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- Study on Agricultural University Libraries of North East India

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Indian Association of Special Libraries & Information Centres

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Agricultural University Libraries of North East India: An Empirical Study

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Abstract

Purpose: Agriculture is a source of livelihood to the majority of rural population in North East India. This paper traces the history of agricultural education and research in North East India since British period. Assam Agricultural University with nine constituent colleges and Central Agricultural University with ten constituent colleges are currently functional in the north eastern region imparting under graduate, post graduate and doctoral programs in various disciplines of Agricultural Sciences. The purpose of this study is to evaluate the constituent college libraries of these two agricultural universities of the North East India.

Methodology: Survey method has been adopted for this study. A structured questionnaire was administered among librarians of constituent colleges of Central Agricultural University and Assam Agricultural University.

Findings: The study found that the library expenditures of both the universities are in a decreasing trend. The libraries are partially automated and both the universities are suffering from low Internet bandwidth issues.

Originality: The study is an original research work mainly dealing with primary data collected through a survey in the constituent colleges of Central Agricultural University and Assam Agricultural University.

Keywords: Assam Agricultural University, Central Agricultural University, Hill Agriculture, Indian Council of Agricultural Research, Marginal Farmers, National Agricultural Research System, National Knowledge Network, Rainfed Agriculture.

1. Introduction

Agriculture is a source of livelihood to the majority of population in India. Today India is self sufficient in food production with surplus production resulting in agricultural exports. According to Central Statistics Office (CSO) the share of agriculture and allied sectors (including agriculture, livestock, forestry and fishery) was 15.35% of the Gross Value Added (GVA) during 2015–16 and agricultural products comprise the 4th largest exported commodity contributing 10% of total exports of the country[1]. Success in agricultural production is achieved through continuous and persistent efforts of agricultural scientists and farmers throughout the country. Successively government have invested heavily for the all round development of agriculture in the entire country by establishing agricultural universities, research institutions, agricultural credit banks and various welfare schemes to help the farmers. Government of India has allocated a huge sum of Rs. 35,984 crore for agriculture and farmers' welfare in the 2016-2017 Union Budget[2].

Agricultural education and research forms the basis of agricultural development of a country by providing trained manpower, improved agricultural tools and techniques, training of farmers through extension education and framing agricultural policies and guidelines. The National Agricultural Research System (NARS) of India is one of the largest agricultural research systems in the world comprising of 5 deemed universities, 63 national institutes, 14 national research centres, 6 national bureaus and 14

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directorates/project directorates under the Indian Council of Agricultural Research (ICAR) system; and 3 central agricultural universities and 61 state agricultural universities[3]. Many international organisations like Food and Agriculture Organisation (FAO) and World Bank have funded many projects for agricultural development in India. Consortium for e-Resources in Agriculture (CeRA) was initially a World Bank funded library consortium project for providing access to reputed international scientific journals to all researchers / teachers in the National Agricultural Research System (NARS).

2.   North East India

North East India consisting of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura constitutes about 8% of India's geographical size and its population is approximately 40 million (about 3.1% of the total Indian population). Northeast India has a subtropical climate influenced by the southwest and northeast monsoons. Average annual rainfall is 233.5 cm[4]. Rice is the major crop of this region accounting for about 89% of the cultivated area and 92% of the total food grains production in the region. The other major crops are maize, wheat, millets, oilseeds and pulses[5]. In northeastern states hill agricultural practice has a considerable potential to grow, and contribute towards improving farm incomes, enhancing food and nutrition security, reducing rural poverty and accelerating the overall economic growth of the region. Unfortunately the growth potential of hill agriculture has remained under-exploited due to lack of system-specific production technologies, poor infrastructure (transport, markets, processing) and underdeveloped institutions (credit, extension, information, insurance)[6].

3.   History of Agricultural Education and Research in North East India

Most of the north eastern states were a part of larger Assam during India's independence excluding Manipur, Sikkim and Tripura. Under the

Imperial Rule. An agricultural research station was established at Karimganj in 1913 followed by another at Titabar in 1923. After independence, the Assam Agricultural College at Jorhat and the Assam Veterinary College at Nagaon were established in 1948. Later on in 1969, when the Assam Agricultural University was established with it's headquarter at Jorhat both these colleges came under its control and the Veterinary College was shifted from Nagaon to the present location at Khanapara, Guwahati[7]. Other than Assam, the Manipur Government had also established the Manipur Agriculture College at Imphal in 1979 which became a constituent college of Central Agricultural University in 1993.[8]

4.   Agricultural Universities of North-East India

Inaccessibility, remoteness and communi-cation backwardness are characteristics of North East India. In this region agriculture is mostly rainfed and hill agriculture is done by mostly small and marginal farmers. Farmers are not aware about improved agricultural techniques here. Major agricultural equipments are not used in North East India. Most of the crops produced in North East India are not in commercial mode. To address these gaps, Assam Agricultural University and Central Agricultural University were established in the year 1969 and 1993 respectively. Both the universities share common mission and objectives of improving the agricultural education and production in North East India.

