D E C L A R A T I O N

I **Khundrakpam Premoda Devi**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

This is being submitted to the Mizoram University for the degree of Doctor of Philosophy in Library and Information Science.

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CERTIFICATE

This is to certify that the thesis entitled **"Use of UGC-INFONET Digital Library Consortium by Faculty Members of North Eastern Hill University, Mizoram University and Manipur University: A Comparative Study"** submitted byKhundrakpamPremoda Devifor the award of **Doctor of Philosophy** in **Library and Information Science** is carried out under my guidance and incorporates the students' bonafide research and has not been submitted for award of any degree.

Aizawl, Mizoram **(PROF. PRAVAKAR RATH)**

Dated **Supervisor**

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Aizawl, Mizoram — KhundrakpamPremoda Devi

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ABBREVIATION

AACR2	Anglo American Cataloguing Rules
ACS	American Chemical Society
AICTE	All India Council of Technical Education
AIP	American Institute of Physics
ALPSP	Association of Learned and Professional Society Publishers
APS	American Physical Society
CALIBER	Convention on Automation of Libraries in Education and Research
CALIBNET	Calcutta Library Network
CCF	Computer Catalogue Format
C-DAC	Centre for Development of Advanced Computing
COUNTER	Counting Online Usage of Networked Electronic Resources
CSG	Corporate Study Group
CSIR	Council of Scientific and Industrial Research
CUP	Cambridge University Press
DELNET	Developing Library Network
DNER	Distributed National Electronic Resource
DRDO	Defense Research Documentation Organization
EFLU	English and Foreign Language University

EPW	Economic and Political Weekly
e-RAMS	Electronic Resource Access Management System
ERNET	Education and Research Network
ICD	Information Communication Division
ICSSR	Indian Council of Social Science Research
ICT	Information Communication Technology
IGNOU	Indira Gandhi National Open University
IIT	Institute of Information Technology
ILL	Inter Library Loan
INDEST	Indian National Digital Library in Engineering Sciences and Technology
INFLIBNET	Information Library Network
IOP	Institute of Physics
IRTPLA	INFLIBNET Regional Training Programmes for Library Automation
ISID	Institute for Studies in Industrial Development
IUC	Inter University Centre
JCCC	J-Gate Custom Content for Consortia
JISC	Joint Information Committee
JISC	Joint Information Systems Committee
LNB	LakshminathBezbarao
MARC 21	Machine Readable Catalogue

MHRD	Ministry of Human Resource Development
MoA	Memorandum of Association
MU	Manipur University
MZU	Mizoram University
NEHU	North Eastern Hill University
NESLI	National Electronic Site License Initiative
NISCAIR	National Institute of Science Communication and Information Resources
NISO	National Information Standards Organization
NISSAT	National Information System for Science and Technology
NKN	National Knowledge Network
NME-ICT	National Mission on Education Through Information and Communication Technology
NSC	National Steering Committee
NUCSSAL	National Union Catalogue of Serials in Academic Libraries
OPAC	Online Public Access Catalogue
OUP	Oxford University Press
PALS	Publisher and Librarian Solution
PLANNER	Promotion for Library Automation and Networking in North East Region
PROLA	Physical Review Online Archive
RFID	Radio Frequency Identification

RSC	Royal Society of Chemistry
SAI	Sport Authority of India
SATWAN	Satellite Wide Area Network
SCPC	Single Carrier Per Channel
SIAM	Society for Industrial and Applied Mathematics
SOUL	Software for University Library
SPSS	Statistical Package for Social Science
TISS	Tata Institute of Social Science
UGC	University Grant Commission
WAGUL	Western Australian Group of University Librarians

1.1. Introduction

Humanity has progressed from agricultural revolution to the industrial revolution and is now moving to an information revolution. It is this awesome computing power and networking over global telecom highways that is leading to the use of Information Technology in every sector of human activity whether be it communication, banking, trading, learning and teaching, entertainment, socializing, government, management and library. Just as machines have extended man's mechanical power and his convenience and comfort, Information Technology as commonly pasteurized by computers, is extending man's mind or brain or intellectual power. The term information technology has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before.

The advent of information technology and exponential growth of knowledge have strongly influenced the dissemination and storing media to undergo a sea change in the second half of the 20th century. In the process the world has shrunken into a global village. Many reasons are ascribed for this change. Firstly the localization of education and multi directional research output, disappearing borders between different disciplines. Secondly technological innovations influencing the global connectivity through information technology. As a consequence of this the concept of virtual library started gaining momentum. Emergence of Internet increased the use of web-based resources and services. This situation has considerably enforced the print media transforming into electronic media. Thirdly recent economic and political developments have caused the fluctuation in the prices of knowledge packages and services.

There is an urgent need for IT in underdeveloped areas where access to even the smallest bits of knowledge can have far-reaching, long term effects. The use of technology has great effects; these may be separated into intended effects and unintended effects. The implementation of technology influences the values of a society by changing expectations and realities. Technology, throughout history, has allowed people to complete more tasks in less time and with less energy. However, work has continued to be proportional to the amount of energy expended, rather than the quantitative amount of information or material processed.

Globalization has brought about integration of production and investment decisions, breakdown of trading and investment barriers, truly global companies with a large capital base, sharing of international trade, and heightened mobility. The ongoing process of globalization has influenced all the sectors of economy including the agriculture sector. Globalization has offered enormous opportunities but also threats to communities that are not adequately prepared to face its challenges. It has created turbulence, uncertainty, competitiveness, need for adaptation to change and timely adoption and absorption of technologies. As the world is globalizing, a global knowledge and information society is emerging, spreading all regions. Knowledge and information have become significant factors for production of goods and services. They affect the division of labour, determine the competitiveness of economies and corporations, generate new growth patterns and in the process spawn new products, jobs and livelihoods.

Information Technology devices like microprocessors are becoming mass appliances from pace makers for the heart, hearing aids, and efficiency enhancers in automobile engines and devices to steer space vehicles on the moon. Technology is an enabler for more effectively managing the business, but does not solve the problem unless it is related directly to business and governance
There had been breath-taking inventions in electronics and photonics, micro-miniaturization, super and mega-scale integration; optical fiber and communication satellite transmissions, electrification and digitization of all information, storage and display devices and the transport of electrified information on worldwide telecommunication networks, increasingly under the control of the sender and the receiver. Information covers voice as in telephony, text as in fax, images as in video and data as between computers. The limitation for transmission and reception of information only from instruments connected to wires and therefore only from particular places, has been dramatically overcome by earth-based cellular mobile, radio telecoms and now by satellite based globe wide mobile systems like the Iridium. In India, government-centered developments since Independence have become obstreperous, taking in the largest fraction of the GDP as taxes and the largest amount of their savings as loans. Government is not confined to its primary role of defense, internal security, justice, primary education, primary health, irrigation and roads, but it encompasses production, industries, services and businesses. It is commonly known that most of government's money is spent very inefficiently and much of it, on the

salaries and establishment of the Government servants themselves and yet every service is inefficient.

The enormous information available in print sources not only created problems in storing and collection, but also it renders into the paucity of funds allotted for the purchase of books and other building materials. Thus it makes the library a weaker organization in dissemination and imparting of information. Hence necessity arose to find a solution to both the problems of cost and space. India is known for the abundance of knowledge from the times immemorial. The literature found in its old texts reflects the know-how of this country's population. The ever-changing curriculum and the introduction of emerging subjects every year impose a great demand in the system in general. The inflation has further eroded the purchasing power of university libraries.

The situation has been further exacerbated by the need to purchase expensive electronic resources and the static or declining budget allocation to the library. Indian universities need to be given the required scope to enter into the new vistas of the present millennium with a leading edge to higher education and research to achieve a significant contribution to transmission of knowledge and enquiry into the frontiers of science and technology.

The libraries with their traditional activity of extended co - operation set to form library networks with the help of the viable technology. More and more library groups started covering their informal co-operative service to library networks to take care of services with technology applications. Increasing developments in the entire gamut of library profession as well as in computer networking, libraries started playing intermediary role and have caused a shift from a collection based approach to a combination of networked access and more traditional library services. Moreover the paradigm shift from print media to electronic format of the scholarly journals has necessitated the formation of networks of libraries. This has enabled the libraries to inform the users on materials available locally through OPAC and in other libraries through Union catalogues. In addition, libraries started equipping to guide the users to the materials that are published within a specific domain; for example abstract and index databases available

online or on CD – ROM and offer services to obtain materials from other locations. Information networking has become important instrument for the development of these services.

The phenomenon of information explosion resulted from the rapid advances in all scientific fields has made vital for all scientists to have rapid and easy access to scientific information. However, scientists in developing countries are hampered by the high costs of subscriptions to various journals. Since airmail delivery is prohibitively expensive, the journals that are received used to be delayed by six to eight months after the publication date thereby hampering the research work of scientists even further. Fortunately, the Internet has come to the rescue. Online journals are available immediately after publication anywhere in the world with a few clicks of a mouse. Electronic subscriptions are normally cheaper than print subscriptions. Never the less, the cost to institutions are still extremely high, particularly in view of the fact that any institution has to subscribe to many journals to meet the varied needs of its scientists. In view of this urgent need, it is proposed that all institutions dedicated to the promotion of education and research come together to form an association to subscribe to a core group of international journals, available online, that would benefit all member institutions users community. A clear distinction can be made among developed and developing nations on the basis of their information richness. There still exists a clear cut east - west and north-south divide among the nations in this aspect. Libraries are repositories of knowledge which exist in different forms. With the escalating cost of journals and periodicals which are considered carriers of information and knowledge, many libraries have had to cut down the subscription to information sources like journals, databases, etc., thus seriously affecting research and developmental activities.

1.2. Cooperation to Consortia

There is sufficient published literature on the topic which indicates that the concept is not new and it refers to “Co-operate, coordination and collaboration between, and amongst, libraries for the purpose of sharing information resources. This is mainly because of the following factors;

1. Increase in the output in publication or the information explosion made is practically impossible for any library to fulfill the requirement of its clientele alone.

2. The emerging ICT driven knowledge society of the twenty-first century, growth and development of Digital Library and e-resources have emerged as driving force for all-round growth in all areas of academic and scientific endeavour.

3. Electronic journals are now firmly established as part of the academic landscape. However institutions that subscribe to electronic journals face the problem of affording them because subscription prices are spirally upwards, making subscriptions to even few titles unviable. Under the circumstances, academic libraries face dilemma of prioritizing titles to be subscribed, thereby resulting in a decline in the availability of electronic journals to most academic libraries. Even where budgetary allocations appear to be increasing, they are insufficient for libraries to maintain the number of titles or to subscribe to new ones.

Today, most academic libraries are exploring alternative means of access, such as consortia-based subscriptions. To this end, the University Grant Commission has taken the initiative to address the issue of serials crisis in university libraries and launched a programme which is popularly known as UGC-INFONET Digital Library Consortium. INFLIBNET centre is responsible for implementing this nationwide programme, which has benefited millions of users (teachers, research scholars and students) across the country. The consortium provides access to more than 8500+ e-journals in various disciplines as on date.

