CHAPTER 4

RESOURCE SHARING AND NETWORKS IN AGRICULTURE UNIVERSITY LIBRARIES

The present day context, no single library could think of organizing library services entirely based on its own collection. It has, to certain extent, depend on resources external to its collection. The resources for this dependency is ascribed to the rising cost of journals, the growing pressures on library space and maintaining large collection.

Resources sharing in agricultural university libraries a mode of operation by functions are shared in common by a number of agriculture university libraries in its most positive effects. Resource sharing entails reciprocity, employing partnership in which is willing and able to make an available when needed. Now a day resources sharing through information networking is necessary between one agriculture university library to the other to acquire more information on a specific subject with low cost as published records are increasing at an incredible rate and their process are keeping pace, in such circumstances university library cooperation will assume a vital role and resource sharing through networking would become the focal point of cooperation.

4.1 USER’S APPROACH TO INFORMATION SOURCES

A Librarian should be a linking source rather than being a custodian of an information store house or computer terminal. His task is to help the user to define his information needs and linking them with relevant source. These sources include personal (information), primary or secondary scientific literature, factual data bank, management information system or the
ephemeral literature like pamphlets, reports, proceedings, trade, and literature and extension material.

The librarians have vital role to play in providing relevant and timely information to the many scientists in the field of agriculture who are actually engaged in meeting the continuing challenge of man and materials. A librarian has a basic role to collect the data and information of the choice of his scientist speedily speedy and sharp and to organize it intelligently and systematically to enable the reader to access easily and speedily on his need. The librarian should know the form, the content, and the quality and the quantity of information as well as the need of the users and its information. He must also know the methods of procuring, processing, organizing, storing, preserving, retrieving and disseminating the information required and also impact of computer technology on the following tasks:

(a) Information gathering.
(b) Information filtering and
(c) Information accessing.

4.2 Information Linkages

Libraries collect, process, organize, and store information. The documentation and information centers of Agriculture University meet the needs and demands of their users. They also disseminate information through current awareness service, selective dissemination of information service and the literature search service on specific requirement.

The current awareness services are given in the form of abstracting, bibliographical and indexing periodicals, digests, extract, etc. Dissemination of Information given by libraries. Information centers helps agriculture scientists and technologist.
4.2.1 Information Sources and Scientists:

Information Services link the researcher to sources of information and its products. Generally, information services can be grouped into two broad categories:

- Anticipated Service: Service rendered in anticipation of need,
- Responsive Service: Service rendered in response to a request or on demand.

University library and information centre provide both the types of services. It is necessary to update of the scientists in his field of work and interest. The scientist should be provided latest information about published work of his interest.

Libraries are the centers of free access to information and life-long learning to play in closing the digital divide. The user access to Information Computer Technology (IGT) to reduce the digital divide can be fully utilized. To work with these ICTs. But the developing countries are facing funding problem to provide such a big budget. Here the agricultural library and information centre can play a vital role in providing digitized information through ICTs. The Agriculture University libraries can provide the ICTs based services to the users with the help of INFLIBNET, INDSET, DELNET, NICKET, and ERNET and also subscribe many online journal and electronic books.

The Agricultural Libraries may play a vital role in providing information to its users, as:

1. The Agricultural University Library provides the required infrastructure for accessing the information resources.
2. University libraries install costly hardware and software required for information access especially in the developing countries. Agricultural University Libraries also provide printer, UPS, cable network, furniture, cooling devices etc. The Agricultural University Libraries provide all these facilities free of cost with the aim to cater the digital information needs of the patrons.

Internet connectivity is the first aspect of providing digital information. In many countries, the work culture does not allow users to spend more time on the Internet. While the day-to-day activities are based more on the traditional approach through the use of paper documents and telephone or written communications. The Agricultural University Libraries provide free Internet connectivity to the users.

Agricultural University Libraries can provide the content to the users by providing success to information of the user”s need. The Agricultural Library subscribes many electronic journals in most of the advanced countries. In some cases the publishers of electronic journals provide the access of their journals. Users can download the information of their interest even if the journal is not in libraries. It is true that the electronic books have not gained that much reference as in case of electronic journals.

