Consortium for E-resources in Agriculture University Library

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Abstract: Consortium for e-Resources in Agriculture is an e-Consortium of Agricultural Libraries under the Indian Council of Agricultural Research for National Agricultural Research System libraries. The National Agricultural Research System of India comprises Indian Council of Agricultural Research and Central/State Agricultural Universities under Department of Agricultural Research and Education, Ministry of Agriculture, Govt. of India. The paper discusses the background, main features, and advantages of the consortium for e-resources in Agriculture Universities.

Keywords: Consortium in agriculture, Indian council of agricultural research, National agriculture research system, Information and communication technology

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I. INTRODUCTION

Agriculture has been an integral part of human life ever since the inception of the human race. It fulfills the basic needs of food, cloth and other essentials things of human as well as animal life; as such it plays a key role in the development of human civilization. Agriculture was the key factor of development that led to the rise of civilization. The husbandry of domesticated animals and plants contributed to create food surplus for meeting increased requirement of densely populated and stratified societies. Until the industrial revolution, the majority of the human population was engaged in Agriculture as a labour force.

The communication of information had begun with the beginning of human civilization; however its modes have been changing from times to time. During ancient days, people recorded their experiences in the form of inscriptions and later in manuscripts. The century is, therefore, termed as digital era where information are being collected, stored, shared, retrieved and disseminated in electronic forms via Internet. Information and Communication Technology (ICT) including Internet technology have made revolutionary changes in human life by facilitating easy communication and easy access to information located virtually anywhere in the world.

The potentialities of ICT have been forcing all the organizations engaged in, manufacturing as well as services, to essentially adapt to this modern way of communication. Libraries have always been the pioneering institutions in implementing the innovative ideas and related technologies to render better services to their users, as such these libraries are now being automated and their collections are being digitized at faster rate in order to maintain reposition towards a sustainable future. The information resources available in modern libraries are in electronic form, which are known as electronic resources or simply e-resources. Information in electronic form has become an essential need of the modern information society. All the activities in the field of education, research, industry, entertainment, etc. now have direct involvement in digitization. The recent innovative advances in IT such as telecommunication, software development, access to information databases are transforming many of the traditional library procedures, practices and functions. These technologies have insisted librarians to shift their focus from traditional procedures to modern exhaustive accesses to literature available in databases and on-line systems. In this emerging process of digitization, printed materials are being transformed to electronic form and the new category of resources, so created is termed as e-resources.

In India, agriculture has special significance because it is basically an agrarian country. Agriculture contributes nearly 1/6th to national GDP of our country and a major portion of Indian population is dependent on it for livelihood.

Agricultural education is the basic foundation for developing manpower for agriculture and allied activities so as to undertake and enhance the research, education, training and extension. The higher educational institutions, i.e., universities play an important role in society as realized by our First Prime Minister Pandit Jawahar Lal Nehru;

"...A university stands for humanism, for tolerance, for progress, for adventure of ideas and for the search of truth. It stands for the onward march of the human race towards ever high objectives. If the university discharges their duties adequately then it is well with the nation and people .but if the temple of learning becomes a home of narrow bigotry and petty objectives, how then will the nation prosper or people grow in stature."

1.1Meaning of Resource Sharing

Resource Sharing is sharing of library E-resources such as document collection, staff members, technical facilities and mechanical aids among the participating libraries on the basic principle of co-operation, "All for one and one for all". In this respect it is possible to consolidate the document collection of participating libraries, exchange their technical capabilities and share their services. In this way, it is possible to share the resources to provide on access to the vast amount of library and information sources to a larger user community at the least cost. The objective of resource sharing is obviously to make the greatest amount of best information available to the most users at the reasonable cost.

II. OBJECTIVES OF THE STUDY

The objective of the study, in general, is to assess the level of management and usage of e-resources available in the libraries of agriculture university Libraries. The role of the library staff and their efforts to provide library services are also studied. The specific objectives of the present investigation are as follows:

1. To study the provided of space, building and infra-structure facilities to make use of e-resources in agricultural libraries.
2. To reveal the present status of e-resources at the Agricultural University Libraries.
3. To explore the current practices of selection and evaluation of e-resources,
4. To propose the collection development policies of e-resources adopted,
5. To identify the behavior of the customers interested in e-resources,
6. To identify how the relevant management issues are addressed by the library related to e-resources,
7. To study the emerging new information environment trends that affects the collection development activities of university libraries,
8. To study the services provided by university libraries using-e-resources,
9. To identify various channels of accessing electronic information resources by users.