1.3. UGC-INFONET Digital Library Consortium

The UGC-INFONET Digital Library Consortium was launched in December 2003 by Dr A.P.J Abdul Kalam, the then Hon'ble President of India, soon after providing the Internet connectivity to the universities in the year 2003 under the UGC-INFONET programme. It was started as a nationwide programme to facilitate access to e-resources to university libraries in India. The thought of building UGC- INFONET Digital Library Consortium is based on the fact that no single library can collect all the information published in the world, and no single library can

serve all the needs required by the users. The consortium based subscription offers access to high quality peer reviewed journals, published by society, commercial and institute publishers to its members. More than 8500 full core and peer reviewed full text under e-journals in science, social science and humanities are accessible to its members without charging any subscription fee from the members. The INFLIBNET Centre is implementing the entire programme. The consortium has 208 universities as member including 14 National Law Schools/Universities and 5 IUCs that come under the purview of UGC, which is categorized in three different phases. In the first phase that began in 2004, access to e-resources was provided to 50 universities including Manipur University, which had Internet connectivity right from the launching of INFLIBNET under the UGC-INFONET connectivity programme. In the second phase, 50 more universities were added to the programme in the year 2005 and in the third phase more universities were added. These e-resources covers almost all subject disciplines including humanities social sciences, physical sciences , chemical sciences , life sciences , computer sciences , mathematics and statistics ,etc. The programme is being fully funded by UGC and executed for the benefit of academic community of Indian Universities. The present research work undertaken by the scholar covers three central universities in the north eastern region as mentioned below:

1.4. North-Eastern Hill University (NEHU)

North-Eastern Hill University was set up by an Act of Parliament and notified on 19th July 1973. North-Eastern Hill University is the first Central University to be established in the North-Eastern region of India. The objectives of the University, as laid down in the act, are "to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit; to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-eastern region, and in particular, the intellectual, academic and cultural advancement". The jurisdiction of the University extended originally to the states of Meghalaya and Nagaland and the erstwhile Union Territories of Arunachal Pradesh and Mizoram. At present there are 8 School of Studies comprising 42 Departments and 4 Centre of Studies.

1.4.1. NEHU Central Library, Shillong

The Central Library of the North-Eastern Hill University (NEHU) is now located amidst lush green pine trees in the heart of the NEHU Campus, Shillong, Meghalaya. The NEHU Central Library was relocated to its new building during September-October 2004 from its earlier location at Mayurbhanj Complex, Nongthymmai, Shillong where it had been housed for nearly 30 years in the majestic Mayurbhanj Palace. Following the shifting of the Central Library to the University Campus, all the departmental libraries and the library of the School of Life Sciences located within the NEHU Campus have been recalled to the Central Library.

Illus. 1.1: Central Library,North Eastern Hill University

The Central Library is now equipped with high-end computers and other electronic and audio-visual equipment to provide seamless in-house and online services. The Central Library is an active partner of the UGC-INFONET Consortium, and currently provides access to almost all online journals and other resources available through the UGC-INFONET programme. The Central Library, with a stock of over 2,50,000 books and back-volumes, including a strong collection of works on North-East India, has emerged as a major regional resource centre for scholars engaged in teaching and research.

1.5. Manipur University (MU)

The Manipur university was established on the 5th June under Manipur Act, 1980(Manipur Act No. 8 of 1980) with territorial jurisdiction over the whole of Manipur. Consequent upon the establishment of the university the erstwhile Jawaharlal Nehru University center of P.G. studies was merged to the Manipur University, Imphal on 1st April, 1981.Manipur university campus is located at Canchipur and spread over an area of 333 acres, on the western side of the national highway no. 39(in to Myanmar road) at a distance of 8 km .from Imphal city. The university strives for excellence and provide relevant education and to prepare the scholars to capitalize their education, inquisitiveness, character formation, determination and dynamism.

One the objectives of Manipur University is to promote an awareness of the rich cultural tradition of Manipur which is a national heritage and is an example of a happy blending of the culture of both India and south East Asia; and provides for the study of the culture of Manipur in the wider context. There are five School of studies with full-fledge P.G. teaching Departments under the Manipur university. They are school of Humanities, School of Life Sciences, School of Social Science, School of Mathematical and Physical Sciences and School of Medical Science. Manipur University is having a college development council headed by a director to serve as an academic guide to the college system and to ensure inter action between the academic facilities in the university departments and those in the colleges.

1.5.1. Manipur University Library

The Manipur university library is located at the heart of the university as the nerve center of academic and research activities having about 3000 registered users comprising of 2170 PG students, 702 research scholars, 191 teachers, 483 non-teaching staff and some other unregistered users from the state who are also users of the university library. The library has a collection of over 1, 73, 427 books, and 221 printed journals. Library is well supported by 30 Internet node facilities and reprography services. Collection of the library can also browse from different departments through campus network. UGC-INFONET is accessible under whole campus area network for wider usability of resources. The library also organized many awareness programme on UGC-INFONET in the year 2004, 2006 and 2008 with the financial support from INFLIBNET.

Illus.1.2: Central Library, Manipur University

1.6. Mizoram University (MZU)

Mizoram University was established on July 2, 2000 by Mizoram University act, 2000 as a central university. The objectives of the University as laid down in the act are " to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit, to make provisions for integrated courses in humanities, natural and physical sciences ,social sciences, forestry and other allied disciplines in the educational programmes of the university; to take appropriate measures for promoting innovations in teaching disciplinary studies and research; to educate and train manpower in the development of the state of Mizoram; and to pay special attention to the improvement of the social and economic conditions and welfare of the people of the state , their intellectual , academic and cultural development". Keeping these objectives in views, Mizoram University embarked on various programmes/schemes in terms of academic and administrative development. The University campus is at Tanhril, Aizawl having 7 schools of studies including 30 departments of different disciplines.

1.6.1. Mizoram University Library

Mizoram University, Central Library has been growing at a faster pace in terms of holding its users/readers and application of technology. Vertical and horizontal expansion of central library building is being undertaken. The collection of Library at present included 95,818 books, 213 Theses, 123 M Phil Dissertation and 10,776 numbers of bound volumes of Journals.

Illus.1.3: Mizoram University Library

The Library had launched Library Automation Project in December, 2006 to convert entire Library holdings into machine readable catalogue. The database creation work of holdings and verification of entered data had been completed in February, 2009. Computerized bibliographic information of library holdings are made available for user's searching throughout campus network (Intranet) using web OPAC. Bibliographic records of books, Theses/Dissertations and serials had been sent to INFLIBNET centre for contribution to National Bibliographic Database created and maintained at INFLIBNET centre. Computerized automated circulation system using barcode technology was started from 1st December, 2008 for easy and fast circulation of library holdings for all the users registered in the library. The UGC-INFONET programme covered Mizoram University under phase III. The University Library has now expanded its library services by providing e-resources to the users to meet the academic community's expectations.

1.7. Significance and Scope of the Study

The present study is limited to North-Eastern Hill University (NEHU), Manipur University (MU) and Mizoram University (MZU).The growth and development of electronic resources have created a revolution in the minds of scholarly community and provide access to academic world. UGC and INFLIBNET took the initiative to create consortium which can provide easy access to the renowned e-journals. Presently number of universities are availing the facilities extended by UGC –INFONET Digital Consortium. The present study under taken by the scholar is restricted to the faculty members belonging to Social Sciences, Sciences, Economics, Management and Information Sciences streams of North Eastern Hill University, Shillong, Manipur University, Imphal and Mizoram University, Aizawl. The total numbers of faculty members in School of Social Sciences, Sciences and Economics, Management and Information Sciences of three universities is provided in Appendix-I.

1.8. Review of Literature

Libraries have been important institutions since time immemorial. India is one of the oldest civilizations of the world with a glorious past of higher learning institutions and libraries. In ancient and medieval period, libraries were part of the royal houses and monasteries and later they descended to public domain as a part of higher learning system. In independent India, libraries and information systems have been made an integral part of higher learning system. Information and knowledge play a very vital role in overall development of societies and nation building. Information and knowledge are the products of society and these flows through various information resources, particularly peer reviewed R&D journals. Libraries no longer are the warehouse of information, but rather a gateway to information and knowledge. Availability of information and knowledge is key to success. Librarian is not merely a collector but rather a gatekeeper of information and knowledge. Traditionally, the libraries have been functioning as standalone entities building comprehensive duplicate collections, but now it is in a network of shared resources. Rapid technological advancements during past two decades, particularly for information handling, delivery and management have been resulting in paradigm shift of libraries.

Recently many libraries in the world are worse affected by shrinking library budgets. This problem is found mostly in developing and under-developed countries, due to the ever increasing cost of published material, library collections are shrinking. On the one hand there is an information explosion and on the other the user demands are increasing. Librarians are at their wits end to satisfy the needs of their clientele. The only viable solution to meet users' demands is to make optimum use of available literature. This is being done through the pooling and sharing of resources. Inter-library co-operation is of utmost importance for this to succeed. (Kumar 2014, p.28).

Review of Literature deals with the past and present studies related to the usage and role of INFLIBNET centre. It is quite significant in nature, to understand clearly, the concept, in which reviews are made. The review of literature forms the effective back bone of the every research. In due course, of reviews made the research gap is identified by the researcher and as well for preparing the questionnaire , literature and then finally the methodology is taken up for further research in this area under study. Different methodological and statistical tools are used by various researchers'. Most suitable methods and statistical tools are selected only after thorough analysis of the given literature. It presents the reviews of earlier studies in the related areas in the chronological order. The review of past research is mostly found to be an effective instrument.
The literature search is key starting point for any research process and it assists the researcher to identify previous research projects and provide valuable knowledge for the understanding of the theoretical and methodological issues surrounding the research topic. The findings and conclusions of various scholars presented in the form of articles, theses and books related to this study are reviewed in this chapter.

The review of the literature on the topic is covering the broad aspects in which the developments have taken place. For the purpose of comprehensive coverage, the scholar made an exhaustive search of available literature on use, evaluation and services provided by UGC-INFONET Digital Consortium. Although there are literature (scholarly publication) available on the subject, but so far no specific study has been undertaken on the present research topic under study. However the presently available scholarly publications are stated below:

Das, Prangya, Sahu, Gopabandhu and Mohapatra, R K (2012) attempt to find out the usage of e-resources of various publishers available under UGC-INFONET by the research scholars of Universities in Odisha. They highlight the problems encountered by the users and suggest some remedial measures for improvement in the access facilities and most particularly increase the e-resources to support their research activities.

Francis, A.T. (2012) discusses utilization of consortia-based digital information resources by the post graduate and doctoral students of the Kerala Agricultural University, Thrissur. Results show that cent percent of the students were familiar with the use of digital information resources available online and 87.14 per cent of them used CeRA. Eighty two per cent students were acquainted with CeRA and learned the required skills for the access and use of digital information resources through curriculum-based courses like library and information services‘, research methodology‘, etc. The students in general would like to strengthen the CeRA services by adding more resources and facilities.

Mahapatra, Rabindra K,Swain, Dilip, and Jena, Kamal Lochan (2012) describe that libraries and information centres in the field of agriculture and technology play significant roles in dissemination of agriculture information for development of teaching, learning, research and extension programmes of a university. The changing phenomenon of agriculture education in the whole world witnesses new shape of the society. The advent of ICT and digitization processes for bringing a sea change in academic and research libraries have been stressed as attributing factor for this. They highlight the benefit of e-resources used by the faculty members and services offer by the QUAT Bhubaneswar library.

Manoj Kumar Sinha (2012) presents a study which has been undertaken with a view to know the status of ICT and Internet Literacy amongst the Assam University Library Users for accessing to E-resources available under UGC-INFONET Digital Library Consortium. The faculty, research scholars and students are mainly drawn from different parts of North Eastern States and few other parts of the country which represent truly cosmopolitan population. He carried out his work during July to August 2008. For that purpose, a survey method has been conducted which comprise of administration of questionnaire, observation of the participants, and interview of some of the participants for knowing the opinion of the respondents in respect of usage of

Internet for their day-to-day activities and status of access to e-journals for their academic and research activities. He highlights the important survey findings in respect of ICT and Internet Literacy, E-resources use pattern and attitude of library users towards the electronic resources, which have been made available to them under UGC-INFONET Digital Library Consortium. Besides this, he also discusses some suggestions and recommendations in brief.