4.3 Agricultural University Libraries in digital world

The collection is always useful and valuable if it is surrounded by a matrix of content and interpretation and gain useful information. Digital libraries are developed not just to develop digital collections but also ascertain them. The Agricultural University Libraries are coming forward in building libraries of local and indigenous materials. The Agricultural University Libraries should spend maximum time in identification of the sources and
services depending upon users’ requirements. These sources must be evaluated in consolation of subject experts through sharing their resources.

4.3.1 Library Consortium

Agricultural University Library Consortium consists of a number of libraries, preferably with some homogeneous characteristics by subject. Institutional affiliation or affiliation to funding authorities that come together with an objective to do certain job collectively. These tasks may include:

(a) Subscribe e-resources.
(b) Include resources sharing.
(c) Shared cataloguing of resources.
(d) Shared technology solution.
(e) Shared core/peripheral collection.

4.3.2 Benefits of Consortia

(1) The library consortia are the database shared by a group of institutions. It also gives business opportunities to the electronic publishers and attracts the best possible price and terms of reference.

(2) The cooperative strength of consortia among its members facilitates the libraries give benefit for wider access to electronic resources at affordable cost on suitable terms and conditions.

(3) The research productivity of all Universities improve and increase access to international databases and full-text resources.

(4) Due to online electronic resources subscribe are accessible in electronic format. It also reduce space requirement for storing and managing print-based library resources. Moreover, E-resources are not facing such problem as with print media such as location, shelving, organizing, binding and wear tear.
4.3.3 Subject Gateway

The Agriculture University Libraries may make use of subject gateways to provide more information to users. These are subject based resource discovery guides which predominately accessible via the Internet. The simplest types of subject Gateways are sets of Web pages containing lists of links to resources.

4.3.4 Library as centre of Information

Information professionals may provide training to the users at different levels because of limitations of resources. Due to rapid change in ICT and library systems and services, training should be provided regularly in order to help the users to keep them update and giving optimum use of the sources and services. The university libraries also organize programmes to literate the users through user education and information and literacy programmes.

4.3.5 Training

There is great need to establish and maintaining the best possible service to users. Library training is a process of learning, which is structured to impart and develop knowledge, skills and aptitude in employees. Agriculture University Libraries also conduct in-service training as a process of acquiring and transmitting professional knowledge and practical skills. Such trainings help the library professionals to develop themselves and standby the changing needs of the environment they serve. Libraries also maintain training manual for necessary guidance „what to say’ and „what to do”. It is very helpful for obtaining the objective of the training. The training programme should standardize and introduce and undertake the advantage of audio, visual and multimedia aid. A number of short-term courses are also conducted by Agriculture University Libraries.
4.4 Software including open Source Software

An electronic library is not merely a collection of electronic information. But a digitalized system of data serves as a rich resource for its users. Electronic libraries are extensions of physical libraries in the electronic information society. Digital libraries offer new levels of access to broader audiences of users and new opportunities for the library and information science field with its advance theories. It is a powerful tool and mechanism to I.T. professionals for managing distributed databases. It represents a new means of extending and enhancing access to distributed/remote information resources. What has changed today is perhaps the nature of documents and their surrogates connotes a logical extension.

4.4.1 Digital Software in SAU

A number of software’s came into their existence in distributed cyberspace and available freely for organizing the digitalized libraries. These DL software are Greenstone, D-space, Ten-Acado, E-prints, FEDORA, CDS-ware, VITAL, while analyzing a few of those software in terms of their algorithmic appliances towards retrieval performance in discovering the objects from the repositories.

4.5 Resource Sharing

It is not possible for a single library to organize library services and satisfy all users. It has to depend on external resources because of heavy expenditure and rising cost of journal and particularly electronic journals, space and cost of processing and maintaining large collection. Library cooperation in resources sharing has become essential concept of resources sharing in libraries. To “access” to information resources available in the
libraries is resources sharing. Access is facilitated by means of cooperative collection development and interlibrary loan activities.

