A Study on Networking and Resource Sharing of the Agricultural Libraries in Bangladesh

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Abstract:

Nowadays, a large amount of information is produced instantly on any given subject all over the world, making it more difficult to acquire and manage both print and electronic versions of the publication. Comparatively, the electronic version of any article is easier and cheaper than the print version. To collect all published materials, both hard and soft copies, in a library alone is a very difficult task. Obtaining a soft copy of published material is currently much easier and less expensive than obtaining a hard copy. In this study, attempts have been made to explore the present scenario of resource sharing activities among the Public Agricultural University Libraries (PAUL) of Bangladesh. It examined the existing number of users and determined the types and forms of collections, especially: books, journals, theses, e-resources, and CDs; types of service provided; various housekeeping operations such as using electronic resources, usage of databases, and the total number of data entry records; etc. In this study, we also come out with some existing challenges and finally put forward some recommendations to improve the quality of library services for the future development of the agricultural libraries of Bangladesh.

Keywords: *Agricultural Library, Electronic Resources, Networking, Resource Sharing*

1. Introduction:

With limited budget, no library alone could acquire desire resources. For this reason, to fulfill the minimum demand of the library needs resource sharing and networking among similar institution has great benefit. In agricultural field also various information resources have been published every moment around the world. Therefore, networking and information resource sharing becomes essential to collect and use important information resources sharing.

In traditional system necessary hard copy resources are kept organized way in the library for their users so that they can locate the materials within the short time.

The agriculture sector is the backbone of Bangladesh economy. The role of agriculture is immaculate to create opportunity of jobs for big population by increasing productivity and growth. The agricultural sectors (crops, fisheries, livestock and forests) also contribute a lot to the country's GDP, provides employment for nearly half of the labor force and supplies raw materials to the agro based industries[1]. Agriculture is an exceptional field of social activity which is closely related to the important issues like ensuring food and nutrition of peoples, creating scope of income and poverty alleviations. Libraries and information centers can be considered key media, which can play a vital role in the universal transmission and advancement of knowledge and can provide right information to the right user at the right time.[2] In Bangladesh, a good number of the agricultural libraries and information centers are not organized. They have different types of problems such as Insufficient Budget, inadequate information resources, shortage of qualified staff and want of modern technological facilities, and a lack of willingness of the authorities[3]. In this situation, it is impossible for any single library in Bangladesh to meet the information needs of its users.

To overcome this condition the library networking and resource sharing system will have to extend. The sharing of resources usually means the sharing of library materials and other information resources irrespective of geographical barriers. Resource sharing is not a new concept in the field of library and information science[4]. Resource sharing is a type of library cooperation, where every participating library shares its unused and also valuable resources with other libraries. Networking of various information resources available in different formats such as: Books, Reviews, Journal Articles, Conference Proceedings Patents, Theses & Dissertations, Reports, Manuscripts, and Electronic Form of Resources: E-Books, E-Journals, E-Databases, etc[5].

Libraries in our country are functioning without sufficient awareness of resource sharing of neighboring libraries or related libraries. Even the oldest form of resource sharing activity like "inter-library loan" among the related libraries still is not in practice. In this technological era

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[1]Bassey, O. U. (2021). Agricultural Journalism, an Imperative for Sustainable Agricultural Development in Nigeria, *Global Scientific Journal,* Vol. 9, No. 6, 760-771.

[2] Chowdhury, M. F. Q. (2012). Database Management Systems and Use of Digital Resources in Some Selected Public University Libraries of Bangladesh: An Overview, *Bangladesh Journal of Library and Information Science,* Vol. 2, No. 1, 67-78.

[3]Jahan, A. K. M. S., Mannan, S. M. & Kabir, S. M. S. (2013). Designing a Plan for Resource Sharing Among the Selected Special Libraries in Bangladesh, *International Journal of Library Science*, Vol. 3, No. 3, 1-19.

[4]Sing, J & Begum, D. (2012). Education, Information Literacy and Lifelong Learning: Three Pillars of Nation Building in the Emerging Knowledge Society, *Bangladesh Journal of Library and Information Science,* Vol. 2, No. 1, 48-56.