Kaur, Amritpal (2011) examines the impact of e-journals on university libraries in terms of resources, staffing, space, technical services and equipment. A well-structured questionnaire was designed to elicit opinions of the librarians. The results of the survey provide useful information regarding impact of e-journals on subscription to e-journals, infrastructure, staff, space, technical services, photocopying, inter-library loan, library use and reference services. On the basis of the result, some suggestions have been put forward for developing e-journals and ensuring their maintenance and utilization.

Raghuram, K and Vatnal, R.M (2011) suggest the evaluation of UGC-INFONET Digital Library Consortium by the users of Social Science faculty, Goa University, Goa. They also highlight the UGC –INFONET consortium usefulness, finding and suggestions.

Rajput, Prabhat Singh and Naidu,G.H.S. (2011) mention that e-journals are now a reality in the age of information technology. With the advent of Internet, users can access many e-journals, magazines and newsletters anytime from anywhere for their academic and research development in open access. They also explain the benefits of e-journals and provide full bibliographical description of open access e-journals in the area of library and information science.

Sinha, Manoj Kumar, Singha, Gauri and Sinha, Bimal (2011) attempt to evaluate the usage pattern of electronic resources made available in the Assam University Library under the UGC-INFONET E-Journals / Digital Library Consortium of UGC/INFLIBNET amongst the research scholars and teachers of North Eastern Region of India with special reference to Assam University, Silchar. The faculty, research scholars and students are mainly drawn from different parts of North Eastern States and few from other parts of the country which represent truly cosmopolitan population. For that purpose, survey method has been adopted by the investigators, which comprises of administration of questionnaire, observation of the participants, and interview of some of the participants for knowing the opinion of the respondents in respect of

usage of electronic resources (e-journals/e-books/databases) for their academic and research activities.

Thanuskodi, S (2011) conducts a survey at education faculty members in Chennai to determine the extent to which user are aware and make use of e-journals. He also examines the search pattern of e-journals. A questionnaire was distributed among the faculty members to collect desired data. A total of 300 questionnaires were distributed to the selected sample of Library users; 278 valid samples were collected. His studies found that majority (92.30%) of the male users were aware about the e- journals whereas only 83.33 % of female respondents were aware about the availability of e-journals. His analysis revealed that most of the respondents 71.22% use e-journals for writing papers.

Arora, J., and Trivedi, K., (2010) aim to study upon the economics of the UGC – INFONET Digital Library Consortium and outlines model for implementation of college consortium. The article elaborates on future endeavours of the UGC- INFONET Digital Library Consortium.

Bhatt R.K. (2010) focuses on the use of UGC-INFONET Digital Library Consortium Resources by research scholars and faculty members of University of Delhi in History and Political Science. The main aim is to determine the needs of research scholars and faculty members of University of Delhi in the discipline of history and political science and to find out how far their information needs are fulfilled by the information resources available through UGC-INFONET Digital Library Consortium. In his article he attempts to define this consortium, its objectives, scope, e-resources subscribed and the government initiative to provide current information in various disciplines for research and teaching excellence. He also tangibly explains the genesis, e-resources facilities and usage of e-resources available through UGC-INFONET Digital Library Consortium a University Grants Commission of India sponsored consortium to provide e-resources and current information in various disciplines. He highlights the users' awareness regarding the consortium resources available in the respective fields, information about important databases and e-journals, search techniques, recurring usage for information and knowledge, help and support in research output and teaching activities, benefits accrued such as saving of time, effort and the problems faced.

Dastforoush, Masoumeh. Tajafari and Venkatesha,Y. (2010) aim to present an overall picture of the studies that have been done in the area of usage and user's studies of electronic journals in recent years(2004 onward) till present, in a way that will be of value of researchers. They provide a picture of electronic journals usage and users studies which is valuable for students, teachers in library and information science field and especially researchers who want to do research in this field.

Jyotika Borthakur, Das, Rumi and Gohain, Anjan (2010) mention the availability of e-resources under the UGC-Infonet E-journal consortium in university libraries of Assam. They also highlight the current use of e-journals accessed by the users of three universities of Assam namely Dibrugarh University, Tezpur University and Assam University.

Mukherjee, Bhaskar and Kumar, Prashant (2010) attempt to identify the users' requirement of online journals in general and to know the use of online that is available through UGC-INFONET e-journals Consortium in particular. A questionnaire survey was conducted amongst 100 research scholars of various departments like history, political science, sociology, psychology and economics at the faculty of Arts, Banaras Hindu University, Varanasi. Reveals that there is a demand for more journals titles although a substantial number of users (61.90%) are satisfied with the existing model of UGC-INFONET Consortium and concludes that compressive training on availability and usability would be great help to the users.

Purushothama Gowda (2010) discusses the application of ITC to the process of resource sharing which made the consortium online. UGC-INFONET consortium is one of the land mark achievement in the field of higher education in India. It is only the possible solution to the ever growing demand for information and ever decreasing the budget to the universities. UGC-INFONET is the E-consortium; the users can access the scientific and research articles on 7x24 hour basis on their desk top. It provides around 5000 full text journals to the 150 universities in the Xth plan and planning to cover all the remaining universities as well as to the 17,000 colleges in a phased manner in the XIth plan. At present it includes 25 databases to cover all fields of higher learning of relevance to universities including: Arts, humanities and social sciences, physical and chemical sciences, life sciences computer science, mathematics and statistics.

Walmiki, R.H., Ramakrishnegowda, K.C. and Prithviraj, K.R. (2010) in their article carry out a questionnaire survey in karnataka state universities to find out the awareness and use of UGC-Infonet digital library consortium by faculty members. They find that 39.79% of the faculty members are aware of and use the UGC-Infonet Digital Library Consortium resources whereas 35.99% are aware but do not use and 24.22% are not at all aware of the availability of the resource. Majority of the non-users belong to social sciences and humanities and those who have not undergone formal computer training. Comparatively the science faculty uses the consortium resources more frequently than those belonging to social sciences and humanities. Lack of knowledge to use, insufficient internet nodes, slow bandwidth and lack of relevant information sources are found to be major problems faced. Only 5.22% of the faculty members have indicated that they have necessary expertise to use the digital resources. About 37% of the faculty members were aware and participated in user education programmes conducted by their universities libraries.

Desale, S.K.,Londhe, N.L.& Patil (2009) describes and evaluates JCCC@UGC-INFONET and the document supply service at the University of Pune. The approach takes the form of a brief overview of JCCC@UGC-INFONET problems encountered while using the JCCC@UGC-INFONET user interface and the administrative interface in providing ILL service are identified and some recommendations made. The document supply service provided by Pune University library is satisfactory but the overall objective of INFLIBNET for starting this service is far from satisfactory. The JCCC@UGC-INFONET database and software have some very good features but also some deficiencies that needs to be rectified. The paper provides details of the new service initiated by INFLIBNET and also evaluates the JCCC software from both the user‘s and the administrative point-of-view. These inputs will be useful for the development and improvement of both the service and the software.

Rekha Chirra and Margam Madhusudhan (2009) aim to study the use of electronic (e)-journals by doctoral research scholars of Goa University, Goa (India) for their research work. They also highlight the Problems in accessing e-journals, degree of utilization, and influence of e-journals on research work.

Sharma, Chetan (2009) describes that today availability of e-resources in a university library is very common. But their proper and maximum use is a matter for discussion. He examines the existence of various e-resource databases in Guru Gobind Singh Indraprastha University Library. He also highlights the preferences and importance of online resources among the teachers and research scholars.

Singh,Joteen R.K., Singh, Ksh Anand and Chandel,A.S. (2009) attempt to find out the usage of e-resources of various publishers available under UGC-INFONET by the academic community of Manipur University during 2007 and 2008. Their study reveals that while there is an increase in the usage of the resources of most of the publishers in spite of certain problems of accessibility, resources of some of the publishers were underutilized. Though the study does not investigate the usage of individual journal covered by each publishers, yet an average of downloads of each publisher based upon the coverage has been worked out and presented. The study suggests that there is a need to find out usage of individual product of the publisher in view of the findings that the larger the coverage least is the user.

Singh, Joteen, Devi, Th.Madhuri and Raychaudhury, Arup (2009) describe a survey on the use of the electronic information focusing on the Internet services by the users of Manipur University Library. They also examine the utilization, purpose, difficulties and satisfactory level of users about Internet based e-resources services provided by the library. They mention the low speed of internet access, erratic power supply and lack of required full text journals which was the problems with regards to the use of Internet based e-resource.

Vasappa Gowda and Shivalingaiah (2009) identify the gaps in the need and availability of electronic resources like online journals and databases in the 6 Universities of Karnataka. Responses received from 845 research scholars prefer print resources and there exists significant differences in the preference of print and electronic resources among various disciplines. They reveal that the electronic resources have created a positive hope among the research community in searching the information.

Veena R. Bhat and B.T.Sampath Kumar (2009) highlight the citation analysis of research articles from electronic journals in the field of library and information science published during the years 2000 to 2006 which shows that 81.49% of articles published during the period have web

references. Out of 25,730 references, 56.54% of references are print journal references and 43.53% of them are web references.

Majumdar, Apurba, Jyoti et al. (2008) survey the users of the Laksminath Bezbarao (LNB) Library of the Dibrugarh University about the access of the e-resources available in the library. They highlight the different types of available in the e-resources under the UGC-INFONET in the Laksminath Bezbarao(LNB) Library of the Dibrugarh University, the reasons behind the use of e-resources in the UGC-INFONET, the subject wise use of e-resources and the problems in using the resources are also discussed.

Faisul Nisha, Naushad, Ali.P.M and Tabassum Ara. (2008) explain about INDEST-AICTE Consortium of MHRD and UGC-Infonet Consortium of INFLIBNET, UGC. They examine use of consortium by users of IIT (D) and Delhi University. The study was conducted on a sample of users of IIT (Delhi) and DU. A total number of 120 questionnaires were distributed among the users of IIT (D) and DU libraries, respectively, in the month of December '2007'.50 filled in questionnaire were received from IIT (D) users and 50 from DU users. Out of 100 only 90 were chosen for analysis of data and 10 questionnaires were rejected because of incomplete response from the respondents. The results have indicated that majority of users are aware about INDEST and UGC-Infonet Consortia at IIT, Delhi and Delhi University. Most of the users access e-journals and databases through INDEST and UGC-Infonet consortia. Slow downloading, lack of maintenance, lack of training, lack of infrastructure and language etc. are the major problems that would discourage users for accessing resources on INDEST and UGC-Infonet. At the end, some suggestions have been provided for enhancing the use of resources available at INDEST and UGC-Infonet.

Kamal Kant Gupta,P.K.Gupta and M.R.Rawtani(2008**)** mention about e-journal consortium. Assess the use of UGC-Infonet at Rajasthan University, Jaipur; they conclude to implement the opinions and suggestions of the users for improving the system.

M S Z Bharati and S Mustafa Zaidi (2008) describe the use of E-Journals and E-Databases (subscribed by UGC-InfoNet consortium) by the users of Aligarh Muslim University. The questionnaire supplemented with interview schedule was used to solicit the opinions of the user group. Nearly 325 responses were gathered and the results are analyzed and presented here with.

Besides extensively covering the use of E-journals and E-databases, they also examine the utilization and satisfaction levels of users with respect to E-Journals /E-Databases. Use of internet and different search engines as an alternative to the low usage of UGC InfoNet is presented. Lastly, some of the valuable suggestion given by Faculties members and Research Scholars are highlighted.

Nimaichand Saha, Subodh Gopal Nandi and koushik Ghosh(2008) attempt to find out the familiarity, popularity and utility of E-journals to the science scholars of Visva-Bharati, a central University. In view of this they try to highlight the present position of Visva-Bharati University Library, UGC-Infonet E-journals consortium approach on the one side and on the other side the thinking and satisfaction of the science scholars about the using e-journals to their respective research area. Finally, on the basis of the findings follows the data analysis and interpretation which are collected through the questionnaire cum interview method, they provide some suggestion for the uplift of the present e-journal status of the library of this University as a whole.

