rs.

One crore. Besides these systems are also having packages like Basisplus and Techlibplus worth crores of rupees received against nominal payment for transmission copying etc

Centre International de Agricultural Tropical
 Centre for International Forestry Research
 Centre International de Mejoramiento de Maiz y Trigo
 Centre International de la Papa
 International Centre for Agricultural Research in the Dry Areas
 International Centre for Research in Agroforestry
 International Crops Research Institute for the Semi-Arid Tropics
 International Food Policy Research Institute
 International Irrigation Management Institute
 International Institute of Tropical Agriculture
 International Livestock Research Institute
 International Plant Genetic Resources Institute
 International Rice Research Institute
 International Service for National Agricultural Research
 West Africa Rice Development Association

10. Important Inputs and Outputs

The important input will be professional administrative manpower and their training in IT in addition to the infra structural inputs such as working environment, computer and communication facilities etc. The motivation, encouragement and promotional incentives should also be given to professional/scientific community as an important indirect incentive.

The hardware and software used by the unit must keep in pace with the state of the art. The unit must have all the packages required for various processes of access, organization and storage, processing, dissemination of information as well as generating various information services and products. Information network facility is to be extended to enable individual scientists and students to utilize the available information resources and communication facilities and world-wide library access as and when needed. The unit must be self-sufficient in respect of

journals and books in fields which are mandatory to KAU.

Funds

The funding needs will in accordance with the programmes and activities which are listed above. The funding requirement will be as per requirement of specific projects and programmes and detailed proposals were given under IXth Five Year Plan proposals.

Manpower

All the libraries and the central office of the unit are presently understaffed. Even though the Directorate as per the KAU Act 1971 was established in 1995 and the Scientist at managerial level was posted, the required administrative and technical staff could not be posted.

One Assistant and personal staff required for initiating the work only could be provided for the Directorate

and for the University Library five posts of Library Assistant were shifted to it to attend the preliminary works related to its establishment. Training in IT and exposure to functioning of best systems in the country worth approximately 20 lakhs was provided to Librarian and his staff which make them the cream of professionals with knowledge of content development in digital environment of the state..

The aspect of staffing the Unit Office, University Library and College and Research Station Libraries was studied by an Expert Committee which has already submitted its recommendations which is pending placement before the Executive Committee from June 1999.

Risks

The Programmes proposed are based on requirements for providing information support in KAU for agricultural education, research, extension and development activities. The prevailing trends in library and information service scenario demand for standardisation and application of current technology for various processes related to information access, storage and dissemination as well as resource sharing programmes. The future depend upon the continuation of coordination of all these activities by the concerned unit with a highly competent library professional with expertise in IT application to manage this unit where

about Rs.16 croe has already been invested, which will ensure minimum risk and maximum productive work

Output and Expected Situations

The following products and services will be emerging as a result of the envisaged programmes.

- Full text electronic library of Research work done in KAU and the State.
- KAULIS Web site providing access through Internet to information resources on agricultural research on agro climatic regions of Kerala
- Various Agro climatic Region Specific databases
- OPAC version of union catalogue holdings of KAUL Libraries
- Softwares for various library operations
- Trained and specialised manpower for IT Operations
- SDI Services
- Current Awareness Services
- Lending Services
- Online access to libraries and Publications revealing new developments in information handling in agriculture

11. Resource Generation

The Unit will generate resources through the activities like marketing of information services and products, training programmes in current information technology and other services. Income will also be generated by taking up consultancy services and advisory work on information system development from other government and non-government agencies. Publications resulting from information services and documentation activities will be priced and will provide some revenue. The Library & Information System Packages developed/customised for use in the university also can be marketed. Reprographics services will fetch income. Online information

services will be charged and it will be the major source of revenue. During last two years while some services were tested, that itself have produced an income of about 10,000/- for 30 man hours spent. The evaluation of the project revealed that minimum resource that can be generated will be equal to the maintenance cost of Library LANs and information technology equipments used by the unit as well as staff engaged for automated services.

(Edited version of a Vision 2020 document prepared by Prof. R. Raman Nair; University Librarian of KAU in 1998)