[5]Helen, A. & Rahman M. A. (2020). Use of Social Networking Sites for Learning by the Library and Information Science Students of National University, Bangladesh, *Indian Journal of Social Reform and Research,* Vol. 6, No. I, 26-41.

libraries are given more emphasis on electronic resource rather than the printed materials.[6] The traditional library management system is not capable of coping with the present multifaceted activities. The agricultural libraries of Bangladesh has its own aims to render smooth services to its clients and to fulfill these, the library requires necessary staff, satisfactory collection, own building, sufficient budget etc.

2. Review of Related Literature:

Kalbande (2018)[7] found that the librarians' opinion regarding library networking and resource sharing as well willingness for sharing of various types of resources and academic activities. Present survey conducted in the month of January 2014 to December 2014 with the help of well-structured questionnaire as well as personal interview. In the study of Prakash and Rao (2017)[8] raveled that resource sharing is a solution to optimize the library resources. Thus, resource sharing in libraries has become essential in current scenario, and it commands world-wide acceptance. This paper reviews the present literature of resource sharing in the context to the Management institute libraries in Bangalore city of India.

Das (2018)[9] analyzed the leads to library cooperation, resource sharing and networking. Consortia approach is one of the many ways of maintaining cooperation and coordination among the libraries and in fact it has emerged as the 'state of the art' in library cooperation in recent years. Document resources sharing is the basis of modem document services, and also the working target of the document workers and the key point is the development of digital resources. The purpose of digital resources development is to use and share library information resources effectively.

Chowdhury (2006)[10] focused his study about the present status of database management practices and use of digital resources of five selected Public University Libraries of Bangladesh. In his study researcher tried to focus on the availability of hardware and software in the respective library, examine types and forms of library collections, various housekeeping operations, management, services, and library administration etc. It has also put forward some

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[6]Singh, V. K. (2015). Role of Academic Libraries in Research and Development Activities in the Electronic Environment: A Study of University Libraries in Delhi, *International Journal of Humanities and Social Science Invention,* Vol. 4, No. 12, 9-19.

[7]Kalbande (2018). Resource Sharing and Networking in Agricultural College Libraries Under Jurisdiction of Mahatma Phule Krishi Vidyapeeth: A Study, *Journal of Library & Information Science,* Vol. 8, No.1, 100-113.

[8]Prakash and Rao (2017). Resource Sharing and Networking of Management Libraries: A Pre-Research Approach, *International Journal of Applied Business and Economic Research,* Vol. 15, No. 17, 223-231.

[9]Das (2018). Resource Sharing and Networking in Library and Information Services: A Brief Study, *Journal of Emerging Technologies and Innovative Research (JETIR),* Vol. 5, No. 7, 696-710.

[10]Chowdhury, M. F. Q. (2006). Computerized Database Management and Information Dissemination Scenarios of Some Major Libraries of Bangladesh, *The Eastern Librarian,* Vol. 20, No. 1&2, 20-27.

suggestions for the future development of the surveyed libraries. In study Jahan, Mannan and Kabir (2013)[11] raveled that the condition of the influencing special libraries of Bangladesh regarding their resources and services is in its infancy, so an attempt has been made to propose an elementary model plan of library networking and resource sharing for the country. The review has revealed a knowledge gap in the area of Networking and Resource Sharing (NRS) of the agricultural libraries in Bangladesh. In this regard, this work focuses on NRS in agricultural University, Bangladesh.

3. Objectives of the Study:

The main objectives of this study are:
   i)   To explore the present scenario of networking and resource sharing and identify the available intellectual and research products of scholars and to support teaching, learning, research and creative endeavors;
   ii) To determine the main challenges to acquire collections and ensure quality services and good professional practice in library activities; and
   iii) To identify the problems faced by the users as well as by the library professionals and provide some suitable recommendations to overcome the existing barriers of agricultural university libraries of Bangladesh for networking and resources sharing.

4. Methodology:

We used the survey method for the collection of primary data. Secondary data were used from the existing related literature and University Grant Commission of Bangladesh (UGC) annual report (2020)[12] as well as from the official website of the selected agricultural libraries of Bangladesh. We also prepared a short questionnaire, and it was used as a data gathering instrument. In addition, purposive random sampling techniques were also applied to select the sample of this study.