Prasanta Kumar Deka and Sanjay Kumar Singh (2008) mention that ICT is playing a major role in the all-round development of society. Recent developments in the technologies have brought changes in the modes and methods of information, storage, retrieval and transmission. The Internet and web technology has open new dimension to the information systems. Internet, www, web 2.0 etc. has brought a major revolution on the library and information centres also to have access to different information sources and disseminate to the users in the era of information explosion. They discuss about the importance of UGC-Infonet Digital Library Consortia for the libraries in the digital world.

Chand, P. and Arora, J, (2008) explains in detail the initiative of the University Grants Commission of India in setting up the Infonet Digital Library Consortium in order to provide access to scholarly communication to the academic community. The context of higher education and establishment of universities under the five-year plan is given along with provision of e-resources to the librarians is presented. The usage trends of e-resources from various publishers during 2004-2007 are detailed. The study provides evidence of increased use of consortia services for access to e-resources in Indian higher education.

Premchand, et al (2008) highlight the usage trends of access to e-journals in ten universities of North East India. They also briefly describe open access journals and the measurement tools of e-journals.

S.Veenapani, Khomdon Singh and Rebika Devi (2008) mentioned about UGC–INFONET Consortium and highlighted the objectives, scopes and methodology of the study. They also describe the usages of UGC-INFONET Consortium by the teachers and Research Scholars of Manipur University. They analyze the findings of the study in the tabular form and concluded with some suitable suggestion for further improvement of the system.

Chauhan, S. K. and Premchand, (2007) describes that all those universities who are under the purview of UGC have been provided UGC-INFONET connectivity and access to scholarly e-Journals and Databases. More than 2,000 scholarly journals and databases were made available during 2004 and this number has increased to more than 4,500 full text e-journals since January 2005. As of May 2006, 122 universities are accessing resources from the programme. The access is based on IP range. This effort has had a noticeable impact on the research and academic community. Passive components integrated into a high-density substrate can be a tolerable way to overcome the size and manufacturing limits of SMD passives mounted on to the system board. Still, this technology is perceived as being ``too risky" and not cost-effective.

Kanamadi.S., and Kumbar, B.D.(2007) in their survey of select libraries examines in some detail the availability of e-resources, their utilization at the management institute libraries affiliated to the University of Mumbai, Mumbai. Further it also collected the librarians ‘opinion about formation of Mumbai Management Libraries Consortia.

Krishnamurthy, M. (2007) discusses the implementation of a consortium of the Indian Statistical Institute libraries. Problems faced by the libraries in handling e-journals are also discussed. Experience shows that acquiring publications through consortia has brought great benefits and has equally favoured different sizes of libraries that would otherwise not been able to afford so many subscriptions, whether in paper or in electronic format. The ultimate goal of cooperation is to connect users with the documents and the information they need; establishing relationships among participating institutions as a means to that end. Consortia present the possibility to test

alternatives to the traditional automated library. They represent the potential to offer the best library services to a wider number of users with all the resources they possess.

Nikam, Khaiser and B. Pramodini (2007) describe the use of e-journals and databases (subscribed by UGC-Infonet Consortium) by the users of university of Mysore. Nearly 200 responses to a survey based on questionnaire have been analyzed and presented. Besides studying the use of e-journals and databases, they also examined the utilization and satisfaction levels of the users with respect to the e-resources. The role of Information Communication Division (ICD) of the University of Mysore in informing the users about the availability of the resources is also discussed. Use of Internet as an alternative to UGC Infonet Consortium is presented.

Prem Chand, et al. (2007) in his study discusses the escalating price of electronic journals, indexing and abstracting databases along with traditionally published print subscriptions which has forced library community to explore alternative means of subscription. The consortia based subscription is perhaps a solution for subscription of peer- reviewed journals. In India, during last five years we have witnessed many consortia based subscription, ranging from subject specific to institution specific. The advancement of Internet and telecommunication has made it possible to subscribe network based resources to the users. They describe about the initiative taken by INFLIBNET in this direction and highlight the importance of current trends of usage statistics of networked resources of various publishers. Further they also describe the patterns of electronic journal usage by the members of UGC-Infonet Digital library consortium during the last three years.

B.D. Kumar, et al. (2006) highlighted that the E-Journal programme is corner stone of the UGC-Infonet effort which aims at addressing the teaching, learning and research collectively and governance requirements of the universities. It would facilitate free access to scholarly journals and databases in all areas of learning to the research and academic community. They attempt to deals with the usage of UGC-Infonet E-Journal consortium by the faculty members and research scholars of the Department of Chemistry, Karnataka University Dharwad.

BK Vishal and M.K. Bhandi (2006) attempt to provide an insight in to the UGC-INFONET project in his paper and aims to create awareness to the library and information professionals,

research scholars, and faculty and post graduate students of library and information science regarding the availability of the scholarly journals in the field of library and information science.

Premchand, Devi, Th. Satyabati and Chauhan, Suresh .K (2006) describe that libraries, faced with declining budgets, increasing subscription prices have found themselves unable to purchase all publications and materials that their users would generally expect to have. To compensate for this, there is shift to subscribe the journals by other models and methods. Library consortia are one of the most effective means for libraries to subscribe to E-journals. University libraries in India are accessing e-journal under UGC-INFONET E-journal consortium. This facility has also been extended to libraries in North Eastern region. They discuss on the growing importance of usage statistics of electronic journals, their increasing use, and in particular universities in North East region .They also highlight the current usage of various e-resources accessed by the users of different universities located in North East region.

P.Hangsing (2006) made a general observation of the northeastern universities and specifics based on NEHU experiences indicate that the universities in the northeastern regions record comparatively lower percentage of usage. The poor statistical show is attributed to the infrastructural dwarf in the universities. The nature of skewed usage pattern is found similar to other empirical studies suggesting that such methods may be espoused to form the parameters for determining the core collection of the electronic journal consortium. He examines the existing subscription deals and suggested that resorting to alternative deals may strengthen collection and ultimately the usage pattern. He also mentions that higher per capita expenditure per students should be encouraged in the region to buildup infrastructure and come at par with the main stream.

Sharma, S.K, Parida, Ellora and K, Manoj Kumar (2006) highlight in their paper that global competition in education system forced the Indian Universities to change their curricula frequently and introduce new subjects, which impose a great demand to have good communication network infrastructure so that researchers and students can tap the most up-to date information. They also describe that UGC has taken major initiative to modernize the University campuses with the state –of –the –art campus wide networks and has set up its

nationwide communication network named UGC-INFONET. They introduce a cross-sectional view of this initiative.

Sinha, Manoj Kumar, Murthy, TAV and K, Manoj Kumar (2006) aim to identify various issues relating to access and bibliographic control of e-journals, access management problems, policy issues, and development of e-journals consortium approach to subscribe scholarly peer reviewed journals for their library users in network environment. They also describe a brief account of UGC-INFONET E-Journals Consortium, INDEST, FORSA, and other consortium for providing access to scholarly journals to the end users of universities and institutions of higher learning for their R& D activities.

Singh, Th Khomdon, Singh,Th Shyam and Singh,Ch Ibohal (2006) mention about INFONET E-Journal Consortium. They highlight the access to the consortium by 100(one hundred) users of Manipur University Library covering different parameters and concluded to implement the opinions suggestions of the users for improving the system.

Devi, Th Madhuri, Devi, N.Vidyabati and Singh,Ch Ibohal (2006) survey the important and leading institutions of Manipur to access the availability of E-resources and their access facility. Ascertains different types of such resources available and appropriate numbers of e-journals subscribed to these institutions. Understanding the users and their level of satisfaction from the use of such resources, the present paper suggests for the optimal use of them.

Suresh,k.Chauhan and TAV, Murthy(2006) attempt to identify the factors that are responsible for digital divide with some solutions are explained. All around the world various programmes have been launched to bridge the digital gap but despite many efforts to improve this gap seems to grow wider and wider due to the inability of those who lack the knowledge and skills needed to use the electronic contents, Internet or other communication technology. In India various programmes have been launched to bridge this digital gap and they also explained the Role of INFLIBNET through its programme UGC-Infonet E-Journals Consortium which is one of the step towards bridging the digital divide in the country.

Donnelyn Curtis and Scheschy, Virginia .M (2005) provides a framework for understanding the development and characteristics of electronic journals as elements within a total electronic

information complex. He also discusses that e-journals are in the eye of the particular storm that has hit scholarly communication with growth of Internet.

Murthy, T.A.V. et al. (2005) describe that any educational system must have to depend on authentic, factual, fast and up to date information. Indian educational system is one of the largest in all over the world but due to financial limitations large number of libraries has not been able to subscribe to quite a good number of journals required for research and academic community, University libraries could play a major role to further improve the status of higher education system of India. After analyzing the situation the University Grants Commission initiated two important projects viz. UGC-Infonet providing connectivity to universities and UGC-Infonet, E-Journals Consortium to provide scholarly access to electronic journals and databases. Probably this is the golden era in the history of higher education system in India. The total program is funded by UGC and ERNET (Education and Research Network) has been entrusted to establish infrastructure within member universities on a turn key basis and the overall monitoring and execution of the project is being done by INFLIBNET. Through this program large number of e-resources subscribed and provided access to faculty and research scholars working in universities. To make people aware about the use of e-resources good number of user awareness training programs and also conducted 5 national seminars at five different places. Usage statistics provided by different publishers are also very interesting and encouraging.

Satyabati, Thiyam and Murthy, T.A.V (2005) mention that library consortia for purchasing electronic journals became recognized as a vital part of academic information infrastructure at the research community. The biggest challenge that newcomers to the consortium world face is grasping the fact that standard setting is about giving away rights in technology. Leading institutions in North America and Western Europe take a variety of positive measures to promote consortium activities and formed unique consortia of many kinds. On the other hand, a consortium in India is still in a developing stage and struggle to solve problems they face. The factors that have led to the development of consortia are diverse among countries. They describe definitions, aim, organizations, internal structures, policies and other characteristics of the UGC-Infonet E-Journal Consortium which is one of the well known consortia for Higher Education in India under the UGC. They also highlight the characteristics and issues faced by the consortia and the measures taken up to promote consortium.

Gulati, A. (2004) discusses the status of information and communication technologies usage in Indian libraries with special reference to special libraries and the efforts made by various institutions to propagate e-information products and services. This paper highlights the consortia efforts in India like JCCC Consortium, INDEST Consortium, CSIR E-journal Consortia, and UGC Infonet. It further discusses digitization efforts in India at NISCAIR, New Delhi, IIITM, Kerala, C-DAC Pune, and the Digital Library of India. In addition it incorporates details on major information systems in India such as NISSAT and major library networks in India such as INFLIBNET, DELNET, and CALIBNET etc. The paper concludes with challenges for library and information science professionals and an overview of initiatives taken by Government of India.

Staurt D Lee and Frances Boyle (2004) illustrate some of the problems that surround e-journals at the moment, their continuing association with print copies, the diversity and complexity of pricing models. They also mention that e-journals offer many advantages and it has been argued that the main advantage of e-journals over their print counterpart is that they are interactive, or at least offer an element of interactivity.

Angadi, Mallikarjun and Koganurmath,Muttayya (2004)UGC describe that University Campuses is modernizing with State-of-the-art campus wide networks and setting up its own nationwide communication network named UGC-Infonet. They discuss the facilities made available in TISS under the UGC-Infonet programme and also, in-house databases developed using Winisis software has been explained. Phase-wise implementation of TISS Digital Library, its present status and application have been elaborated.