4.1   Assam Agricultural University

Assam Agricultural University (AAU) is the first agricultural university of North East India established in 1969. The main goal of this university is to produce trained human resources in agriculture and to carry out research for improving agricultural production and transfer the technology for the benefit of the farmers. In order to achieve the above, the university has a support base of 9 Colleges, 6 Regional Agricultural

Research Stations (RARS), 6 Commodity Research Centres and 23 Krishi Vigyan Kendras (KVK) throughout the state (Figure 1) with its headquarter at Jorhat.
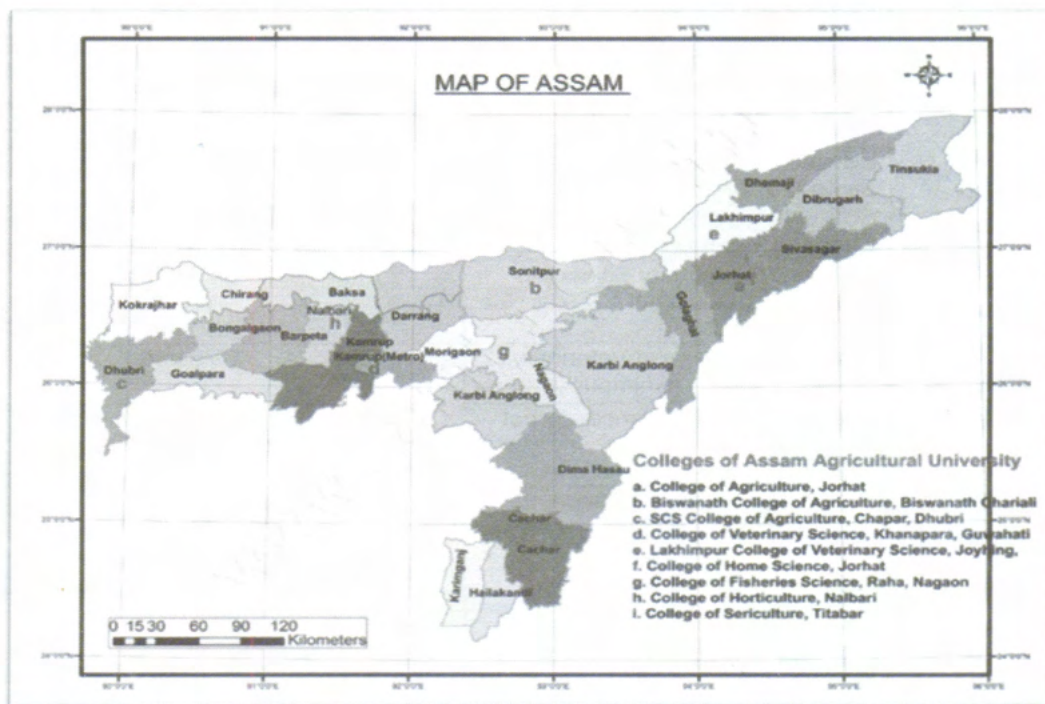
Figure 1: Constituent Colleges of Assam Agricultural University[11]

Table 1 gives the detail information about intake capacity in different courses offered by the Assam Agricultural University (AAU) through its different faculties and constituent colleges. There are libraries in all the constituent colleges to support the education and research activities. Rev. B M Pugh Library at the headquarter controls the branch libraries of constituent colleges by providing books, journals and staff. The library provides access to electronic resources to the students, teachers and scientists through CeRA and DeLCON consortia. It also individually subscribes to CAB eBooks. Ph. D theses submitted to the university in between 2001 to 2006 are digitized under ICAR sponsored Krishiprabha project. Full text made available online to authorized users and are abstracts for others.[10]

4.2 Central Agricultural University

Government of India had established the Central Agricultural University in 1993 to look after the agricultural development of north eastern states other than Assam and Nagaland. With the recent establishment of the College of Veterinary Science and Animal Husbandry at Jalukie, Peren District., Nagaland also came under the jurisdiction of Central Agricultural University, Imphal. The jurisdiction of the University extends to seven out of eight North-Eastern States viz., Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, with headquarters at Imphal in Manipur (Figure 2)[12].

Table 1: Summary of Faculties, Colleges, Courses and Intake capacity of AAU

Faculty of	Name of the college	Year of establishment	Courses/ Intake capacity
Agriculture	College of Agriculture, Jorhat	1948	BSc (Agriculture)/**150** Msc (Agriculture)/**163** MBA (Agri Business)/**10** Msc (Food Tech.)/**10** PhD/**104**
	Biswanath College of Agriculture, Biswanath Chariali	1988	BSc(Agriculture)/**40** MSc(Agriculture)/**15**
	SCS College of Agriculture, Chapar, Dhubri	2014	BSc (Agriculture)/**24**
Veterinary Science	College of Veterinary Science , Khanapara, Guwahati	1969	BVSc/**100** MVSc/**128** PhD/**66**
	Lakhimpur College of Veterinary Science, North Lakhimpur	1988	BVSc/**30**
Home Science	College of Home Science, Jorhat	1973	BSc (Home Sc)/**45** MSc (Home Sc)/**35** PhD/**20**
Fisheries Science	College of Fisheries Science, Raha, Nagaon	1988	BFSc/**25** MFSc/**12** PhD/**2**
Horticulture	College of Horticulture, Nalbari	2014	BSc (Horticulture)/**25**
Sericulture	College of Sericulture, Titabar	2014	BSc (Sericulture)/**25**