III. IMPORTANCE OF E-RESOURCES

Libraries are committed to provide knowledge based quality services to its users. In the modern digital era, the advent of Information and Communication Technologies (ICTs) has drastically transformed the ways for collection, processing, storage, retrieval and communication of information. Particularly, the Internet has completely transformed the traditional methods of processing information from storing to communication. It has insisted academic libraries to replace the traditional library services with the IT based innovative library services. These advanced services use information in electronic form. It has created the need of digitization and acquiring, storing, disseminating and retrieval of information in the same digitized form.

1. E-resources have now become an important component of modern libraries, which are being used in various activities of the library and information science like library automation, library management, library and information network, information repackaging and dissemination. In e-resource generation and process, ICT is deeply involved in the activities such as scanning, imaging, storing, processing, retrieving and transmitting the information.
2. In modern libraries, the need of e-resources is realized as the library budget for acquisition of documents are shrinking, users and resources have increased manifolds, and the users expect quick and easy access to information. E-resources have the following better features over print resources:
3. Easy to handle information explosion the exponential growth of information as well as subsequent increase in publications can be managed successfully through e-resources.
4. Easy to manage users' explosion E-resources facilitate use of resources by several users simultaneously. As such, these resources can manage the huge and multi-dimensional demand of information easily.
5. Faster access to information in digital form can be accessed speedily by users, distributed over local, regional, national and international levels as well as all varied time zones. These resources provide

both direct as well as in direct access through intermediaries. Unlike printed documents, in campus or LAN environment, access and dissemination of information is instantaneous.

6. Low maintenance cost E-resources can be accommodated in very little physical space as such these require very low maintenance cost as compared to traditional resources.
7. Minimum storage space E-resources can be stored in very little physical space as compared to traditional paper based resources.
8. Better quality of information E-resources facilitate copying of the original documents in a number of times without any degradation in quality thereof.

IV. E-RESOURCES: A SMART WAY OF LEARNING

The libraries have supported multiple formats of documents for decades, from paper and microforms to audiovisual tapes and CDs. However, the newest media, electronic-resources have now been considered by the academic society as the best way to access, store, share, disseminate and preserve the information. The attractive features of information in digital form have insisted these libraries also to adopt the modern technology and automate the library services accordingly.

The Internet and the universal adoption of the World Wide Web have enabled the distribution of scholarly information and research outputs faster, conveniently and more extensively. The publishing sector is also shifting to publishing online, making its impact all over the world, academic libraries being no exception. E-resources are, therefore, being considered future resources for the patrons of the academic libraries.

V. E-RESOURCES

5.1 The Definitions

E-resources refer to those documents that are available in electronic format and can be accessed, stored, shared, disseminated and preserved with the use of computers and other information technologies. All the collections of the library materials available in the form of e-books, e-journals, CD-ROMs, bibliographic databases, and other web-based resources are all electronic resources. According to International Federation of Library Associations and Institutions (IFLA), e-resources are those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device, and may either be accessed remotely via the Internet or locally.'

Arora defines e-resources as resources in electronic format or computer possible format that provide information or an indicator to the information and are generally accessible over the internet or stored on media like CD-ROM/DVD-ROM or other electronic storage devices.

The American Library Association in its Glossary of library and information science defines e-resource as e-resource is the application of computers and other technologies to acquisition, organization, storage, retrieval and dissemination of information'.

E-resources as defined in Anglo American Cataloguing Rules, 2 edition are those material consisting of data and/or computer program(s) encoded for reading and manipulation by a computer with the use of a peripheral device directly connected to the computer or remotely via a network such as the Internet. This also includes software applications, electronic texts, bibliographic databases, etc.