Arora, J., and Agrawal, P. (2003) introduce the INDEST Consortium, its genesis, needs and benefits. It describes criteria used for selection of e- resources, and their evaluation. The article provides a detailed analysis of electronic resources being subscribed for various categories of institutions. It presents an analysis on expenditure according to category of institutions, types of resources, and ratio between list price vs consortium price. The article deliberates on important terms of license agreement for subscription to e –resources proposed by the consortium. The article describes the activities and services of consortium and its future plans.

Behera,S.,and Satapathy, S. (2003**)** deal with the role of INFLIBNET in e - resource building. Although library network started in India in beginning of 20th century, the development is not at an alarming rate. They have discussed role of INFLIBNET in different stages like creating database of various types and they have also highlighted the objectives of INLIBNET and enlisted various databases and arrived at funding that all the academic libraries should come forward to take benefit from this library network and build their collections to satisfy their users.

Kembhavi, A and Kumbar, T.S. (2003) highlight the role of University Grants Commission in initiating the UGC- INFONET, which seeks to provide high speed internet connections and electronic access to professional literature, and the development of multimedia content to supplement conventional learning and teaching. Major organizations like the CSIR, DAE, AICTE etc., have set up consortia involving institutes under the aegis of the respective department to have electronic access. The arrangements here involve incremental payments to be made to publishers to supplement an already large print subscription base. This arrangement is not possible for the universities since the present subscription base is very poor, and therefore arrangements which involve electronic subscriptions only are being made with publishers.

Salgar, S. M. and Murthy, TAV (2003) discuss the initiatives launched by the University Grants Commission of India in the last few years, through the 65 INFLIBNET Centre, to provide services through electronic means by computerizing university libraries, establishing a network and setting up document delivery centres. Owing to diminishing library budgets, coupled with the information explosion, academic librarians in India are finding it difficult to meet the insatiable demands of their clientele. For a vast country like India, having many universities located in remote places, this problem is compounded. Efforts were made in the past to provide document delivery services through a few documentation centres, set up by the Government in different disciplines.

Hiremath, U. (2001**)** aims at gaining some insight into the maturing process of electronic consortia; by studying the needs that have given rise to consortia and reviewing some of the forms of consortia that have emerged in the past five years, both within and outside the USA. It is hoped that such an overview can suggest the course of future consortia developments, or at minimum, provide an overview to what is surely one of the most intriguing additions to the life

of the modern library. The search for effective electronic resource sharing by libraries around the world is placed within a framework of commonly felt needs fomented by the digital age. Many forms of such consortia undertakings are described here. The existing challenges inherent in the consortia structure are also suggested.

Bley, Robert (2000) describes that the National Electronic Site License Initiative (NESLI**)** is an attempt to hasten the replacement of printed journals with their electronic equivalents in UK higher education. Effectively a national consortium-NESLI aims to achieve attractive pricing models for electronic content. However, there is a strong desire to ensure the interoperability of the various electronic services available to the academic and research community. As such, NESLI is part of the Joint Information System Committee (JISC) Distributed national Electronic Resource (DNER). He discusses the background of the initiative, its aims and objectives, the role of the managing agent and what has been achieved to date, as well as the plans for the immediate future.

Darch,Colin, Rapp, J.and Peter, G.(1999) mention that academic library consortia in South Africa are indeed beasts whose time has come atlas, although whether they constitute a second coming for our profession or our end-users remains to be seen. They can probably be described as a group of diverse entities, rough and as-yet unsure of their destination. In this descriptive text, they have attempted to outline, for a mainly North American audience, the specifics which distinguish the developing consortia in a newly democratic and newly globalized South Africa from those in other more economically advantaged parts of the world. It remains to be seen whether the center will in fact hold. Letting go reluctantly of this literary conceit, for the time being at least, they describe the all-important social and political background in which their institutions must operate, moving on to an analysis of the impulse to cooperate and the obstacles that have emerged to stifle that impulse. In the conclusion they risked some predictions about where academic library consortia may be headed in the part of the world.

Frasciello, Michael.J and Richardson, John (1999) describe that the library consortia require automation systems that adequately address the following questions: Can the system support centralized and decentralized server configurations? Does the software's architecture accommodate changing requirements? Does the system provide seamless behavior? Contends

that the evolution of distributed enterprise computing technology has brought the library automation industry to a new realization that automation systems engineered with an-tiered client/server architecture will best meet the needs of library consortia. Standards-based distributed processing is the key to the n-tier client/server paradigm. While some technologies (i.e. UNIX) provide for a single standard on which to define distributed processing, only Microsoft's Windows NT supports multiple standards. From Microsoft's perspective, the Windows NT operating system is the middle tier of the n-tier client/server environment. To truly exploit the middle tier, an application must utilize Microsoft Transaction Server (MTS). Native Windows NT automation systems utilizing MTS are best positioned for the future because MTS assumes an antier architecture with the middle tier (or tiers) deployed on Windows NT Server. "Native" NT applications are built in and for Microsoft Windows NT. Library consortia considering a native Windows NT automation system should evaluate the system's distributed processing capabilities to determine its applicability to their needs. Library consortia can test a vendor's claim to scalable distributed processing by asking three questions: Is the software dependent on the type of data being used? Does the software support logical and physical separation (distribution)? Does the software require a system shut-down to perform database or application updates?

Tom Sanville (1999) mention that the current practices of journal acquisition are grounded in the legacy of a print-bound world in which each library is an island of access for its own patrons. But with electronic desktop delivery of information, the increased ease of access allows far greater information use than previously possible. The extent of this additional use is still an open question, but based on the Ohio LINK experience thus far, it appears that improved ease of access has demonstrated the high elasticity in information usage. Libraries and consortia must seek to enable this desirable outcome by adopting purchase models that provide for expanded journal access. The first 18 months of operation of the Ohio LINK Electronic Journal Center (EJC) is an exemplary illustration of the dramatic benefits of expanded access. Patrons have executed over 535,000 article downloads. On average each Ohio university uses three times more titles than they previously held in print and over 50 per cent of downloaded articles were not available in print on each campus. Small and two- year colleges are also beneficiaries through first-time access to scholarly journals. As the evolution to broad scale electronic access

continues, libraries and consortia must take advantage of the opportunities illustrated by the EJC that fashion sustainable economic model of information purchase that maximizes the information use.

Wade, Rona (1999) mention at what stage and under what circumstances does an informal consortium need to think about changing from an alliance of non-affiliated institutions to a formal legally incorporated body? He highlighted on research funded by the Western Australian Group of University Librarians (WAGUL). It provides an analysis of 11 small to medium-sized consortia of primarily academic libraries in five countries. The aim is to canvass the range of different models that currently exist for library consortia and from that to identify the factors that determine when and how incorporation should be considered. The factors identified are the joint ownership of assets, payment for services, provision of joint services and protection under the law.

Kohi, D., (1997) starting from the assumption that significantly expanded resource sharing will be a dominant feature of all twenty-first century libraries. His article identifies five landmarks which can be used to identify key tasks. Joining a consortium, integrating intellectual access, providing for both physical and electronic delivery of materials, and integrating the collection development process are steps illustrated with primary reference to the Ohio LINK experience. This work focuses on clearly identifying major issues in resource sharing and illustrating possible solutions with actual examples. The intent, however, is to educate and facilitate ongoing discussion rather than propose final answers.

1.9. Research Design

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. The selection of research design is also based on the nature of the research problem or issue being addressed, the researchers' personal experiences, and the audiences for the study. Research Design means a process by which researcher will be in a position to understand the structure of the research and the various steps to be taken in the process of research.

1.9.1. Statement of the Problem

In these days university libraries are facing the problem of deficit budget and spatial limitation to store the books and documents. To overcome this novel idea of e-journal has set in. The UGC INFONET e-journal consortium is a helpful mechanism which provides information through its web acting like pay channel. The users can access only in the University campus. The cost effectiveness of this consortium is intended to throw light on cost per download and per user which is cheaper compared to print journals to probe into the problem of non-mobility of the journal and makes it difficult to access the contents of previous years‟ journal for the current year when the subscriber becomes a defaulter. It is a proven fact that in the present context information and time are equated with money.

Universities being members of this grouped information accession and retrieval system can be benefited on account of the investment in the accession of the information on the one hand and proper utilization of space used for accommodating the users to get information. Similarly there is another serious threat to the libraries to preserve the data which is also reduced by the consortium idea. Hence the launching of e journals consortium is a boon to the libraries and librarians who hold the responsibility of information dissemination.

Enormous arrangements are made all over to make use of the resources optimally in an institution for the creative and developmental works. In such a situation it is wise on the part of the professionals to analyze the cost effectiveness and benefit of the e resources sponsored by the UGC – INFONET programme.

UGC- INFONET Digital Library Consortium aims at providing easy and reliable access to full text journals. This is a boon to the academic community. Presently 204 universities are member of UGC -INFONET including 11 Universities located in north east region. From the inception of this UGC-INFONET the universities are working hard in terms of their technological up gradation so as to provide easy access to 8500 full text journals. Since the use of UGC-INFONET depends much on internet connectivity, bandwidth capacity, information literacy among the users, it is necessary to make a study on the extend of use of UGC-INFONET by the academic community (students, teachers and research scholars) for teaching, learning and

research. These reasons have prompted the research scholar to make a detailed study of use of UGC-INFONET Digital Consortium by faculty members of North-Eastern Hill University, Manipur University and Mizoram University for teaching and research purpose.

1.9.2. Objectives of the study

The objectives of the study are to:

- Find out the awareness and usage of e-resources among faculty members of different discipline.
- Make a study on benefits derived from UGC-INFONET by the Science and Social Science faculties members,
- Identify the barriers in accessing UGC-INFONET services,
- Suggest measures for optimum use of E-Resources provided by the UGC-INFONET,
- To conclude that UGC-INFONET provides access to academic world and promote teaching, learning and research.

1.9.3. Hypotheses

Hypothesis is the proposed assumption, explanation, supposition or solutions to be proved or disproved. It is considered as main instrument in research. Hypothesis is productive statement capable of being tested by scientific methods that are related to independent variable to some dependent variable. The important function in research is formulation of hypothesis.

Hypothesis gives us guidelines for an investigation to be carried out on the basis of previous available information.

The study is subjected to the following tentative assumptions.

H1: Awareness of UGC-INFONET Digital Library Consortium by faculty members increases the use of e-resources,

H2: Use of UGC-INFONET Digital Library Consortium by faculty members enhances academic and research output.

H3: Internet connectivity and bandwidth are the main hindrance to provide fast access to UGC-INFONET Digital Consortium,

1.9.4. Research Methodology

Research work is traditionally defined as gathering of data to answer the questions and finding solution to problems. The research work may be asked to provide answers to questions of theoretical interest to particular discipline.

Research is an academic activity and as such the term should be used in a technical sense. According to Clifford Woody research comprises defining and redefining problems, formulating hypothesis or suggested solutions: collecting, organizing and evaluating data: making deductions and reaching conclusions: and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis.

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered yet.

The following methodologies are adopted for data collection, analysis and interpretation in order to derive appropriate finding and conclusion from the research problem.

1.9.4.1. Questionnaire method

Questionnaire is a set of questions, a systematic list of questions which is sent to the respondents who answer the questions and return the questionnaires to the researcher. Bogardus remarks that questionnaire is a list of questions handed over to different persons who are to answer the questions. Questionnaire to be used must be prepared very carefully so that it may prove to be effective in collecting the relevant information.

The scholar under the present study prepared the structured questionnaires which were circulated among the 239 faculty members limited to Sciences, Social Sciences, Economics, Management

and Information Sciences. The aim of the questionnaire is to solicit information with regards to the extent of use of UGC-INFONET for academic and research purposes.

1.9.4.2. Interview method

The interview method is one of the most important methods of primary data collection. It is confiscated between the observation and respondent. It is oral-verbal questions and corresponding oral-verbal response to the queries made. This is done with the help of structured scheduled.