“Resource sharing is a mode of operation whereby a number of libraries share their resources. Resources sharing entails reciprocity, employing partnership having something useful to contribute to others and in which every member is willing and able to make available the resources when needed.”

(1) Resource sharing is aimed at providing convenient access to information to library without any geographical boundaries.
(2) Libraries go beyond their own resources and of other libraries to satisfy the user”s requirements.
(3) It reduces cost; avoids unnecessary duplication and reduces processing and maintenance costs; and makes available a large to access resources.

4.5.1 Activities

(a) Availability of maximum library materials and services at nominal cost,
(b) provision of maximum access to information sources,
(c) facilitation the work of resource sharing through computers and 
(d) use of Networking, and telecommunication networks for enhancing resource sharing activities, at local, metropolitan, regional, and national level.

Librarian and library professionals play a great role in making use of emerging resources and developments to the benefit of their users. In case, the users make use of the information for the purpose of making decisions, the digital divide can be reduced.
Agriculture University Libraries have come forward to provide information through internet, training electronic contents to the end-users reference and information services. Library professional may select web-based reference services based on the nature and need of their users, and can use those services on behalf of the users or can let the users use on their own. Agriculture University Libraries play vital role in bridging the digital divide among the users by providing basic infrastructure, contents, training and information literacy.

4.6 Role of Library Networks

Library networks have a major role to play in library resources and services. There include

(1) Network Information and Knowledge Resources with appropriate content, and manage content for Dissemination;
(2) Promoting the use of appropriate Infrastructure;
(3) Promoting the use of International Standards;
(4) Improving communication among resources and users;
(5) Improving access to resources;
   (a) Online Public Access Catalogue;
   (b) Documents Delivery Service.
(6) Providing Information support for Research and Development;
(7) Contributing to National and Regional development;
(8) Promoting International Cooperation;
(9) Managing Security and preservation of Digital resources;
(10) Contributing to the Growth of Trained manpower.

4.6.1 Networks
Agricultural Libraries may not be able to provide all the information requirements of the users from its own collection. Library networking meant to promote and facilitate sharing of resources available within a group of libraries with the purpose of providing maximum information to all potential users and also to make optimum use of international and national resources.

4.6.2 Networking of Agriculture library

A network is a systematic organization and coordinating interconnected libraries for achieving greater economy and efficiency. Agricultural Libraries network in India has been a national plan to gain effective participation of all agricultural libraries.

Computer technology and its application in libraries have made new development in networking in libraries. The use of computer has facilitated auto-abstracting on online information service and made it possible to transfer the information at a much faster rate. Microfilming, micro-reproduction and tele-facimile communication or electronic transmission for interlibrary loan has made these services much faster. We can visualize the modern concept of international and national networks of information system made up of two parts, i.e., complex of library systems (documents oriented) and a complex of information evaluation and retrieval systems (information oriented).

Objectives:

1. To identify potential users so that scholar need should be responsive.

2. To initiate the participants to share their resources as their applicability, usability and exhaustive knowledge resources. The funds should be available for the purpose.
3. To same time and space and language barriers in (a) accessing the e-resources (b) preparing union catalogue (c) promoting faster modes of document delivery.

4. To provide facilities to access databases and networks at national and international level.

5. To frame guidelines and evolve standards in various techniques, procedures, methods, hardware and software and promote services.

4.6.3 Requirement of networking

(1) To encourage resource sharing in building library collection, storage and dissemination of in formatted.

(2) To coordinate and cooperate for building suitable collection development and efforts to reduce duplications.

(3) To make the library resources available to users through network

(4) To facilitate referral services and help in compiling union catalogue online for books, journals and other non book material

(5) To acquire and maintain more adequate electronic equipments to provide faster information communication delivery

(6) To help in locating information about print resources and facilitate fast retrieving

(7) To take necessary steps for promotions of agriculture education and research and innovating information technology in the field of agriculture.

4.7 Contribution of ICAR
Indian council of agricultural research has not developed its own network, but applied and subscribed ARIS network because of economic point of view.