Figure 2: Constituent Colleges of Central Agricultural University

Table 2: Summary of Colleges, Courses and Intake capacity of CAU

Name of the college with the year of Establishment	Website/webpage	Courses/ Intake capacity
College of Agriculture, Iroisemba, Imphal, Manipur (1979)	coa.ac.in	BSc (Agriculture)/**87** BTech (Food Tech)/**10** MSc (Agriculture)/**40** PhD/**6**
College of Veterinary Science and Animal Husbandry, Selesih, Aizawl, Mizoram (1979)	www.cvsccauaizawl.edu.in	BVSc. & A.H/**67** MVSc/**55** PhD/**11**
College of Fisheries, Lembucherra, Agartala, Tripura (1998)	www.cofcau.nic.in	BFSc/**36** MFSc/**22** PhD/**2**
College of Horticulture and Forestry, Pasighat, Arunachal Pradesh (2001)	www.chfcau.org.in	BSc (Horticulture)/**48** BSc (Forestry)/**27** B Sc (Ag)/**20** MSc (Horticulture)/**8** MSc (Forestry)/**2** PhD/**2**
College of Home Science, Tura, West Garo Hills Meghalaya (2004)	-	B.Sc.(Home Sc.)/ MSc (Home Sc.)/**4**
College of Agricultural Engineering and Post-Harvest Technology, Gangtok, Sikkim (2006)	www.caepht.ac.in	BTech (Agril. Engg.)/**42** Btech (Food Process Engg.)/**20** Mtech (Soil & Water Engg.)/**3** Mtech (Farm Machinery & Power Engg)/3 Mtech (Food Engineering)/**2** PhD/**2**
College of Postgraduate Studies, Barapani, Shillong, Meghalaya (2007)	www.cpgs.ac.in	BSc (Agriculture)/**20** MSc (Agriculture)/**40** PhD/**14**
College of Horticulture, Bermiok, Namchi, Sikkim (2015)	-	BSc (Horticulture)/**20**
College of Horticulture, Thenzawl, Mizoram (2016)	-	BSc (Horticulture)/**20**
College of Veterinary Science and Animal Husbandry, Jalukie, Peren District., Nagaland (2016)	-	BVSc. & A.H/**20**

The University aims to excel in teaching, research and education in the field of agriculture and allied sectors. The University trains the farmers through extension education programmes organized from time to time for the effective dissemination of advanced agricultural technologies in North-East India. To fulfill its mission, the University established ten constituent colleges and three Krishi Vigyan Kendras (KVKs) in the seven states of North-East India[13]. The constituent colleges of Central Agricultural University have libraries with good collection of books and journals. There is no central library in the CAU system and all the constituent college libraries work independently under a separate budget allocation **(Table 2)**. All the constituent colleges have IP based access to CeRA and DeLCON consortia as part of the ICAR and Department of Biotechnology, Govt. of India policies respectively.

5.   Data Collection and Analysis

The data analysis has been done using IBM SPSS Statistics Version 20 for Windows and MS Excel 2007 for the responses received from the Librarians / Library In-charges of the constituent colleges of Central Agricultural University (CAU) and Assam Agricultural University (AAU). The abbreviations of the universities and colleges used for cross-tabulations and graphs are stated in **Table 3.**

The colleges of CAU and AAU which are established after 2014 are not included in this study as these colleges are functioning from the host colleges and proper infrastructures are yet to be developed.

Table 3: Abbreviations of the Universities and Colleges

Name of the University/College	Abbreviation
Central Agricultural University, Imphal	CAU
College of Agricultural Engineering and Post Harvest Technology (CAU) – Gangtok, Sikkim	CAEPHT, CAU
College of Agriculture (CAU) – Imphal, Manipur	CoA, CAU
College of Fisheries (CAU) – Lembucherra, Tripura	CoF, CAU
College of Home Science (CAU) – Tura, Meghalaya	CHS, CAU
College of Horticulture & Forestry (CAU) – Pasighat, Arunachal Pradesh	CH&F, CAU
College of Post-Graduate Studies (CAU) - Umiam, Meghalaya	CPGS, CAU
College of Veterinary Sciences & Animal Husbandry (CAU) - Aizawl, Mizoram	CVS&AH, CAU
Assam Agricultural University, Jorhat	AAU
Biswanath College of Agriculture (AAU)- Biswanath Chariali	BNCoA, AAU
College of Agriculture (AAU)- Jorhat	CoA, AAU
College of Fishery Science (AAU)- Raha	CoF, AAU
College of Home Science (AAU)- Jorhat	CHS, AAU
College of Veterinary Science (AAU)- Khanapara	CVS, AAU
Lakhimpur College of Veterinary Science (AAU)- North Lakhimpur	LCVS, AAU

5.1 Responses Received From the Librarians / Library In-Charges

A total of 12 questionnaires were distributed among the Librarians/Library In-charges of 7 constituent colleges of Central Agricultural University and 5 constituent colleges of Assam Agricultural University (College of Agriculture and College of Home Science share the same library viz. Rev. B M Pugh Library at AAU Headquarter, Jorhat). The survey was completed by 11 libraries (out of 12) giving a response rate of 91.67%. The data collection took place during June 2014 to June 2015.