4.1. Sample of the Study:

For the research purpose researchers selected eleven (11) government (public) agricultural university libraries of Bangladesh as a sample of the study. For data collection researchers conduct through email and communicate with them through mobile to receive a reply promptly. Also use official website of these Libraries for collecting information. Side by side

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[11]Jahan, A. K. M. S., Mannan, S. M. & Kabir, S. M. S. (2013). Designing a Plan for Resource Sharing Among the Selected Special Libraries in Bangladesh, *International Journal of Library Science*, Vol. 3, No. 3, 1-19.
   [12]University Grant Commission (UGC) annual report (2020). Dhaka: Bangladesh. http://www.ugc.gov.bd/site/page/9e5f1189-1809-4fb0-9fc4-862dc41cca84

some related data also taken from UGC Annual Report 2020.[13] The strength of the relationship between the library facilities is measured strongly or moderately using a simple statistical method. Provided expert librarians opinions, authors' point of view and experiences have been incorporated. These are given below:

<div align="center">

Table 1: Sample of the Study

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Sl. No	Name of the University, Location	Established Year	URL/Web Address
1	Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh	1961	https://library.bau.edu.bd/
2	Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur, Bangladesh	1998	https://bsmrau.edu.bd/library/
3	Chittagong Veterinary and Animal Sciences University (CVASU), Chittagong, Bangladesh	2006	https://cvasu.ac.bd/office/office-of-the-librarian#
4	Patuakhali Science and Technology University (PSTU), Faculty of Agriculture, Patuakhali, Bangladesh	2000	http://pstu-opac.blacloud.in/
5	Noakhali Science and Technology University (NSTU), Department of Fisheries and Marine Science, Sonapur, Noakhali, Bangladesh	2006	https://www.nstu.edu.bd/ central library.html
6	Sher-e-Bangla Agricultural University (SAU), Sher-e-Bangla Nagar, Dhaka, Bangladesh	2001	https://www.saulibrary.edu.bd/ library.php
7	Hajee Mohammad Danesh Science and Technology University (HSTU), Faculty of Agriculture, Dinajpur, Bangladesh	1999	https://www.hstu.ac.bd/library
8	Khulna University (KU), Agrotechnology Discipline, Khulna, Bangladesh	1996	https://new.cseku.ac.bd/center-library
9	Rajshahi University (RU), Faculty of Agriculture, Rajshahi, Bangladesh	1953	http://library.ru.ac.bd/about-rucl
10	Sylhet Agricultural University (SAU), Sylhet, Bangladesh	2006	https://sau.ac.bd/aboutus
11	Bangabandhu Sheikh Mujibur Rahman Science and Technology University (BSMSTU), Faculty of Agriculture, Gopalganj, Bangladesh	2011	https://bsmrstu.edu.bd/dev/ library/

4.2. Areas of Resource Sharing in Agricultural Libraries:

Agriculture is the heart of a country. The economy of Bangladesh is dependent on Agriculture. Bangladesh is also achieving remarkable success in this sector. Every year a good number of students are graduated from the agricultural universities in Bangladesh. After completion of their study from Agriculture Universities, they are contributing to the development of agriculture sector. In Bangladesh, Digital integration in agricultural sector is also worth to mention. Public and private agricultural institutes in Bangladesh have been enlisted in Table-2. There are now 11 Public Agricultural University Libraries (PAUL) in Bangladesh are running without much more awareness of resource sharing of neighboring libraries or related libraries.

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[13]lbid: Footnote-12

Even the oldest form of resource sharing activity like "Inter-Library Loan such as Issue, Return, Fines, Data entry, Online Access, Borrower file maintenance, Enquiries, Reports and Statistic" among the related libraries are still not in practice. The following initiatives may need to take in action to develop resource sharing among agricultural libraries in Bangladesh.

i) **Cooperative Acquisition or Funding:** Need to develop a combine selection and acquisition policy of library materials.

ii) **Centralized Processing of Collection:** All these libraries need to set up a centralized classification and cataloguing system either regionally or nationally to avoid duplication, wastage of time, fund, and labor. It brings uniformity and improved quality in the technical processing.

iii) **Coordinated Weeding:** Coordinated weeding and retention reduce costs by sharing responsibilities and take responsibility for retaining materials in certain areas.

iv) **Synergistic Approach:** different libraries take responsibility to collect in different areas according to some collaborative plan.

v) **Union Catalogue and Union List of Serials:** Catalogue is an inventory common to several libraries containing all or some of their publications. It gives unified information about collections of each library. Using common database every member of the network may get information about a respective item and also immediately know that seeking item is available in which libraries.

vi) **Cooperative Storage:** Libraries can join to have a cooperative storage and weeded out less reading materials by sharing among themselves.

vii) **Develop an Integrated Library Management System:** Need to use common library automation and management system but now no uniformity e.g., several libraries used more than one software for library automation (e.g., Koha, SLIM, WIN/ISIS etc.) and institutional repositories (e.g., Dspace, Fedora, Greenstone, Drupal etc.).

viii) **Publications Exchange Program:** To obtain the benefit of resource sharing all published or excess materials should be inter change or send to the consortium/ network member libraries on regular basis.