5.2 Essential Factors Affecting Networking/Resource Sharing:

The major factors that affect the networking of libraries are:
-availability of computerized databases;
-availability of communication facilities (computer, telephone, satellite communication, reprography, fax, email, etc);
- standardisation of library organizational practice;
-availability of financial resources;
-efficiency in the governance of network;
-basic agreement;

According to UNESCO (1985) the major networking and resource sharing functions and activities are identified as under;

5.3 Functions: Cooperative acquisition; Assignment of specialization in material acquisition; Co-oriented subscription; Exchange of duplicate holding; Co-operative Cataloguing; Inter-library loan; reciprocal borrowing privileges; and Reference and or referral service.

5.4 Activities: Union catalogue of books and periodicals; Indexing and abstracting services; List of new arrivals on accessions/acquisitions list; Bibliography development; Network newsletters; Directories and inventories; Manuals; Translation service; Users interest survey; Joint research project; In-service personnel training; Workshops and meetings; Marketing of network services; Photocopying service, etc

According to the International Standard Bibliographic Description for Electronic Resources (ISBDER), e-

resources are those materials which are codified for the computer elaboration, including materials which require use of a peripheral. Kinds of E-resources are now available in several forms. Some of the important forms are as follows.

5.5 E-books

Electronic media equivalent to printed books are known as e-books. These can be accessed on-line all the time in full-text version, with the use of computer and interne together. E-books are also available as CD-ROM and can be purchased like printed books, which make their circulation very convenient. On ordering e-books, no handling charges are involved expects onetime cost and it is delivered instantly without delay via e-mail on user's computer directly from the provider.

E-books, in addition, have the following advantages over printed books:
1. E-books can be carried easily in pen-drive, CD-ROM, etc.,
2. Text size of e-books can be modified whenever requirement arises,
3. Instant delivery of e-books is possible through Internet, and
4. E-book saves paper, printing and packaging cost, etc. hence lot of money and efforts are saved.
5. Now-a-days, e-books are provided in the following three formats:
6. Plain text- Plain text e-book requires no specific software by the reader. Such e-books are readable on any type of computer having any operating system capable of reading text files.
7. HTML- such e-books can be read with already installed browser on the computer.
8. PDF (Portable Document Format)- E-books in PDF format are readable on windows computers having adobe reader software, and have worldwide electronic distribution. E-books in this format are compact and amenable to be shared, viewed, navigated and printed, as and when permitted by concerned publishers.
9. Among free e-book websites, some of the important websites are:
10. Good read books- www.goodreads.com/ e-books,
11. Open culture books-www.openculture.com/,and
12. Free e-books- www.free-books.net

5.6 E-journals

Electronic media equivalent of printed magazines or journals accessible through electronic transmission are known as e-journals. These are provided online by the publishers to the subscribers directly. The publishers provide the facility to search specific article by using key-words, name of writers or title of the article, while browsing through their volumes. E-journals permit full-text accessibility on-line as digital version of any print journal, which can be accessed via internet. So these serve as a faster source of information for the user worldwide within shortest possible time slot. Some of the well-known publishers that provide online e-journals are:

American Physical Societywww.aps.org/
Oxford University Press,www.oxfordjournals.org/
Taylor and Franciswww.tandf.co.uk/journals/
Cambridge University Presswww.jounials.cambridge.org/

5.7 Electronic Theses and Dissertations (ETDs)

All the theses and dissertations produced at universities are important sources of information and knowledge for further research. A large number of universities have converted their theses and dissertations collection into digital form and have made it available on Internet for global access.