5.2 Independent Subscription to e-Journals / Books / Databases:

Only 5 out of 11 libraries (3 in CAU and 2 in AAU) independently subscribed to Electronic Journals/Books/Databases. The subscribed resources are shown in Table 4.

Table 4: e-Journals/Books/ Databases subscribed independently

Sl. No.	Name of e-Journals/Books/Databases	Publisher	Name of Subscribing Colleges
1	Bio System Engineering (e-journal)	Elsevier Science	CAEPHT, CAU
2	Journal of Food Composition (e-journal)	Elsevier Science	CAEPHT, CAU
3	Agricultural CDs		CoA, CAU
4	Bulletin of Entomological Research	Cambridge	CPGS, CAU
5	Plant Breeding	Wiley	CPGS, CAU
6	Journal of Global Communication	IJS	CPGS, CAU

Sl. No.	Name of e-Journals/Books/Databases	Publisher	Name of Subscribing Colleges
7	Indian Statistical Database	India.stat.com	CPGS, CAU
8	CAB-e book collection of 5 years (2008 to 2012)	CAB International	Rev. B M Pugh Library at AAU Headquarter, Jorhat for CoA, AAU & CHS, AAU
9	CAB CD from 1973-2013	CAB International	Rev. B M Pugh Library at AAU Headquarter, Jorhat for CoA, AAU & CHS, AAU
10	Aquaculture International (Journal)	Springer	CoF, AAU

5.3 Details of Library Collection

The details of library collection available through CeRA and DeLCON consortia to both AAU and CAU are presented in this section using tables and figures.

Table 5 shows the collection of books (print), e-books, journals and e-journals in constituent colleges of Central Agricultural University which have been graphically presented in Figure 3.

Similarly, Table 6 shows the collection of books (print), e-books, journals (print) and e-journals in constituent colleges of Assam Agricultural University (AAU) and these facts are supported graphically by Figure 4.

Table 5: Library Collection in constituent colleges of CAU (N=5)

Name of the colleges	Books (Print)	e-Books	Journals (Print)	e-Journals
CAEPHT, CAU	6755	0	6	2
CoA, CAU	14568	0	24	0
CoF, CAU	8941	0	52	0
CHS, CAU	5917	12	29	0
CPGS, CAU	5300	0	50	4
CVS&AH, CAU	9717	0	53	0

Figure 3: Library collection in constituent colleges of CAU

Table 6: Library collection in constituent colleges of AAU (N=5)

Name of the colleges	Books (Print)	e-Books	Journals (Print)	e-Journals
BNCoA, AAU	7983	0	8	0
CoA, AAU & CHS, AAU	167215	1380	75	0
CoF, AAU	3000	0	1	1
CVS, AAU	28350	0	9	0
LCVS, AAU	229	0	15	0
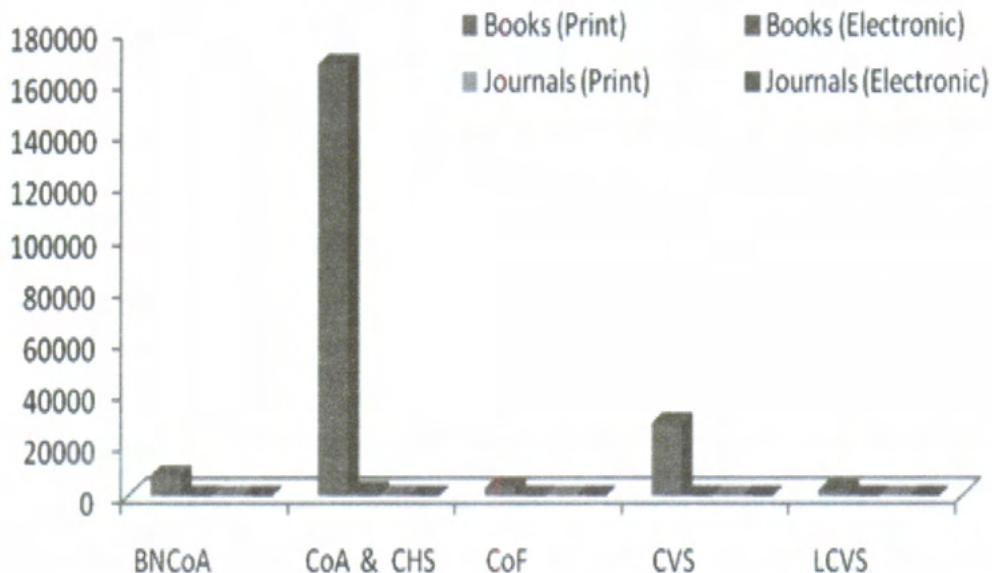
Figure 4: Library collection in constituent colleges of AAU

In this paper, we have also tried to find the correlation between the age of colleges (as on 2016) with the collection of books (print). The result is shown in **Table 7.**

Table 7: Correlation between Age of Colleges and Collection of Books (N=11)

Name of the colleges	Age on 2016	Books (Print)
CAEPHT, CAU (2006)	10	6755
CoA, CAU (1979)	37	14568
CoF, CAU (1988)	28	8941
CHS, CAU (2004)	12	5917
CPGS, CAU (2007)	9	5300
CVS&AH, CAU (1997)	19	9717
BNCoA, AAU (1988)	28	7983
CoA, AAU & CHS, AAU (1948)	68	167215
CoF, AAU (1988)	28	3000
CVS, AAU (1969)	47	28350
LCVS, AAU (1988)	28	2291

A positive correlation (Spearman's rho = 0.623, p-value=0.040, df=9) exists between the age of the colleges and collection of books which is significant at 0.05 level (2-tailed).