Table 2: Usage Information of PAUL in Bangladesh

Sl. No	Name of the Universities	No. of the Students/ Teachers	Books/ Journals	CD-DVD/ Thesis	Databases	Usages e-Resources
1	BAU	8219/ 591	2,05,461/ 38,633	1209/ 10961	Koha, Dspace	AGORA, INASP-PERI , UDL, TEEAL, HINARI, BanglaJOL, ScDirect
2	BSMRAU	1880/ 215	40839/ 258	Null/ 2700	Koha, Dspace	AGORA, INASP-PERI , UDL, TEEAL, Springer, ScDirect, NPG, R4L
3	CVASU	1547/ 137	9053/ 338	428/ 228	Koha, Dspace	ARDI, AGORA, HINARI, OARE, TEEAL, R4L, Springer

Sl. No	Name of the Universities	No. of the Students/ Teachers	Books/ Journals	CD-DVD/ Thesis	Databases	Usages e-Resources
4	PSTU	3421/ 253	1010396/ 2800	300/ 1200	Koha	PSTU Journal, UDL, INASP, AGORA, HINARI
5	NSTU	7342/ 346	22550/ 627	175/ 326	Koha	UDL, TEEAL
6	SAU	4770/ 321	41495/ 132	Null/ 1937	Koha, Dspace	OARE, AGORA, HINARI, TEEAL, DOAJ, BanglaJOL, JSTOR, INASP, UDL
7	HSTU	11547/ 320	34110/ 89	300/ 800	Koha	UDL, HINARI, OARE, SCIENCES, AGORA
8	KU	6100/ 489	52031/ 5635	360/ 20321	Koha	AGORA, BanglaJOL, INASP-PERI, HINARI, OARE, TEEAL, UDL
9	RU	38291/ 1150	3500004/ 1200	1000/ 2457	Koha, Dspace	AGORA, BanglaJOL, INASP-PERI, HINARI, OARE, TEEAL, UDL
10	SAU	2165/ 244	14020/ 2310	750/ 800	Koha	AGORA, BanglaJOL, HINARI, TEEAL, UDL
11	BSMSTU	11198/ 272	32550/ 14	Null/ Null	Koha	UDL

*AV= Audio Visual, CD=Compact Disk, T=Thesis, R4L=Research for Life

To analysis above stated Table-2 we have seen that teacher student ratio is 1:22, this scenario is pathetic and needed to enrich quality education in the agricultural sector of the country. To overcome the prevailing situation now at least need to recruit a double number of teachers. From this table again we find that number of user verses number of reading materials ratio is 1:8. This ratio also indicates that a number of books and journal collections need to be increased from the present stock. This table also shows that almost all university libraries not yet completed data entry of their collections. Institutional Repositories (IR) and Digital Libraries (DL) are relativistic new concepts in Bangladesh. IR may be considered as the first step towards online open access to research output. Library professionals in Bangladesh understand and realize the benefits of open access, yet there have been very few open access initiatives have taken at higher learning institutions (Islam 2012)[14].

Recently Sher-e-Bangla Agricultural University Library has built a Digital Archive on Agricultural Theses and Journals (DAATJ) under the Project of UGC-HEQEP. Some efforts have been taken by agricultural university libraries individually to facilitate access to their researchers and the sharing of resources. These include: Access to Global Online Research in Agriculture (AGORA)[15], INASP-PERI (BIPC)[16], Directory of Open Access Journals (DOAJ)[17], Bangladesh Journals

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[14]Islam, M. M. R. (2012). Present status of library cooperation, networking, and resource sharing in Bangladesh: Web-based library cooperation for access to world-wide information, *Library Philosophy and Practice* (E- Journal). Retrieved 27 November, 2022 from http://digitalcommons.unl.edu/libphilprac/784