In India, as per the latest guideline of the University Grant Commissions, it is compulsory to submit digital copy of the theses while submitting the physical form to the respective university for the award of Ph.D degree. A number of universities have also implemented Electronic Theses and Dissertation programmes, where researchers submit theses in electronic format. Some initiatives such as *Networked Digital Library of Dissertation and Theses (NDLTD)* (www.ndltd.org) in development of web based union catalogues of ETDs submitted over 100 libraries throughout the world are worth- mentioning. The Shodhganga and inflibnet centre facilitates for research scholars to access

5.8 CD-ROM (Compact Disk -Read Only Memory)-

An optical disk meant for storage of digital data, which can be accessed and searched through computer is known as CD-ROM. A CD is made up of polycarbonate plastic weighing 15-20 gm and 1.2 mm in thickness. The program area of CD covers radius from 25-58 mm. A thin layer of aluminum applied to its surface which makes it reflective. The layer is protected by a film of lacquer. Optical discs have now become very important as a medium for storage and dissemination of information and these represent alternative method of access to on-line databases, whether commercial or academic. These CDs are very cheap, portable, convenient to use, eco-friendly with bulk storage capacity. Many formats of compact discs are available, e.g., write once and data storage (CD-R), remittable compact disc (CD-RW), video compact disc (VCD) , super VCD, photo, pictured (CD-i), and enhanced CD, etc. It

has been realized that CD-ROMs have many advantages over on-line mode, because they cut telecommunication charges, usable for end-user and save lot of time. One has no consideration for involvement of any cost for lengthy and complex search and downloading the required contents.

5.9 Subject Gateways

Subject gateways allow libraries and related organizations to explore the usefulness of their subject expertise in the organisation of knowledge in the world of network -based, digital information. It is termed as clever way to information. Subject gateways are also known as subject-based information gateways (SBIGs); subject based gateways; subject index gateways, virtual libraries; clearinghouse; subject trees; pathfinders; quality — controlled subject gateways, etc. Subject gateway is one of the most useful ways to discover quality resources in a particular subject area. A subject gateway thus is a facility that allows easier access to web based resources in a defined subject area. These are basically a dynamic catalogues of pre-dominantly on-line resources, though some libraries include information on print resources as well. Generally access to subject gateways is provided through library website, designed to help library users discover high-quality information on the interne in a quick and effective way. It is different from the search engine. At a search engine, general resource is available while a subject gateway is a "gathering place of discipline specific resources." A simple subject gateway may list web based sources or print resources on a given subject with links to the website of the resources and some useful information such as key-words,

5.10 E-databases:

Electronic database (e-database) consists of e- resources integrated in highly organized manner so as to provide controlled access to it by their subscribers. Most of the electronic databases are bibliographic in natures which are online version of existing indexing and abstracting services such as Chemical Abstracts, Index Medicus, Biological Abstracts etc. Some of the electronic databases contain textual information, news, statistics, commodity prices, etc. Several full —text of encyclopedia, directories, dictionaries and articles from journals are now available on compact discs (CD-ROM) as well as on the Web. Some of the popular online databases are DELNET's Union Catalogues and databases (http://delnet.nic.in/)

VI. CHARACTERISTICS OF E- RESOURCES

E-resources have several attractive features in comparison to their physical equivalents, as such; users are now demanding information preferably in digital form. The fast access and delivery of digital information online directly to the user's computer save their time as well as postal charges. Their 24 x7 availability increase their usage at anytime. Watts and lbegbulam have rightly revealed that electronic resources with their characteristics of flexibility, portability, searching facility, storage and access/dissemination are beneficial in terms of time and space. Consequently, all the physical documents available in traditional libraries are now being converted into electronic form. The main characteristics of e-resources are:

- Ability to facilitate fast access to information
- Ability to handle the huge quantum of information.
- Ability to satisfy increased demand of information
- Ability to reduce the need for physical space
- Ability to handle multilingual contents
- Provide access to distributed and remote information resources
- Provide better searching and retrieval facilities
- Break time, space and language barriers
- Same e-information can be shared by many at the same time
- Paradigm shifts both in use and ownership

VII. ATTRACTIVE FEATURES OF E-RESOURCES

E-resources are being preferred over print—resources because of their following attractive features: Easy and Fast Access: E-resources can be accessed easily and speedily than their printed counterparts. These reduce the gap between produced and the end user. The user can access any particular part of a book/journal within minutes or even seconds on computer. Multiple Accesses: E-resources provide multiple access facility. Many users can access same e-document at different places at a time on different computers. Fast Publications: On-line publications of e-resources save the time required at different stages, i.e., time required in submission, referencing, revision, editing, composing and communication networks. Much possibility of availability: The probability of availability of e-resources is much higher than their physical counterpart. Their ability of quick and comprehensive search for specific contents improves their availability.