5.4 Details of Library Budget/Expenditure

Library budget / expenditure are summarized to analyze the budget / expenditure trends in both CAU and AAU (in **Table 8**) and graphically presented in Figure 5.

Figure 5 shows that the library expenditures in CAU colleges are following a decreasing trend.

On the other hand the Library Budget / Expenditure of AAU are presented in **Table 9**.

Figure 6 shows that the library expenditures in AAU colleges are also following a decreasing trend.

Table 8: Details of Library Budget/Expenditure (in Rs.) of CAU (N=5)

Name of Colleges	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
CAEPHT, CAU			307911	2045395	1491579	1576227	1332770	827939	667868	
CoF, CAU	1500000	2000000	2200000	2000000	1500000	1500000	1000000	1000000	500000	1000000
CHS, CAU	1004354	1738771	1826796	997000	989910	764599	299000	298900	299500	
CPGS, CAU					800000	800000	800000	800000	800000	1300000
CVS&AH, CAU	749899	2526297	1525234	1422495	1221569	1016000	1015000	1015000	815000	815000

Figure 5: Details of Library Budget/Expenditure (in Rs.) of CAU

Table 9: Details of Library Budget/Expenditure (in Rs.) of AAU (N=3)

Name of Colleges	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
BNCoA, AAU	55000	65000	55000	555000	605000	655000	760000	860000	150000	-
CoA, AAU & CHS, AAU	730000	2250000	6360000	9355000	7740000	6835000	7335000	6105000	1300000	-
CoF, AAU	45000	70166	123720	200000	700000	500000	500000	750000	500000	240000
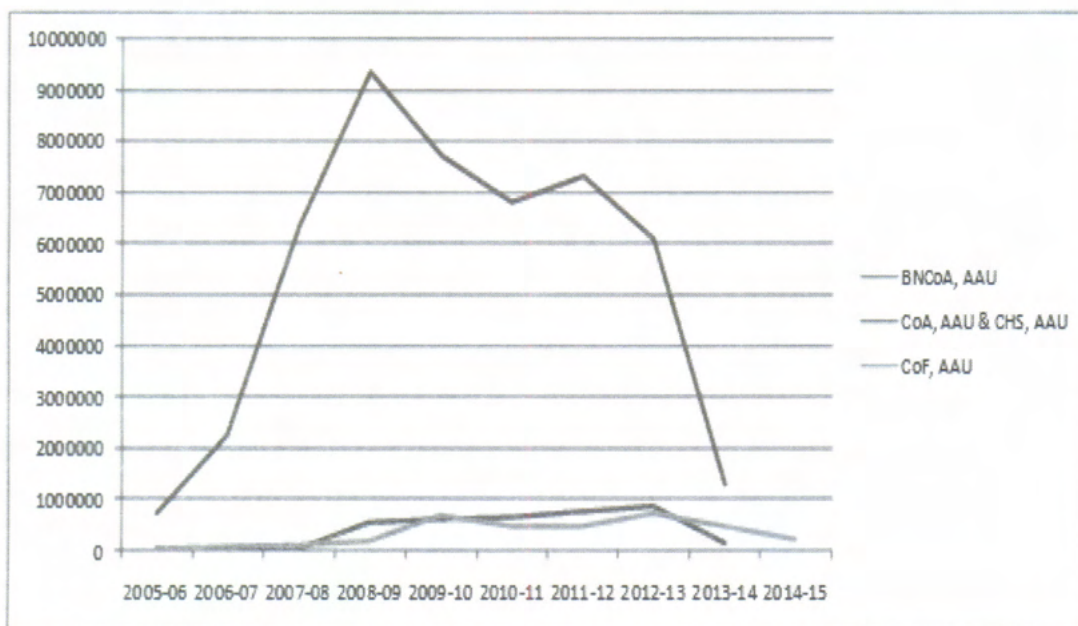
Figure 6: Details of Library Budget/Expenditure (in Rs.) of AAU

5.5 Library Staff Strength in CAU and AAU

The data regarding availability of staff in the constituent colleges of CAU and AAU are collected to study the library staff position in both CAU and AAU. **Table 10** presents the total picture of Library Staff of CAU supported graphically by Figure 7. The Library Staff strength i.e. Librarian, Deputy Librarian, Asst. Librarian, Sr. Library Assistant, Library Assistant, Library Attendant and other supporting staff of constituent colleges of AAU are shown in Table 11 and supported by Figure 8.