The scholar conducted an onsite personal interview cum discussion with the information Scientists and Librarians of the three universities and also with some selected faculty members so as to obtain factual information on UGC-INFONET services provided, extends of use, practical problems faced and suggestions for optimum use of UGC-INFONET Digital Consortium. The opinions of some of the respondents while conducting interview are stated below:

A. Some faculty members opined that UGC-INFONET Digital Library Consortium is very useful for the research and academic purposes and they wanted to access more electronic journals in their respective fields or subject.

B. Information Scientists and Librarians of the three Universities also opined that the universities should support the libraries in every possible ways and faculty members should cooperate in this regards.

1.9.4.3. Case Study method

Case study research presents a paradox. It has sometimes been labelled as weak among the social science research methods. Mitchell (1983) defined a case study as a detailed examination of an event (or a series of related events) that the analyst believes exhibits the operation of some identified general theoretical principles. Case studies emphasize detailed contextual analysis of a

limited number of events or conditions and their relationships. Rather than using large samples and following a rigid protocol to examine a limited number of variables, case study methods involve an in-depth, longitudinal examination of a single instance or event. Information is mainly obtained through careful observation, interviews and archival records. Case study research is useful when the researcher is starting to investigate a new area in which there is little information available and thus case studies provide a rich source of ideas and hypotheses for future research.

In order to make a pragmatic study it is necessary to know the optimal use of UGC-INFONET in other universities and the reasons there of. As per the information available from INFLIBNET Tezpur University, Guwahati University and NEHU in the North Eastern region are making maximum use of UGC-INFONET Digital Consortium in the year 2005, 2006-07 and 2008. The scholar has visited these three universities and make an on the spot study and discussed with Librarians concerned. Experiences gained from these three universities Libraries are beneficial for the present study to make appropriate suggestions. The discussion with the librarian benefited and learnt that the UGC-INFONET Digital Library Consortium is useful to the faculty members for their research and academic purposes and maximum utilizing is going on these three universities. A brief overview of the three universities of North East Region where the UGC-INFONET is using maximum are discussed below:

1.9.4.3.1. North Eastern Hill University (NEHU)

North-Eastern Hill University (NEHU) was set up by an Act of Parliament and notified on 19th July, 1973. The objectives of the University, as laid down in the Act, are “to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit; to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-Eastern region, and, in particular their intellectual, academic and cultural advancement”.

Illus.1.4: Screen Shot of NEHU Central Library Homepage

The Central Library is now equipped with high-end computers and other electronic and audio-visual equipment to provide seamless in-house and online services. The Central Library is an active partner of the UGC-INFONET Consortium, and currently provides access to almost all online journals and other resources available through the UGC-INFONET programme. The Central Library, with a stock of over 2,30,000 books and back-volumes, including a strong collection of works on North-East India, has emerged as a major regional resource centre for scholars engaged in teaching and research.

The NEHU Central Library also subcribes e-resources and bound periodicals supplemented by the enormous information resources now available through the UGC-INFONET Consortium and the links to global information resources and services provided on its webpage.

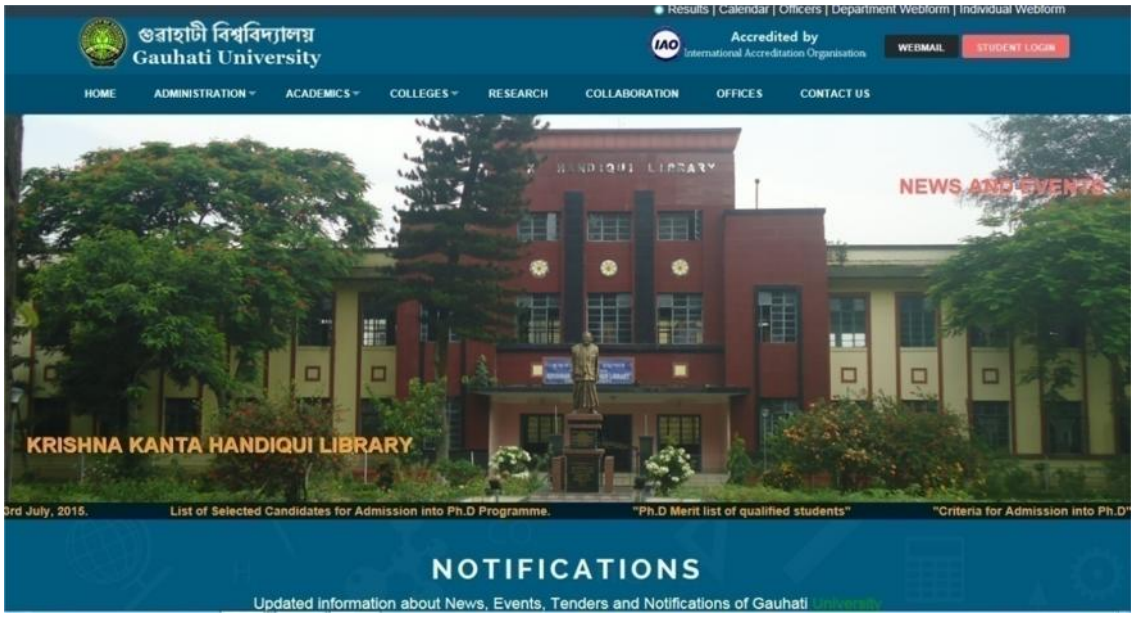
The following are some of the resources accessed by NEHU through UGC-INFONET Digital Library consortium:

- Science Direct 10 subject collection
- Wiley-Blackwell 908 titles
- Download Titles of UGC-INFONET e-journals
- UGC-INFONET e-journals Subject-wise
- Web of Science
- Other UGC- INFONET Databases
- J-Gate Custom Content for Consortia (JCCC) (www.nehu.ac.in/library/index.html (Accessed on 27-07-2014).

1.9.4.3.2. Guwahati University

The Gauhati University Library started its functioning in 1948 at Chandmari (now known as old University Colony) and then shifted to Room No.1 of the Arts building and accommodated in the present building in 1962.The Gauhati University Library was renamed as K. K. Handiqui Library after the death of its first Vice Chancellor Professor K. K. Handiqui an Orientalist of world fame.

The K. K. Handiqui Library was established to cater to the needs of the students, teachers and research scholars of the University. It not only helps in supporting the classroom instructional programmes of the University, but also unfolds the horizon of knowledge in regard to the different research programmes carried out by the University. The mission of university library is to set high standards of excellence in the preservations of knowledge and serve as an effective instrument of development and change for the state of Assam and the rest of the country by passing on faithfully and comprehensively the cultural, scientific and technological experiences of mankind accumulated over the millennia, thereby ensuring the continuity and advancement of human civilization. The Guwahati University Library as of now has 259490 volumes of books, 102212 bound periodicals, 1161 PhD Theses, 4220 Reports & Dissertations, 306 Maps and 4500 Manuscripts.



Illus.1.5: Screen Shot of Guwahati University Homepage

Guwahati University is also a member of UGC-INFONET Digital Library Consortium .The UGC-INFONET Digital Library Consortium subscribes to the following resources for its member institutions. All electronic resources subscribed are available from the publisher's Web site. Following is the list of E-Resources subscribed at University Library.

Full-Text E-Resources

American Chemical Society	http://www.pubs.acs.org
American Institute of Physics	http://journals.aip.org/
American Physical Society	http://publish.aps.org/browse.php
Annual Reviews	http://arjournals.annualreviews.org/
Wiley-Blackwell Publishing	http://www3.interscience.wiley.com/
Cambridge University Press	http://journals.cambridge.org/
Elsevier Science	http://www.sciencedirect.com/
Emerald	http://www.emeraldinsight.com
Economic & Political Weekly (EPW)	http://www.epw.in
HeinOnline	http://home.heinonline.org/
Institute of Physics	http://www.iop.org/EJ/
J-STOR	http://www.jstor.org/
Manupatra	http://www.manupatra.com/
Nature	http://www.nature.com/nature/
Oxford University Press	http://www.oxfordjournals.org
Portland Press	http://www.portlandpress.com/pp/journals/default.htm

Project Euclid	http://projecteuclid.org/
Project Muse	http://muse.jhu.edu/
Royal Society of Chemistry	http://www.rsc.org/Publishing/Journals/
SIAM	http://epubs.siam.org/
Springer Link	http://www.springerlink.com/
Taylor and Francis	http://www.informaworld.com/
Westlaw India	http://www.westlawindia.com/

B i b l i o g r a p h i c D a t a b a s e s

SciFinder Scholar	http://cas.org/products/scifindr/index.html
MathSciNet	http://www.ams.org/mathscinet/
Royal Society of Chemistry(6 Databases)	http://www.rsc.org/Publishing/CurrentAwareness/index.asp
ISID	http://isid.org.in/
JCCC	http://jccc-ugcinfonet.in or www.jccc-ugcinfonet.in
Web of Science (Through N-LIST Programme)	http://isiknowledge.com/

O p e n A c c e s s R e s o u r s e s

About Open Access	oaeresources.php
Open Access E-Journals	oaeresources.php#ejournals
Open Access Directories	oaeresources.php#directories
IRs@member Institutions	oaeresources.php#IRs

Online Abstracting and Indexing Database

SCOPUS: world's largest abstract and citation database

1.9.4.3.3. Tezpur University

The Central Library, Tezpur University was established in 1994 along with the establishment of the University. The library holds 65873 volumes of print documents and subscribed 630 titles of current journals (print 128, online 502). The UGC-INFONET Consortia of INFLIBNET Center is providing access facility to 9081 (including 525 on perpetual basis) e-journals and seven databases. Central Library also gets online access of 926 e-journals through DelCon Consortium. The library also holds more than 1800 CDs scattering to different thought contents. Library users can access book database, theses database, journal database, e-journals and other e-resources from any terminal within the University campus.

Library users can access book database, theses database, journal database, e-journals and other e-resources from any terminal within the University campus. The library at present is maintaining two parallel collection of reading materials such as traditional and electronic resources to satisfy the varied needs of the user communities.

Illus.1.6: Screen Shot of Tezpur University Library Website

The following are the e-resources subscribed at Tejpur University.

Full Text E-Resources

1. American Chemical Society | 37 titles | ACS Journals
2. American Institute of Physics | 18 titles |AIP Journals
3. American Physical Society | 10 titles |APS Journals
4. Annual Reviews| 33 titles |AR Journals
5. Cambridge University Press| 224 titles |Cambridge Journals
6. Economic & Political Weekly | 1 titles |EPW
7. Emerald| 29 titles |EMLD Journals
8. Institute of Physics Publishing | 46 titles |IOP Journals
9. JSTOR | 1401 titles |J-STOR Journals
10. Nature | 1 titles |Nature
11. Oxford University press | 206 titles |OUP Journals
12. Portland Press | 8 titles |Portland Press Journals
13 .Project Euclid | 30 titles |Project Euclid Journals
14 .Project Muse | 411 titles | 2013 Project Muse Journals
15. Royal Soc. of Chemistry |29 titles+ 6 databases|RSC Journals
16. Science Direct | 1036 titles |Science Direct Journals
17. SIAM | 14 titles |SIAM Journals
18. Springer Link | 1389 titles |Springer Journals

UGC-INFONET Databases

1. Math SciNet |One database|
2. ISID | One database|
3. J-Gate @ UGC-INFONET
4. Web of Science
5. SciFinder Scholar

Tutorial for User Registration Links

UGC-INFONET e-journals

Subject wise e-journals of UGC-INFONET

Download UGC-INFONET Journals

Subscribed e-Journals/ Databases

Other Consortia

DelCon Consortium Journals

19. Taylor & Francis | 1365 titles |T&F Journals

20. Wiley Blackwell | 908 titles |Wiley Journals

E-journals (Archive)

1. American Institute of Physics | 8 title AIP Journals
2. Oxford University Press | 170 titles |OUP Journals
3. Royal Society of Chemistry | 70 titles |RSC Journals
4. Science Direct(Basic SC Col.) | 260 titles |SD Journals
5. SIAM Locus | 17 titles |SIAM Journals

Free e-journals (WSPC)

Random Matrices: Theory and App. (RMTA)

Until 31/03/2013

1.10. Data Analysis and Interpretation

Although the University academic fraternity includes teachers, researchers and students, only the faculty members (teachers) belonging to Social Sciences, Sciences and Economic, Management and Information Sciences streams are taken as samples from the total population. In other words the teachers are the representative part of the total population. The proposed research plan is presently having 239 samples. Data collected are properly analyzed and interpreted using quantitative data analysis software namely MS Excel.