4.7.1 Potential Network Players

There are many agriculture universities which have undertaken many large projects and working for their development. The following are few organizations working in this direction

i. NICNET (National Informatics Centre Network).
ii. ERNET (Education and Research Network).
iii. NCMRWF (National Centre for Medium-Range Weather forecasting) network.

4.7.2 NICNET (The National Informatics Centre Network):

This is an important network commissioned in 1977. It has four regional centres at Bhubneshwar, Delhi, Pune and Hyderabad. It has caused many databases and allow access too many well know databases on different disciplines (eg. MEDLINE), i.e. agriculture, revenue administration and urban planning. This network may be used by the recognized users who many access e-resources at its nearest station. NICNET is a most important network in India which is available to public sector also. Private sector may subscribe it or may avail its facility if required. NICNET has been developed by National Information Centre (NIC) for administrative, technical and management considerations. It has following specific features

i) It is a government undertaking. It is more environment based not giving more attention to market need. It has a separate research and development unit working for its development and innovation.
Its head quarters is at Delhi and most of the higher level staff is available in New Delhi.

ii) NICNET is purely an Indian network with internet connectivity to all users at national and international level, but it is expensive. File transfer is also limited by size.

iii) **Technology:** It has followed point to point communication philosophy. Being the limited storage of disc, messages are restricted in size. It has a maximum speed of 1200 kbps for distinct and 9600 kbps for other selected sites.

iv) „Information Technology” is a new formula model connecting about 70 cities with speed of 1 MBPS extended to 2 MBPS at selected nodes.

v) **Service/Support:** The NICNET staff being junior in cadre and semi skilled, which faces many problems to keep it up-to-date and fast developing technology.

### 4.7.3 ERNET (The Education and Research Network)

This network is not fully government owned network. It has private ownership also. It was supported and developed by „UNDI“ and DOE. But at present it is supported financially by subscription, which is about 1 lakh per year for small institution and 2 lakhs per year for large institutions. The majority of the subscribers are reaearch and development institutions. Its special feature are

i) It is built around eight nodes and supporting by IITs. These nodes are connected via either lease or dial-up telephone lines.

ii) Its growth is rapid but finance is main problem.
iii) ERNET is quite decentralized with its headquarter at Delhi. It does not exist in protected environment.

iv) ERNEST was originally developed for research and development purposes not for general service. It is still used by a small part of Indian academics.

v) ERNEST has been significantly extensive network of internet. Its e-mail capacity is large. A user can send and receive massage from any side and at any point. Messages can also be stored and forwarded.

vi) ERNEST moves now at 9600 kbps over traffic and moves an higher speed. It has full IP connectivity.

vii) It has made necessary provisions of trainings to users through NCST which offer courses for potential subscribers.

4.7.4 Technology Choices

Network technology can be categorized in three broad technologies:

4.7.4.1 Land Lines Technology (Both leased and dial-up)

Each Agricultural University and their Zonal Research Stations have been connected with land line running through telephone line. Institutes and state agriculture universities dialup to nearest ERNEST nodes. There problems come with outlying stations where landline is not available, through this problem is not much today.

4.7.4.2 Satellite
India has developed its satellite technology. It has developed few important satellites which are in operation. Some satellites are in process of development which can increase the quality of information communication.

4.7.5 Transponder Space Technology

These have been no shortage of transpondent space or various INSAT. 1-A and 2-A are quite satisfactory, but INSAT, 2B (1993) still has room in both the 1C and particularly extended “C” bands. INSAT (1995) have both “C” band and “KU” band capabilities.

State agriculture universities have cooperative choice of a satellite technology with an existing network (e.g. ERNEST). The ICAR and State Agriculture Universities have arranged that will graduate the ARIS and its partner transponder space, reasonable pricing and services for at least the medium term.

4.7.6 Radio Communication Technology

India has not done much and experience in the field of digital communication through Radio communication. But it has been estimated that the international market has pushed to other technologies, mainly VSATs, (Developed by NIC) and DOT (Department of Telecommunication) because of frequency problems.

4.8 Current awareness service in agriculture universities

India is agriculture based nation. The technology developed by the Indian scientists gave more emphasis on transfer of technology and its application to users by research centres. Libraries have played important role by providing access to electronic resources to its users. There are few
universities which are providing direct information services to farmers in the present condition.