Table 10: Library Staff Strength in constituent colleges of CAU (N=6)

Name of Colleges	Librarian	Deputy Librarian	Assistant Librarian	Information Scientist/ IT Specialist	Senior Library Assistant	Library Assistant	Library Attendant	Others
CAEPHT, CAU	-	-	-	-	-	3	3	-
CoA, CAU	1	-	-	-	-	2	3	5
CoF, CAU	-	-	-	-	-	3	-	1
CHS, CAU	-	-	-	-	1	1	2	-
CPGS, CAU	-	-	-	-	1	1	1	-
CVS&AH, CAU	1	-	-	-	1	2	1	-
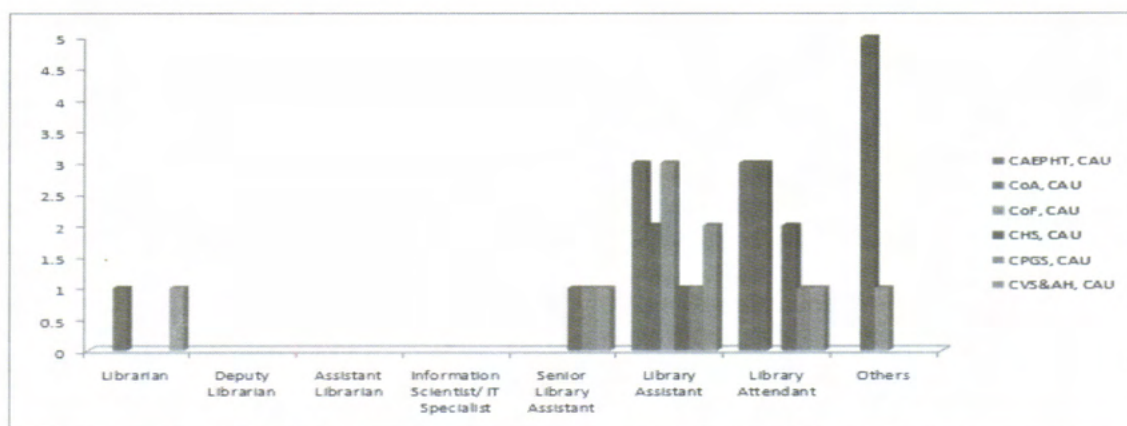
Figure 7: Library Staff Strength in constituent colleges of CAU

Table 11: Library Staff Strength in constituent colleges of AAU (N=5)

Name of Colleges	Librarian	Deputy Librarian	Assistant Librarian	Documentation Officer	Senior Library Assistant	Library Assistant	Library Attendant	Others
BNCoA, AAU	-	-	1	-	-	1	1	-
CoA, AAU & CHS, AAU (Rev. B M Pugh Library)	1	1	2	1	-	6	14	6
CoF, AAU	-	-	-	-	-	1	-	-
CVS, AAU	-	1	1	-	-	6	3	1
LCVS, AAU	-	-	-	-	-	1	-	1
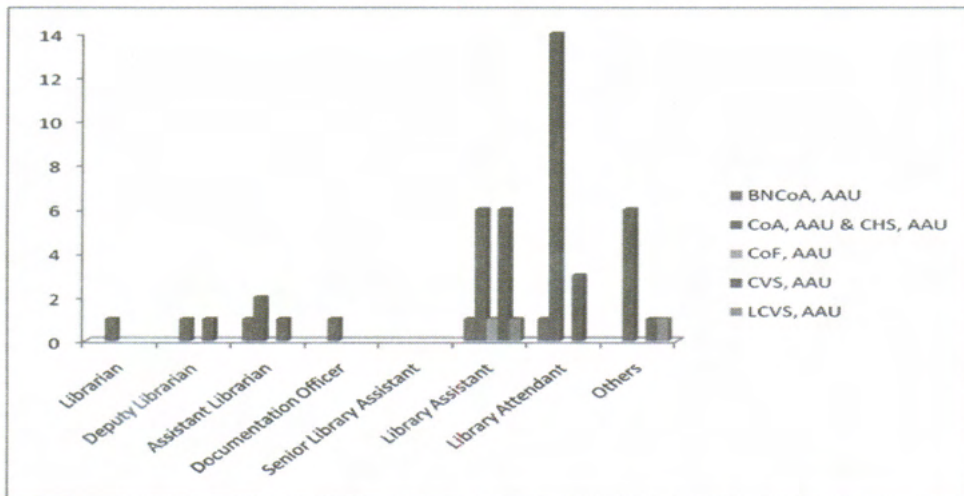
Figure 8: Library Staff Strength in constituent colleges of AAU

Only two colleges in CAU have Librarians (Group-A Post) and rest of the college libraries are headed by Library In-charges mostly by teachers.

Only two libraries in constituent colleges of AAU have filled-in Group-A Posts (Librarian/Deputy Librarian/Assistant Librarian/Documentation Officer) and other colleges are headed by Library In-charges (mostly by teachers).