[15] Access to Global Online Research in Agriculture (AGORA) https://agora.research4life.org/

[16] INASP-PERI (BIPC) https://www.inasp.info/projects

[17]Directory of Open Access Journals (DOAJ) https://doaj.org/

Online (BanglaJOL)[18], Online Access to Research in the Environment (OARE)[19], The Essential Electronic Agricultural Library (TEEAL)[20], Among these electronic resources (INASP)[21] and UGC Digital Library (UDL)[22] are getting through yearly subscription negotiating by the coordinator namely Bangladesh Academy of Science (BAS)[23] and University Grants Commission (UGC 2022)[24] respectively. A brief discussion of some aforesaid e-Resources is given below:

i) Access to Global Online Research in Agriculture (AGORA)[25]:

AGORA is the acronym for the Access to Global Online Research on Agriculture program. It was launched in 2003 by the Food and Agriculture Organization (FAO) of the United Nations (UN) in partnership with Cornell University and together with major publishers, enables developing countries to gain access to an outstanding digital library collection in the fields of food, agriculture, environmental science and related social sciences. AGORA provides a collection of up to 10,000 key journals and up to 26,500 books in more than 115 countries. AGORA is designed to enhance the scholarship of the many thousands of students, faculties and researchers in agriculture and life sciences in the developing world. It is one of the five programs that make up Research4Life: AGORA, HINARI, OARE, ARDI and GOALI.
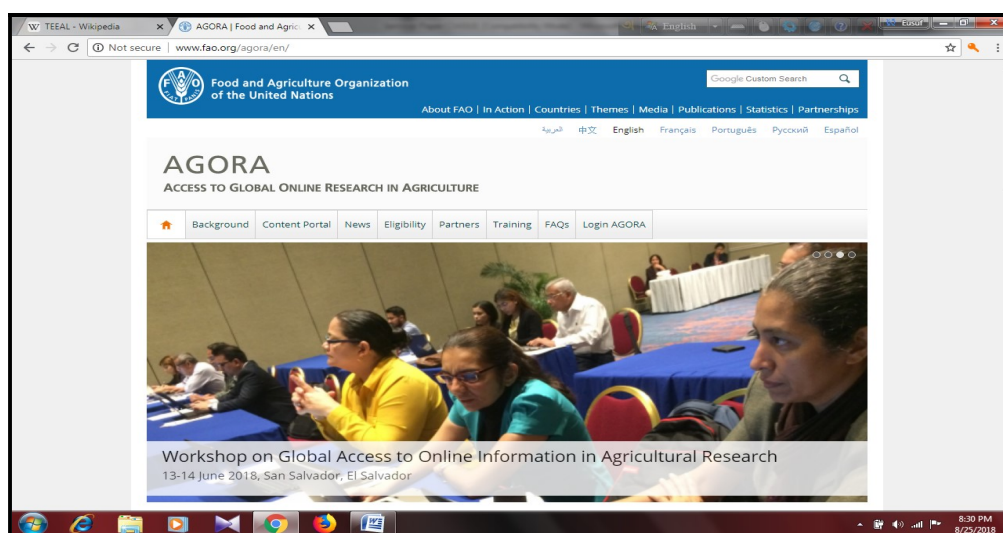

Figure 1: AGORA Website View[26]

ii) Bangladesh-INASP-PERI Consortium (BIPC)[27]:

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[18]Bangladesh Journals Online (BanglaJOL) https://www.banglajol.info/
[19]Online Access to Research in the Environment (OARE) https://www.oaresciences.org/
[20]The Essential Electronic Agricultural Library (TEEAL) https://www.teeal.org/
[21]Among these electronic resources INASP https://www.inasp.info/
[22]UGC Digital Library (UDL) http://udl-ugc.gov.bd/
[23]Bangladesh Academy of Science (BAS) https://www.bas.org.bd/
[24]University Grants Commission (UGC) http://www.ugc.gov.bd
[25]Ibid: Footnote-15
[26]AGORA http://aims.fao.org/news/workshop-agora-access-global-online-information-agricultural-research-13-14-june-2018