**4.8.1 The proposed Agricultural Research Information System Network**

The following are the objectives of information system network;

- To improve the research standards and make a proper planning.
- To avoid duplication research projects and extension projects.
- To determinate the research findings.
- To improve mechanism of feedback
- To create better coordination and cooperation and linkage among rural development agencies
- To develop information sharing mechanism among agriculture institutes and agencies
- To develop electronic interface among scientists, agencies and farmers.

The project ARIS has been planned and implemented to bring information management culture to national agriculture research system (NARS), so that agriculture scientists in India may carry out their research effectively by accessing research information in electronic resources in India. It has already created an atmosphere to develop infrastructure linking all institutes of Indian Council of Agriculture Research.

**4.8.2 Agricultural Research Information System Network (ARISNET)**

ICAR started an Agriculture Research Information System Network (ARISNET) to exploit the potential of model computing power in planning and management of agricultural research and scientific communication, A team of experts provided necessary guidance for the implementation of this project in
ICAR. The infrastructure was created in phases for ARISNET, a national Wide Area Network for agricultural research.

4.8.3 Networking of Agricultural institutional information System

The state Agricultural Universities are major partners in growth & development of Agricultural Research and Education under national research System. Today, the Indian Agricultural system under the ICAR is one the largest in the world comprising of research institutes, project directories, schemes, programmers, etc.

However, in spite of many problems and drawbacks in back 50 years of Indian agricultural libraries, now they have developed and made agricultural globalization imminent. The agricultural libraries cannot be ignored as they are playing a vital role in the service of the nation. ICAR, New Delhi has played an eminent role in developing Agricultural information network connecting all libraries of State Agricultural Universities in all states of India.

4.8.4 Knowledge of Farming

Agricultural is the science, related to cultivating the land and rearing of the animals of land and waters. We have to include sky also as the birds; climate, satellite technology etc. are also the concern of agriculture.

4.8.5 Accessibility for the common Man

Normally the users or farmers who required information for research or application approach agricultural libraries. The majority of users of agricultural information are located in remote areas where the access to information required in most occasions is for problem solving the facilities of educational and research institutions. Also such institutions hold agricultural information,
which is rare, like the traditional knowledge which is otherwise not available for agricultural research institutions.

Agricultural is the source of supply of the basic wage goods, and food items. Agricultural provides raw materials required for industries. It earns foreign exchange, which is essential for the import of machinery technology and other inputs necessary for the successful implementation of the industrialization programmes envisaged under various plans in India. Agricultural also contributes the biggest share to the domestic product. It also provides the market for the industrial products.

4.9 Agricultural Information Users

Scientists, extension workers and administrator in total come to less than 47% farmers and the public who needs agricultural information come to 53%. The information system as well as the first category of users themselves exists to serve the second users category. Users of Agricultural Information service can be categorized as follows for the convenience of this study:

- Teachers/Students
- Scientist/Extension Activists
- Administrators
- Farmers

4.9.1 Information Resources at Research Institutes

Mostly all U.P. Agricultural University Central Libraries are having a Farmer’s Division with a collection of books on different crops and various aspects of agricultural, animal rearing etc as well as about 750 video films most of them highly relevant to educate the farmer. UPAU has also a few interactive multimedia programmes intended for the farmers. Excellent exhibition facilities, TV, VCP, Multimedia Computer and Video presentation
facilities etc. are available but the documents, films etc. require a little customizing by translating into regional language.

Farmers form the major expected user group of agricultural information. The second group of user of agricultural information comprises students, scientists, extension workers and administrators. The information systems as well as the second category of users serve the first user category.

Of the expected users of Agricultural information system less than 2% are scientist and administrators who serve the farmers and 82% are farmers. But presently the information systems are not accessible and inviting the farmers whom they serve directly and indirectly. The privilege of information availability remains with the scientist who may use it for the farmer. The users of the participating libraries shall be greatly benefited and there shall be an optimum use of the resources available in these libraries.

References