Table 12 shows that the staff strength in both CAU and AAU is dominated by Group-B and Group-C posts. Each constituent college must have at least one Group-A post so that the libraries may be led by a library professional and who is fully involved in decision making about the library activities. (Figure 9)

Table 12: Combined Library Staff Strength of CAU and AAU (N=2)

Name of Universities	Librarian	Deputy Librarian	Assistant Librarian	IS/ IT Specialist / Documentation Officer	Senior Library Assistant	Library Assistant	Library Attendant	Others
CAU	2	0	0	0	3	12	10	6
AAU	1	2	4	1	0	15	18	8
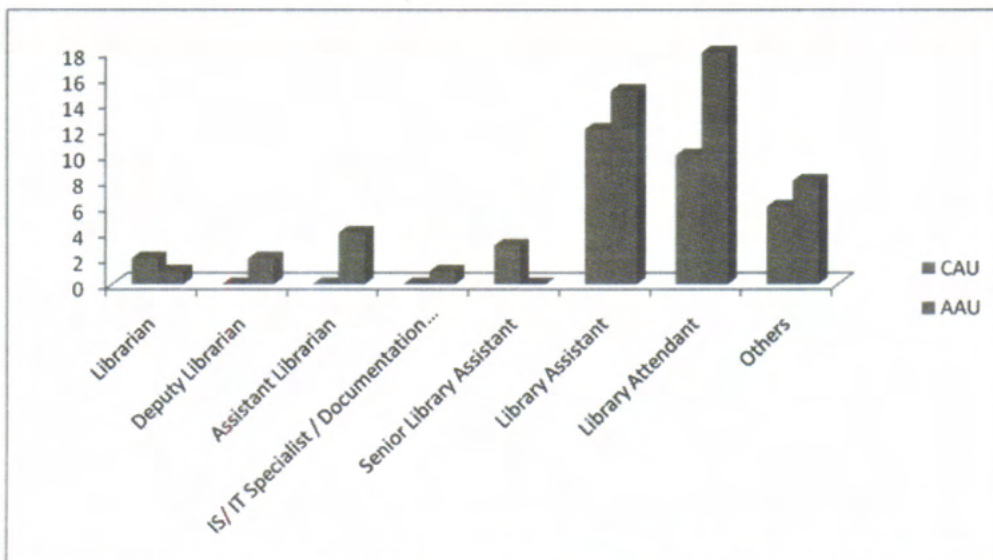
Figure 9: Combined Library Staff Strength of CAU and AAU

5.6   ICT Infrastructure in CAU and AAU

The ICT infrastructure regarding availability of desktops, servers, printers, scanners, projectors, photocopiers, number of computers on LAN, type of internet connectivity and websites in the constituent colleges of CAU and AAU are summarized in Table 13 and Table 14 respectively.

Table 13: ICT Infrastructure in constituent college libraries of CAU (N=6)

Name of Colleges	No. of Desktops	No. of Servers	No. of Printers	No. of Scanners	No. of Projectors	No. of Photocopiers	No. of Computers in LAN	Type of Connectivity with Bandwidth	Name of website	Website hosted on
CAEPHT, CAU	2	1 (Win 2003)	3	1	-	2	3	1 GBPS (NKN)	www.caepht. ac.in	godaddy.com
CoA, CAU	5	2 (CeRA & LibSys)	1	-	-	1	-	-	www.coa. ac.in	godaddy. com
CoF, CAU	2	-	1	-	-	2	2	Broad band	www.cofc au.nic.in	NICNET

Name of Colleges	No. of Desktops	No. of Servers	No. of Printers	No. of Scanners	No. of Projectors	No. of Photocopiers	No. of Computers in LAN	Type of Connectivity with Bandwidth	Name of website	Website hosted on
CHS, CAU	3	-	2	1	-	1	-	256 KBPS ERNET	—	-
CPGS, CAU	11	1	-	-	-	-	11	BSNL Broad band	www.l s.ac.in	Own server
CVS&AH, CAU	4	-	2	1	-	2	-	-	www.cvsccaua izawl.edu.in	Confluence-Networks

Out of six colleges of CAU under study, only one college is connected under NKN Network. Five colleges have their own websites with only one college having its own web server and other four colleges have hosted their website on cloud (2 on godaddy.com, 1 on NICNET and 1 on Confluence Networks).

Table 14: ICT Infrastructure in constituent college libraries of AAU (N=5)

Name of Colleges	No. of Desktops	No. of Servers	No. of Printers	No. of Scanners	No. of Projectors	No. of Photocopiers	No. of Computers in LAN	Type of Connectivity with Bandwidth	Name of website	Website hosted on
BNCoA, AAU	4	-	-	-	-	1	-	'	'	'
CoA, AAU & CHS, AAU	35	-	7	3	1	1	25	1GBPS NKN	www.aau. ac.in	Own server
CoF, AAU	1	-	-	-	-	-	-	-	'	'
CVS, AAU	15	1	4	2	1	2	8	3MBPS BSNL Broadband	www.vetbifg uwahati.erne t.in	Bharti Airtel Limited
LCVS, AAU	1	-	1	-	-	1	-	-	'	'

Among the five constituent colleges of AAU under study, only the headquarter at Jorhat and College of Veterinary Science at Khanapara, Guwahati have good ICT infrastructure.

5.7 Status of Library Automation in CAU and AAU

Data regarding automation status in constituent colleges of CAU and AAU are collected and summarized in Table 15 and Table 17. Likert score is calculated to highlight the overall automation status in both CAU and AAU (Table 16 and Table 18).

Converting the table 15 into a 3-point Likert Scale (Fully Automated=3, Partially Automated=2, At Initial Stage=1), the Table 16 is obtained.