An online journal network under the Program for Enhancement of Research Information (PERI) started in 2006 on a trial basis free subscription under the Bangladesh Academy of Sciences with the collaboration of the International Network for the Availability of Scientific Publications (INASP) with access to full-text articles/ abstracts/bibliographical information about online journals of different publishers in different disciplines. In 2007 formed Bangladesh INASP-PERI Consortium (BIPC) taking the consent of participating members and consequently signed a memorandum of understanding (MoU) between two institutes (BAS & INASP) and 13 organizations joined the network in the first year. In 2008, the number of members rose to 22 and the network paid US$ 87000 to INASP. Currently BIPC renamed as Library Consortium of Bangladesh (LiCOB).[28] Access to online journals is IP based. Now the regular member of this consortium is around 50, and they are accessing over 5000 online journals, e-books and databases and resources are getting mainly through the following publishers.

iii) Bangladesh Journals Online (BanglaJOL)[29]:

Bangla JOL is a database of journals published in Bangladesh, covering the full range of academic disciplines. The objective of Bangla JOL is to give greater visibility to the participating journals, and to the research they convey. It is a database of open access journals published in Bangladesh. INASP initiated BanglaJOL in June 2007 and officially launched it in September 2007. There are now 142 journals on BanglaJOL with 1749 Tables of Contents listing 22,503 articles. 21,622 of the articles are available in full text (PDF).
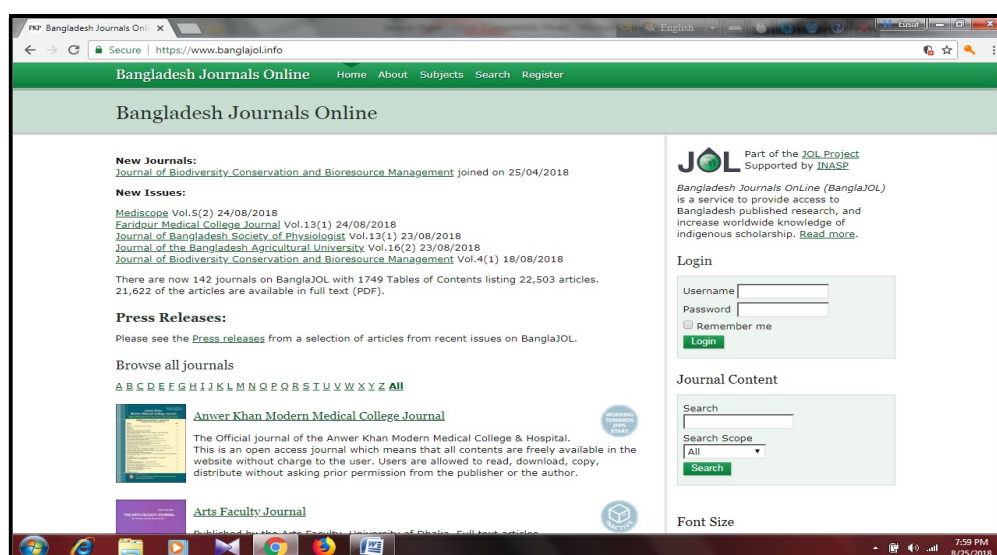

Fig. 2: BanglaJOL Website View (https://www.banglajol.info/)[30]

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[27]Ibid: Footnote-16
[28]Ibid: Footnote-16
[29]Ibid: Footnote-18
[30]Ibid: Footnote-18

iv) The Essential Electronic Agricultural Library (TEEAL)[31]:

Detail of TEEAL is The Essential Electronic Agricultural Library launched in 1999. It is a self-contained agricultural research library with full-text articles and graphics of over 200 major journals. TEEAL is a project of Cornell University's Albert R. Mann Library in cooperation with over 60 major scientific publishers, societies and index providers. TEEAL is a digital collection of research journals for agriculture and related sciences. Researchers, students, faculty and librarians can discover and access thousands of full-text PDF articles without the use of internet. TEEAL is free available to institutions in income-eligible countries.

v) UGC Digital Library (UDL)[32]:

University   Grants Commission (UGC) of Bangladesh formed UGC Digital Library (UDL) in June 2012 with the aim to introduce a networked electronic library. UDL is largely funded by the World Bank's Higher Education Quality Enhancement Project (HEQEP) with the aim at subscribing e-resources for the member institutions mainly public and private university libraries at lower rates of subscription. Currently, 90 institutions are subscribing e- resources from UDL. Among them 34 Public University, 51 Private University, 01 International University, 02 Research Institutes and 02 Training Institute Libraries are subscribing e-resources   through UDL. The main objective of the ULD is to build a consortium of universities/research institutions in Bangladesh under the umbrella of UGC, and to support teaching, learning and research by facilitating online access to a high-quality and scholarly electronic resource to all member institutions at a substantially lower rate of access/subscription (Ahmed 2016).[33] UDL is providing access to a number of online resources.