Multimedia Compatibility: In addition to text format, e-resources can be supported by different multi-media formats i.e. sound, video, interactive three dimensional models, etc.

Fast delivery: These resources can be delivered on-line instantly using e-mail facilities or provided at the webpage. These resources can also be given to the potential users by copying in portable storage device, viz.CD-ROM, DVD, pen drive, etc.

Low cost: In comparison to the printed resources, e-resources are cheaper, as these resources eliminate paper, printing, postage costs etc.

1. Low storage space: The electronic storage devices viz, hard disc, CD-ROM, DVD, pen drive etc., used for storage of e-resources, require very little space as compared with the space required by other physical forms.

2. Complete archiving: E-resources facilitate the access of complete set of publications i.e. all back volumes of the journals starting from the first issue to the recent issue, if subscribed for complete archiving. All on-line articles are exact facsimiles of the print originals.

VIII.   DRAWBACKS OF E-RESOURCES

E-resources suffer from following drawbacks also:

(i) Inconvenient to use: Use of e-resources is observed inconvenient as compared to the physical print—resources. These resources can be accessed only on computers within specified area (in case of Intra-net), as such are not found so convenient to use as print versions have portable reading material.

(ii) Dependency on Internet download speed: The access of e-books or articles from a journal through Internet depends on the download speed, which is sometimes very slow, as such takes several minutes to make available to the users.

(iii) Dependency on electricity: Regular supply of electricity is must for the access of e-resources, either through electricity supplier line or UPS.

(iv) Dependency on technology: Use of these resources require IT related devices for storage and display viz, compatible hardware and software, high speed Internet connection and knowledge of technology updating and utilization.

(v) Copyright restrictions: Use of copyrighted e-resources is not possible without permission of the copyright holder except in accordance with the fair use of licensed agreement.

IX. MANAGEMENT OF E-RESOURCES

The increasing role of digital documents in the present age of digital era has insisted librarians to manage these resources effectively. Management of e-resources helps the user community in identifying and accessing appropriate e-resources. The management policy of a library also comprises the activities performed in relation to the development of the vision, the mission, the goal and policies of the library. It is also concerned with the strategic planning of libraries in present and future operations, motivation of staff to enhance their skill and expertise in e-library associated services and operations.

Effective management of e-resources, in the present age of Information explosion is a very complex process. It has been realized due to the increasing central role of these e-resources, the large budgets involved in their acquisition, the endless variation in the packages offered by the hundreds of players in the market (such as subscription agencies, publishers and interface providers), the frequent changes in business models, and above all, the lack of automated tools.

According to Prakashe, management of e-resources involves effective planning and policy development for acquiring, providing access, facilitating users for optimal utilization, budget allocation for these resources, subscription renewal and managing skilled staff for proper functioning of e-resource services. Librarians should have professional as well as technical skills to manage all these resources. They should pay special attention in vendor negotiation, trouble shooting, link maintenance, inter-database linking, etc., so as to utilize the investment made in subscribing all the e-resources in their respective libraries.

X.   PLANNING FOR E- RESOURCES

Electronic resources present several challenges to the traditional library operation and workflow as such proper planning for e-resources is realized for smooth management of e-resources. The challenges faced by the traditional libraries include operational issues such as assignment of staff to manage e-resource related services, staying in-step with technological and vendor changes in e-resources, budgeting limited resources for their procurement and communication with vendors and amongst librarians and administrators. Access related challenges include management tools like open URL knowledge bases, federated searching, catalog records, and authentication.

Planning Policies for E-resources

In electronic resource management, planning policies communicate the goal and mission of the respective library, set guidelines of practice and to perform management related activities. An e-library need policies to address issues such as collection development issues, licensing issues and user access related issues. Planning policies of a library help to develop appropriate collection and utilize optimally all the available resources. The library policies may be related to issues like acquisition, trouble shooting, security of database, user access, etc.