Likert Score = Total Score/ (No. of respondents x No. of attributes –missing values)

Table 15: Status of Library Automation in constituent colleges of CAU (N=6)

Name of Library	Status of Automation	Software Used	Module wise automation status					
			Acquisition	Administration	Cataloguing	Circulation	Retrospective Conversion	Serials Control
CAEPHT, CAU	Yes	LibSys 4	Partially Automated	Fully Automated	Fully Automated	Fully Automated	Fully Automated	Partially Automated
CoA, CAU	Yes	LibSys 4	Fully Automated	'	Fully Automated	'	'	'
CoF, CAU	Yes	E-Granthalaya	Partially Automated	Partially Automated	Partially Automated	At initial stage	At initial stage	At initial stage
CHS, CAU	Yes	SOUL	At Initial Stage	At Initial Stage	At Initial Stage	At Initial Stage	'	'
CPGS, CAU	Yes	Koha	At Initial Stage	At Initial Stage	Fully Automated	Fully Automated	'	At Initial Stage
CVS&AH, CAU	Yes	LibSys 4	At Initial Stage	At Initial Stage	At Initial Stage	At Initial Stage	At Initial Stage	At Initial Stage

Table 16: Status of Library Automation in constituent colleges of CAU in Likert Scale

Name of Library	Module wise automation status (Fully Automated=3, Partially Automated=2, At Initial Stage=1)						Total Score
	Acquisition	Administration	Cataloguing	Circulation	Retrospective Conversion	Serial Control	
CAEPHT, CAU	2	3	3	3	3	2	16
CoA, CAU	3	-	3	-	-	-	6
CoF, CAU	2	2	2	1	1	1	9
CHS, CAU	1	1	1	1	-	-	4
CPGS, CAU	1	1	3	3	-	1	9
CVS&AH, CAU	1	1	1	1	1	1	6
						Grand Total	**50**

=50/ (6 x 6 -7)

=50/ (36-7)

=1.72

A Likert Score of 1.72 (approx 2 = Partially Automated) in the 3 point rating scale indicates that the most of the constituent colleges of CAU are Partially Automated.

Converting the above table 17 into a 3-point Likert Scale (Fully Automated=3, Partially Automated=2, At Initial Stage=1), the Table 18 is obtained.

Likert Score = Total Score/ (No. of respondents x No. of attributes –missing values)

=20/ (2 x 6 -0)

=20/12

=1.67

A Likert Score of 1.67 (approx 2 = Partially Automated) in the 3 point rating scale indicates

Table 17: Status of Library Automation in constituent colleges of AAU (N=2)

Name of Library	Status of Automation	Software Used	Module wise automation status					
			Acquisition	Administration	Cataloguing	Circulation	Retrospective Conversion	Serial Control
CoA, AAU & CHS, AAU	Yes	-	Partially Automated	Partially Automated	Fully Automated	Partially Automated	Fully Automated	Partially Automated
CVS, AAU	Yes	Koha	At initial stage	At initial stage	At initial stage	At initial stage	At initial stage	At initial stage

Table 18: Status of Library Automation in constituent colleges of AAU in Likert Scale

Name of Library	Module wise automation status (Fully Automated=3, Partially Automated=2, At Initial Stage=1)						Total Score
	Acquisition	Administration	Cataloguing	Circulation	Retrospective Conversion	Serial Control	
CoA, AAU & CHS, AAU	2	2	3	2	3	2	14
CVS, AAU	1	1	1	1	1	1	6
						Grand Total	20

that the only two constituent colleges of AAU who have responded to this question are only Partially Automated.

6. Suggestions

The following suggestions are made as a result of this study.

➤ Instead of establishing new colleges by both CAU and AAU, infrastructure in existing colleges must be upgraded and maintained.

➤ Library Budget/Expenditure in both CAU and AAU are in a declining trend. Resource sharing must be practiced by these universities for better and efficient utilization of their diminishing budgets.

➤ Staff strength must be improved and each college must have a Group-A post of Librarian/Deputy Librarian/Assistant Librarian so that each college can be lead by a library professional. Presently most of colleges are headed by non library professionals.

➤ All colleges of CAU and AAU should be brought under National Knowledge Network (NKN) for better internet connectivity and resource sharing.

➤ Status of library automation in constituent colleges of both CAU and AAU are not satisfactory. Cloud based ILMS (Integrated Library Management System), Digital Repository and Discovery Systems should be hosted by AAU and CAU for all their constituent colleges respectively either at their headquarters or private cloud services may be utilized for effective and efficient utilization of ICT facilities in all the constituent colleges. It will relieve the library staff from maintaining servers at their end and resource sharing among the intra and inter university colleges become easier through union catalogues and other facilities.

7. Conclusion

North East India during the last two decades had witnessed the establishment of a number of colleges under agricultural university education system for the upliftment of agriculture based economy of the region. More and more number of colleges are being established to cater to the local needs and develop region or area specific production tools and techniques in agriculture. It is also generating a large number of employment opportunities for the local people. The libraries of the constituent colleges of CAU

and AAU have good collection of books and journals. They should come forward to share resources among themselves by better implementation of ICT facilities.

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