Table No. 3: providing e-resource facilities for the members under UDL

Types of Resources	Name of the publications	Website Links
E-book	Emerald	https://emeraldinsight.com
	McGraw Hills	http://mcgrawhilleducation.pdn.ipublishcentral.com
	Oxford University Press	http://oxfordscholarship.com
	Pearson	http://lib.myilibrary.com
	Springer	http://link.springer.com
	Cambridge University Press	http://ebooks.cambridge.org
	Sage	http://knowledge.sagepub.com
	Taylor and Francis Group (Science &Technology)	http://www.taylorfrancis.com

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[31]lbid: Footnote-20

[32]lbid: Footnote-22

[33] Ahmed, S. M. Z. (2016). UGC Digital Library Operations Manual, Dhaka: University Grants Commission of Bangladesh http://udl-ugc.gov.bd/page/operation-manual

	Taylor and Francis Group (Social Science)	http://www.taylorfrancis.com
	Wiley	http://www.wileyindia.com/Wiley_Online_Resources/UGC%20Bangladesh/UGC%20Bangladesh.html
	World Scientific	http://worldscientific.com
E-journals	ACM	http://dl.acm.org
	Emerald	https://emeraldinsight.com
	IEEE	http://ieeexplore.ieee.org/
	JSTOR	http://www.jstor.org

4.3. Private Agricultural University:

There are now a few[34]private universities in the country which has open faculty of agriculture such as:

i)   International University of Business, Agriculture and Technology, Dhaka,

ii) EXIM Bank Agricultural University, Bangladesh (EBAUB), Chapainawabganj,

iii) First Capital University of Bangladesh – Faculty of Agriculture, Chuadanga,

iv) Ishakha International University – Faculty of Agriculture, Sholakia, Kishoreganj,

v) Atish Dipankar University of Science and Technology – BBA in Agribusiness/ MBA in Agribusiness, Dhaka,

vi) Tamal tola Agriculture and Technical College – [Under Rajshahi University] – BSc in Agriculture, Natore.

4.4. Agricultural Research Institutes of Bangladesh:

National Agricultural Research System (NARS)[35] has been formed with Bangladesh Agricultural Research Council (BARC)[36]as the apex body and twelve agricultural research organizations are the constituent units. The agricultural universities, NGOs and private sectors though not integrated but linked with NARS in terms of research collaboration. Among the thirteen research organizations, including BARC, six are autonomous bodies under Ministry of Agriculture and the remainders are under other ministries and three organizations BFRI (Forest), SRDI (Soil) and BCDB (Cotton) are government departments shown in table 3.

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[34]Private Agricultural Universities   https://minciter.com/list-of-public-and-private-agriculture-universities-in-bangladesh/

[35]National Agricultural Research System (NARS) http://barc.portal.gov.bd

[36]Ibid: Footnote-35

Table 4: Agricultural Research Institutes apex body and related sub offices details

Apex Body	Related Sub Offices
Autonomous body under the Ministry of Agriculture	Bangladesh Agricultural Research Council (BARC) Bangladesh Agricultural Research Institute (BARI) Bangladesh Rice Research Institute (BRRI) Bangladesh Jute Research Institute (BJRI) Bangladesh Institute of Nuclear Agriculture (BINA) Bangladesh Sugarcane Research Institute (BSRI)
Government Agency under the Ministry of Agriculture	Soil Resources Development Institute (SRDI) Bangladesh Cotton Development Board (BCDB) Autonomous body under the Ministry of Fisheries and Livestock Bangladesh Fisheries Research Institute (BFRI) Bangladesh Livestock Research Institute (BLRI)
Government Agency under the Ministry of Environment and Forests	Bangladesh Forest Research Institute (BFRI)
Autonomous body under Bangladesh Tea Board, Ministry of Commerce	Bangladesh Tea Research Institute (BTRI)
Autonomous body under the Ministry of Jute and Textiles	Bangladesh Sericulture Research and Training Institute (BSRTI)

All these Institutes have Library and maximum libraries uses free e-Resources such as AGORA, OARE, TEEAL etc.