1.11. Chapterization

The proposed study is consisted of the following chapters:

Chapter one provides the background of the topic of study, need for the study, objectives and hypothesis including methodology, limitations, related literature and chapterization.

Chapter two deals with the origin, growth and development of the UGC sponsored INFLIBNET in general and aims and objectives, services and par anomic picture of UGC-INFONET programme as well as products and services provided under UGC-INFONET Digital Library Consortium.

Chapter three gives an overview of the e-resources accessible to the Universities of India through UGC-INFONET Digital Library Consortium, Usage Statistics of North Eastern Hill University, Manipur University and Mizoram University, detail of their school of studies including no. of faculties department-wise and evaluation of e-resources provided by UGC-INFONET Digital Library Consortium by faculty members.

Chapter four presents the tables and graphs, finding of the study based on the analysis of the collected data.

Chapter five provides the suggestions, avenue of further research and conclusion.

1.12. Bibliographic References Manual

Referencing an information source used in an academic work means to employ a standardized method of acknowledging that source. References give the full details of the source from where it has taken. All information used in the assignment, thesis, etc., whether published, or unpublished, must be referenced.

American Psychological Association style manual of 6th edition is followed for writing the thesis and the references are given at the end of each chapter. APA style is the author-date system.

Some of the examples are given below:

- In-Text References
  In an author-date style, in-text citations usually require the name of the author(s) and the year of publication.

  Example: (Berkman 1994) or Berkman (1994, p.25) claimed that….

- Bibliographic References
  The following examples are used for bibliographic references

(I) Book

a) Single Author

Kothari, C.R.2011, Research Methodology: Methods and Technology, New Age International Publishers, New Delhi.

b) Two or Three Authors

Stein, B & Reynolds, JS 2000, Mechanical and Electrical Equipment for Buildings, 9th edn, John Wiley & Sons, New York, NY.

(II) Journal Article

a) One Author

Das, Prangya (2012). Use of UGC-Infonet Consortium by Research Scholars in Universities of Odisha : A Study. *IASLIC Bulletin,* 57(3), 171-182.

b) Two or Three Authors

Mukherjee, Bhaskar & Kumar,Prasant(2010). Use of UGC-Infonet e-journal by research scholar of the Banaras Hindu University, Varanasi: A case study. *Annals of Library and Information Studies*, 57, 339-347.

c) More than Three Author

Joteen Singh,R.K , Madhuri Devi,Th & Raychaudhury,Arup (2009). Use of Internet based e-resources at Manipur University: A survey. *Annals of Library and Information Studies*, 56, 52-57.

d) Online Journal or Magazine with DOI (Digital Object Identifier)

Wade, Rona (1999).The very model of a Modern Library Consortium. Library Consortia Management: an International Journal, 1(1/2), 2-18. Retrieved on 21 June 2013 http://www.emeraldinsight.com/doi/abs/10.1108/1466276991028423

(III) Conference Proceeding

a) Print

Premchand, Arora, Jagdish, Naga, Moses. M & Pradhan, Dinesh (2008).Access to E-Journals through UGC-INFONET Digital Library Consortium: A Study of Usage Trends among the universities of North East Indian. Proceeding of PLANNER, *6th Convention.* Nagaland: Nagaland University, pp. 387-399.

b) Online with DOI Assigned

Premchand, Prakash, K, Satyabati, Thiyam & Chauhan, Suresh.K (2007) Access to Scholarly Literature in Higher Education Institutes under INFLIBNET Consortium. Proceeding of CALIBER, 5th International Convention, Chandigarh, pp.570-588. Retrieved on 5th July 2014. http://hdl./handle.net/1944/1433.

(IV) Online Newsletter Article

INFLIBNET (2015). INFLIBNET *Newsletter*, 22(1), January to March. Retrieved on 18th August 2015,
http://www.inflibnet.ac.in/publication/newsletter/Vol.22-%20No.1%20(Jan-Mar, %202015).pdf

(V) Theses or Dissertation retrieved from web

Kumar,K.Praveen (2014). Impact of Electronic resources on University Libraries and its users in Mumbai: A Study. Ph.D Thesis, University of Gulbarga. Retrieved on 10th July 2015, www.shodhganga.inflibnet.ac.in.

(V) Annual Report

Manipur University Annual Report 2012-13.

(VI) Webpage

a) Webpage with author

Chauhan,S.K.& Chand,P.(2008) UGC-Infonet e-journals Consortium and Indian academics: the right initiative at the right time. *Library Philosophy and Practice*. Retrieved on 12 April 2013, www.webpages.uidaho.edu/~mbolin/chauhan.htm.

b) Webpage with no author

UGC-INFONET Digital Library Consortium. Retrieved on 10th July 2015, www.inflibnet.ac.in.econ/eresources.php#.

1.13. Conclusion

The generation rate of information is immeasurable and also the demand of information is also beyond control. The development rate of the society as a whole truly exists at highest degree. The rapid growths of information technology have generated the evolution of several terms such

as paperless, electronic, gateway and global digital library. In modern time all the types of libraries-academic, public and special not limited services in providing only printed resources. They provide both printed, electronic and internet resources for fulfilling the requirement of the users.

Information has become the most important asset in today's fast and dynamic world, but still many users do not have access to the diverse media of recorded information. It is also becoming almost impossible for any single library to preserve all types of materials and cater to all types of needs of its users/ readers without resource sharing and online facilities. All libraries have limitations in terms of money, space and staff and the same can lead to the frustration of library users. So aspects like information explosion, literature scatter, rising prices, technological evolution and inelastic budgets are the major hurdles in the way of collection development and hence have given rise to collaborative collection development. Collaborative collection development in libraries opens up completely new opportunities to bridge the gap between big and small libraries. With the advancement of technology more than one library's collection can be shared with their mutual cooperation and online facilities. Thus readers can approach the reading material of their interest not available in their own library.

Basically Consortia, which involve groups of libraries cooperating for mutual benefit. Lack of vision hampers planning wisely for the future. In a time of rapid change, libraries and consortia must have a vision of what is truly important and essential in the provision of services to faculty and students. Fortunately for independent academic libraries in most states and regions, library consortia have made some kind of provisions to incorporate the independent academic libraries into the planning processes. Libraries in state and independent institutions are increasingly forced to make tough decisions about allocation of resources to electronic databases and printed materials. Libraries in such situations are feeling the effects of cutbacks in funding from state budgets because of economic downturns and growing demands for state funds in the social services areas of government. Economic lean times also cause libraries in many independent institutions to struggle with static or declining budgets.

After discussing a brief introduction about the present research problem, its objectives, significances, review of literatures, research design and hypotheses the next chapter shall be dealing with UGC-INFONET Digital Library Consortium: Resources and Services.

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http://www.emeraldinsight.com/doi/abs/10.1108/14662769910284230

2.1. Introduction

Information and Communication Technology has provided global access to information resources. Amidst the all criticisms about quality, content, authenticity, volatility and non-refereed nature of information, Internet remains as important medium for information transmission. Everything that is needed for teaching and learning, viz, textbooks, catalogues, encyclopedias, magazines, newspapers, scholarly journals, databases, illustrations, and all are made available on Internet. Hence Internet has been viewed as a valuable source of information that can assist users in the pursuance of knowledge, learning, research, and increasing their capacity for social interaction. Internet is seen to promote interaction and creativity through interaction of various forms of knowledge such as text, multimedia, graphics, photos, music, video, sound, animation etc.

The delivery of educational materials over the Internet is now almost a common phenomenon in some of the affluent, developed countries. The mechanism range from the sophisticated Virtual Classroom (VC) in which students in cyberspace interact in near real-time with instructors of remote sites, to the more basic non-real-time delivery of lecture contents to the remote students. Virtual classroom essentially consists of educational materials on the internet via the World Wide Web that are accessible by students who have access to the Internet; and mechanisms that support interactions between instructors and remote students.

In recent years, there has been a phenomenal interest in the growth of what some are calling digital, online or virtual. Universities indeed today, it is common place to read that information and communication technologies are radically reconfiguring the landscape of higher education, changing the very nature of the university. This clearly indicates that there is a decrease in importance of the campus, a student‘s ongoing ‘from a distance to access courseware‘, new media technologies replacing traditional lectures, courses being delivered and assessed over the internet, promising to make higher education available anywhere and at any time.

For an academic institution mastering Internet technology is not a luxury, but a necessity, because without thorough knowledge and expertise of this technology every effort will end up in vain.

Today's 'electronic information resources are gaining momentum. Libraries have felt that sharing e-resources is simpler than print resources. This is the first time in the history of higher education system in India that libraries in higher educational institutions have been given prominence and access to many scholarly journals is made available from the support of University Grants Commission. Presently the system allows universities covered under the purview of UGC but gradually it will be extended to colleges and different Research and development institutes of the country. The ultimate goal of this programme is to work on the virtual philosophy of libraries i.e. right information to the right user at the right time with the help of state-of-art-technology. This is what the essence of all the fundamental laws of library and information science advocates. Access is more important rather than collection development whatever you have that should be accessible. User awareness programs are started working as a tool to achieve the goal of qualitative and authentic research output, by Indian universities with the help of scholarly and updated information. It is expected that e-subscription initiative of UGC-INFONET will bring remarkable change in the academic environment in the country in the days to come.

2.2. INFLIBNET: An Overview

The information and Library Network (INFLIBNET) Center was established in May 1996 as an independent, autonomous Inter-University Centre (IUC) of the University Grant Commission (UGC). Major activities and services of the centre include automation of academic libraries and information centres, creation of union databases of resources available is academic libraries, promote resources sharing among academic libraries, promote information access and transfer, support scholarship, learning and academic pursuits. The Centre acts as a nodel agency for networking of libraries and information centres in Universities, institutions of higher learning and R&D institutions in India with an aim to promote scholarly communication.

The technology being a driving force in the contemporary education system, the centre, on behalf of the UGC, has taken up a number of initiatives for the benefit of the academic community. These initiatives include i) UGC-INFONET Connectivity programme that provides for networking of university campuses and internet connectivity ; ii) UGC-INFONET Digital Library Consortium that extends access to selected scholarly electronic journals and databases to the universities in different disciplines; iii) Shodhganga : Indian Electronic Theses and Dissertations, that enables online submission of theses and dissertations by research scholars in digital repository set –up at the INFLIBNET Centre; iv) open Journals system@ INFLIBNET that facilitates faculty and researchers in Indian universities to launch their open access journals using INFLIBNET hosting facilities ; and v) Access management technologies that facilitates users to access e-resources irrespective of their physical location. Besides, the Centre has also launched a project entitled "national Library and Information Services Infrastructure for Scholarly Content" (N-LIST) that provides access to electronic journals and electronic books to eligible colleges.

2.3. Mission and Vision

a) Leveraging on the latest technology, create a virtual network of people and resources in academic institutions with an aim to provide effective and efficient access to knowledge through perseverance, innovation and collaboration.

b) Provide seamless, reliable and ubiquitous access to scholarly, peer reviewed electronic resources to the academic community in all educational institutions with a focus on services and tools, processes and practices that support its effective use and increase value of this information.

c) Build and strengthen ICT infrastructure in educational institutions with value –added services.

d) Develop tools, techniques and procedures for secure and convenient access management enabling users to access information in electronic format from anywhere, anytime.

e) Develop resources selection guides and online tutorials for effective delivery and usage of e-resources.

f) Facilitates creation of open access digital repositories in every educational institution for hosting educational research content created by these institutions.