Workflow for E-resources

In electronic resource management, some workflow functions are unique which include licensing, access set-up, link maintenance, trouble shooting, inter-database linking, vendor negotiation etc. The entire workflow of a library may be managed within a library's integrated library system (ILS) for the purpose of order tracking, budget and payments, catalogue access and inventory. The ILS can alert a library when the subscription of an e-resource is overdue, display all of a library's holdings, and inform the users about the availability of a particular resource.

E-resource management systems (ERMS) can further improve the access and utilization of available e-resources in agriculture library. The planning, policy making and documenting workflow activities are intertwined activities which are hallmarks of professionals. It is expected that libraries must regularly work for creating policies, documenting their workflow, and planning in all aspects of electronic resource management.

Selection, Evaluation and Acquisition of E-resources

E-resource selection decision for a particular library is based on its ability to satisfy user's needs. Demand from subject experts, regular users and head of the institution influence the selection decisions. E-resource selections for a library are also influenced by collection development policy of the institution.

Collection Development Policy for E-resources.

The collection development policy of an institution helps to take decisions relating to e-resource selection. The policy is a blueprint for the e-resource selectors and helps them to ensure uniformity in procedures and appropriate balance in the library collection. While formulating a collection development policy, following components should be considered appropriately

1. The policy should articulate the institutional mission of the library, the purpose of the policy, and the users for whom it is developed.
2. It should describe the procedure adopted for approval of recommendations for specific e-resource acquisition, i.e. whether selections are made by a committee or by individuals.
3. It should describe the user community to be served.
4. It should identify selection tools suitable for the library.
5. It should present criteria and guidelines for the e-resource selectors.
6. It should describe access versus ownership issues clearly. It includes decisions regarding whether electronic access is sufficient to meet the user's needs or whether the library should add print subscriptions.
7. The guidelines for weeding, cancellation, retention, preservation and replacement of e-resources should be included in the policy.
8. The policy should also include guidelines for collaborative collection development i.e. participation in consortia.
9. It should also include the expectations from e-resource providers with regards to training, technical support, compatibility with existing platform, and so forth.
10. It should also include general guidelines for licensing requirements for e-resources.

Licensing and Copyright Issues

Electronic resources are provided to use under the terms and conditions of a license agreement. A license agreement is a contract between a user/subscriber (licensee) and a e-resource owner/vendor (licensor). A subscription for an electronic resource generally entails the signing of a written license agreement or the acceptance of certain terms and/or conditions. This written contract determines the rights and obligations of both the parties involved, including the services that the licensor will provide and the conditions that the licensee must adhere to in order to use the electronic resources. The license permits the licensee and its patrons to use the vendor's electronic resources and/or content pursuant to the agreed upon terms and conditions for the time period specified. A license is negotiated to protect all the interests of both the parties. The

licensor wants library should subscribe its e-contents duly protecting his/her property rights. On the other side, the library tries to gain sufficient access to the electronic resources at a reasonable price, duly satisfying the needs of its patrons.

Usage of E-Resources

E-resources are procured in off-line or on-line form. On-line e-resources can be utilized by accessing on computer through the Internet connectivity. Off-line e-resources can be accessed by running the portable storage devices in the computer drive viz. CD-ROMs, DVDs etc.

E-Resource Preservation

Several activities are involved in the Preservation of electronic documents, ranging from simple replication and storage to more complex transformation, depending on the assessed value and risk to the target content. The digital preservation techniques involves keeping the data and database in logical order as per the latest technology of digitization available and using the hardware and software such as emulator. The digital preservation of documents can be classified as short - term, medium—term and long-term preservation.

XI. CONCLUSION

E-resources have become the fundamental source of information in variety of fields and more so in the field of education and research. In education, information in the digital form is being preferred now-a-days because of its several merits over print form. In India, agriculture education has special significance because our country is basically an agrarian country. In the agriculture sector, India has achieved a rapid progress due to introduction of modern agricultural management systems during Green Revolution Era, and now leading ahead for its second phase so as to reach a new ever high target of the food grain production. Our country is in fact capable of producing more food grains if Education, Research and Extension are further strengthened and streamlined. Realizing the potential of digital documents, now-a-days the agricultural scientists are using e-resources for improving education, research and extension activities in agriculture.

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