5. Challenges:

Mentioned below some major issues which occurs challenges to form a strong agricultural network:

i) **Lack of well-defined Institutional Policy:** Most of the libraries of Bangladesh are traditional nature, and therefore they lack in long term and well –defined policies regarding workflow management, organizational need assessment, preservation of e-resources, and strategic alliance with consortia and so on.

ii) **Lack of IT Infrastructure:** It is essential to develop proper IT infrastructure in libraries for managing and providing access to e-resources. Many of libraries of Bangladesh have initiated digitization of their collection, availability of fast internet connections, and their required computer hardware could make these initiatives faster and more advanced.

iii) **In-sufficient Budget:** More investment is required to build library collections with rapid development. The budget constraints and high price of the electronic resources have always created challenges for libraries to make provision for resources. It is very difficult to

manage sufficient allocation of budget for the development of Digital Library system from operational cost.

iv) **Lack of Adequate Manpower:** Most of the Library professional in Bangladesh do not take strong ICT knowledge and related skills, at the same time they are unable to initiate technological changes in the library.

v) **Lack of Proper Preservations:** Most of the digital preservation initiatives in the country are based on package programs and allow a little for customization.

vi) **Electricity Failure:** Electricity or power failure is related to the ICT infrastructure.

vii) **Lack of Awareness:** Users are not aware of digital libraries and those who are aware do not know how to use digital libraries. Perception of many library professionals towards technology and innovation acceptance is negative which hinders the adoption and usage of digital library system.

6. Recommendations:

The prime necessity for a university is a good library with a balanced and adequate collection, which can satisfy the needs of the university faculties and help to promote advanced study and research programs. A university is rated largely by its strength of the library. No university can develop effective work, in the academic sense, without a strong library at its center. To render smooth and standard service trained and skilled library professionals should be appointed in every university and research institute library. Necessary advice may be taken from the library experts. Need to install high-capacity computer configuration. Maintain Easy purchase procedure. To gather practical knowledge library professional should visit an icon library/standard library frequently. Share resources among the similar category of libraries to build up a strong network system. Some recommendations are given below to build an effective agricultural library network:

i) **Forming a Library Consortium:** Agricultural University Library or Information Center should form a consortium UGC Digital library (UDL) as an apex body for university libraries and BARC for research institutes.

ii) **Increase Budget:** Institutional Budget should have clearly stated budget for subscribing more e-resource and enhance allocation of funds for these purposes.

iii) **Develop Infrastructural Facilities:** Many of libraries of Bangladesh have initiated digitization of their collection, availability of fast internet connections, and their required computer hardware could make these initiatives faster and more advanced. Technical, physical and intellectual infrastructure must be developed to facilitate the building and using digital libraries in Bangladesh. High power server is required to install to maintain digital library.

iv) **Frequently arrange Training Program or Workshops:** Libraries should organize orientation program for users on how to use, search and retrieve resources in digital library. User orientation courses/workshop/seminar may be organized for all types of users.

v) **Required IT Knowledge:** Skilled and IT knowledgeable library personnel are necessary for smooth running of digital library. Library authorities should arrange in house training facilities for library staff and promote knowledge sharing culture to increase skills and knowledge of them regarding digital library systems and services.

vi) **Increase Awareness:** Users are not aware of modern libraries and those who are aware do not know how to use e resource. Perception of many library professionals towards technology and innovation acceptance is negative which hinders the adoption and usage of digital library system.

vii) **Lack of Community Club:** There is not yet community club of hubs for students and getting support services. So need to establish a common network for students "hubs" for academic support.

7. Conclusions:

Lastly, we will say that Bangladesh is lagging behind in digitization and the establishment of digital information systems compared to other sectors. Technology-based library and information systems are still in their infancy in the country. This study reveals that the majority of agricultural libraries have not taken part in any resource sharing or networking activities in Bangladesh. However, the findings show that the state of the country's agricultural libraries in terms of resources and services is in its early stages. A large number of surveyed libraries subscribe to online journals through INASP or the UDL library consortium. In this regard, the National Agricultural Information System (NAIS) and the Agricultural Information Center (AIC) should take active steps to develop a network of agricultural institutes. Thus, it is important to take the necessary measures to establish an efficient networking and resource sharing network or consortium among the agricultural libraries for the purpose of providing better services to the users of the country.

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