2.4. Aims and Objectives

The objectives of the centre, as per Memorandum of Association (MoA), are as follows:

a) To promote and establish communication facilities to improve capability in information transfer and access that provide support to scholarship, learning, research and academic pursuits through cooperation and involvement of concerned agencies.

b) To establish information and library network-a computer communication network for linking libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R&D institutions, etc. avoiding duplication of efforts.

i) To promote and implement computerization of operations and services in the libraries and information centres of the country following a uniform standard.

ii) To evolve standards and uniform guidelines in techniques, methods, procedures. computer hardware and software services and promote their adoption in actual practice by all the libraries, in order to facilitate pooling, sharing and exchange of information towards optimal use of resources and facilities.

iii) To evolve a national interconnecting various libraries and information centres in the country and to improve capability in information handling and services.

iv) To provide reliable access to information collection of libraries by creating online union catalogue of serials, theses/dissertations, books ,monographs and non-book materials(manuscripts, audio-visual, computer data, multimedia.etc.) in various libraries in India.

v) To provide access to bibliographic information sources with citations, abstracts. etc. through indigenously created databases of the UGC Information Centres, City Networks and such others and by establishing gateways for on-line accessing of national and international databases held by the national and international netwoks and centres respectively.

vi) To develop new methods and techniques for archiving of valuable information available as manuscripts and information documents in difference Indian languages ,in the form of images using high density storage media.

vii) To optimize information resources utilization through shared cataloguing, inter library loan service, catalogue production, collection development and thus avoiding duplication in acquisition to the extent possible.

viii) To enable the users dispersed all over the country ,irrespective of location and distance, to have access to information regarding serials, theses/dissertation, books, monograph and non-books materials by locating the sources wherever available and to obtain it through the facilities of the INFLIBNET and union catalogues of documents.

ix) To create databases of projects, institutions, specialists, etc. for providing on-line information services.

x) To encourage co-operation among libraries, documentation centres and information centres in the country, so that the resources can be pooled for the benefit of helping the weaker resource centres by stronger ones.

xi) To train and develop human resources in the field of computerized library operations and networking to establish, manage and sustain INFLIBNET.

c) To facilitate academic communication amongst scientists, engineers, social scientists, academicians, faculty, researchers and students through electronic mail, file transfer, computer/audio/video conferencing, etc.

d) To undertake system design and studies in the field of communications, computer networking, information handling and data management.

e) To establish appropriate control and monitoring system for the communication network and organize maintenance.

f) To collaborate with institutions, libraries, information centres and other organizations in India and abroad in the field relevant to the objectives of the centres.

g) To promote R&D and develop necessary facilities to create technical positions for realizing the objectives of the centres.

h) To generate revenue by providing consultancies and information services.

i) To do all other such things as may be necessary, incidental or conductive to the attainment of all or any of the above mentioned objectives.

2.5. Resources and Services of INFLIBNET

INFLIBNET has provided various resources and services which are discussed under:

2.5.1. Scientific and Technical Activities

The scientific and technical manpower available in the Centre are clustered into a number of working groups based on functional requirements of the Centre. Major R&D and human resource development activities are undertaken according to the requirements of the library and academic

community including students, faculty and research scholars. Major scientific and technical activities undertaken by the Centre are stated under:

Automation of University Libraries

Realizing the importance of this basic necessity, the centre, through University Grants Commission, had provided grants (initial and recurring) to 142 universities identified under the programme. Non-recurring grants enabled the university libraries to purchase computers and peripherals and the recurring grants, provided for the first five years after the installation of systems, helped in automating library operations. With this, the INFLIBNET has been able to create an Information technology (IT) conscious environment in the university libraries.

SOUL Software Development

Keeping in view the requirements of libraries of the universities and colleges for the library automation, the SOUL (Software for Universities Libraries) was designed and developed based on the experience gained by the centre over the years. The first version of the SOUL Software was released in Chennai at the CALIBER 2000 during February 2000. The software has been updated periodically with patches to enhance its functionality based on the user's requirements. The software adheres to the international library standards such as CCF, AACR2, MARC 21 and has been widely accepted and used by the LIS professional of the country.

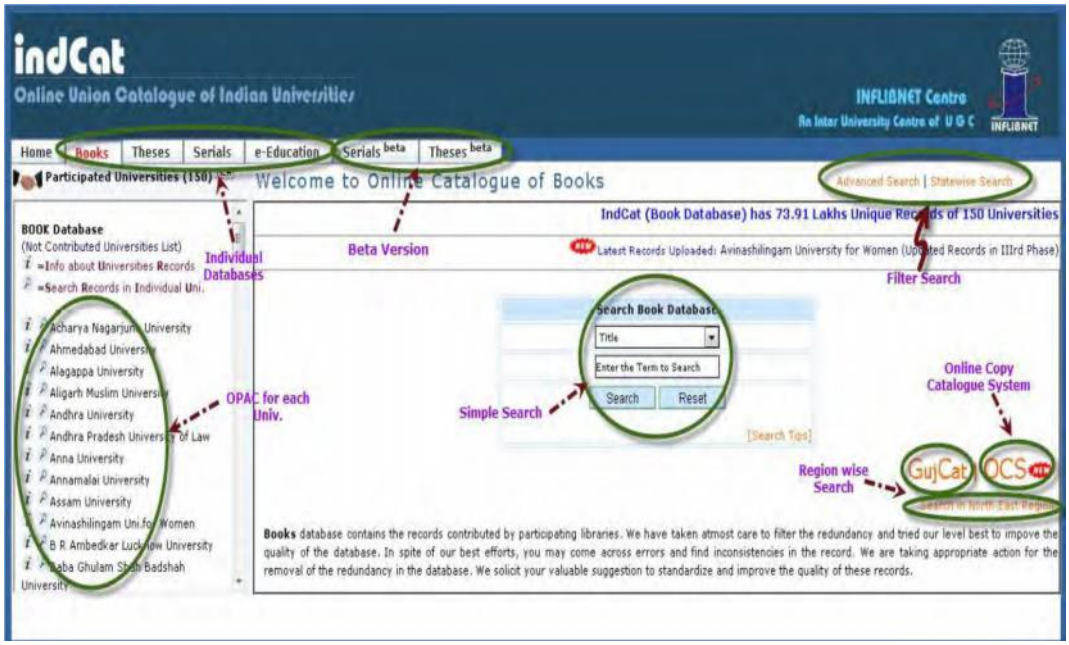
SOUL 2.0, which is the new version of SOUL, was released in January 2009 at Indian Habitat Centre, New Delhi. INFLIBNET centre and the library management software have developed SOUL 2.0, which is a state-of-the-art technology. This centre caters to the needs of college and University libraries and is user-friendly software created to a client server environment. Thus, this software can be accessed by all academic libraries and also school libraries. SOUL 2.0 has incorporated five major operation modules. They are Acquisition, Catalogue, Circulation, Serials Control and Administration.

2.5.2. Database Management R&D Group

The Centre, since its inception, has a mandate to build and maintain union databases of library resources available in Indian university libraries. The Centre has developed "IndCat: Online Union Catalogue of Indian Universities" that contains bibliographic records of books, serials and theses contributed by participating universities in all disciplines. The Centre has received 1, 28, 56,096 records from 157 participating universities in different bibliographic formats including 74.06 lakhs unique records. These unique records was converted into format and merged into IndCat with information for each participating universities. The IndCat is available through a web interface developed in-house at http://indcat.inflibnet.ac.in. Apart from the databases of books, serials and theses available through IndCat, the Centre also has other non-bibliographic databases developed for benefit of the academic community. The major union databases and number of records in each database are listed below in the given table:

Table 1: Number of records in IndCat and other Databases

Name of the database	Number of Records	Number of Institutions
Books	1,28,56,096	157
Theses	2,64,628	298
Serials	33,347	213
CEC's Videos Database	15,000	18



Illus.2.1: Screen Shot of IndCat Homepage

The Database Management R & D Group comprises of personnel with background in computer science and library science. The personnel with background in library and information science are responsible for obtaining bibliographic records from different universities in different formats and converting them into one common prescribed standard format. They are also responsible for merging new records into the union database after due authentication. The personnel with computer science background are responsible for developing software tools for data conversion, data authentication and web-based search interface for the union catalogue. Union Catalogue Management System (UCMS) and IndCat have been developed in-house to address the requirements of the Database Management R & D Group as mentioned above.

Union Catalogue of Books

It contains a bibliographic record of books, reference materials, annual reports, patents, manuscripts and standards available in participating university libraries in all disciplines. The Union Catalogue of Books has two subsets namely GujCat and NERCat that are separately designed by the demand of the concerned regions:

- The **GujCat**, a subset of IndCat, is unified online library catalogue of books available in major college/institute/university libraries within Gujarat state. GujCat contains bibliographic description,location and holdings information of books available in libraries in Gujarat. A separate dedicated web-based interface is designed to provide easy-access to the merged catalogues of libraries in Gujarat. GujCat is a major source of bibliographic information that can be used for inter-library loan , collection development as well as for copy cataloguing and retro-conversion of bibliographic records within Gujarat.

- The **NERCat**, an online catalogue of books in universities in North-Eastern Region, is another subset of IndCat. NERCat is designed and implemented to restrict searching of bibliographic records to university libraries in North-eastern region so as to promote resource sharing amongst North- Eastern universities.

The union database of books provides for downloading of selected bibliographic records in MARC21 format and porting them to the MARC21-compliant integrated library software.

Union Catalogue of Serials

The INFLIBNET Centre maintains union database of serials that provides bibliographic information of journals subscribed in various universities and maintains the information in three categories, namely Serials Holdings and Current Serials and e-journals. “Serials Holdings” provides data on library holdings, i.e. back files of journals, whereas, the “Current Serials” provides titles of the serials that are currently subscribed by the universities in print format and “e-journals” that are: i) currently subscribed by the participating universities in electronic formats; ii) journals subscribed under the UGC-INFONET Digital Library Consortium in electronic format; and iii) serials available in open access mode. The Serials Database includes bibliographic information of serials (including journals, periodicals, annuals and serials) available 213 universities / institute libraries along with its holdings information (includes available and missing volumes of the journals) in participating libraries. The serial database has over 33,347 unique titles with holdings information for 213 universities. Each bibliographic

record for serials contains title, publisher, frequency, year of publication, homepage URL and subject headings along with holdings details and names of the universities.

Union Catalogue of Theses

The Union Catalogue of Theses consists of bibliographic records of doctoral theses submitted to the universities in India. The database contains 2, 64,628 unique bibliographic records of the theses awarded by 298 Indian universities / institutions in all disciplines. The bibliographic records of theses are contributed by participating universities. Besides, records in the database have also been collected from other reliable sources such as notification from universities, University News and records submitted by the individual researchers, etc. The compilation of Union Catalogue of Theses commenced in 1995 with 52,000 records from 82 universities. The database has grown to 2, 64,628 records as on March 31, 2014 from 298 universities over a period of 20 years.

Non-Bibliographic Database (Expert Database)

Non-Bibliographic Databases contain Research Projects database and VIDWAN: Expert database which are described below:

Research Projects Database

The Research Project Database provides details of completed and ongoing projects carried out by faculty members working in universities and institutions across the country. As on March 31, 2014, 222 records were added in the database which has increased the total records in the database upto 15,057. The Centre gets project details along with the project reports in print/digital formats from the project investigators of MRP funded by the UGC regularly. The softcopy and print copy of the project reports are available at the INFLIBNET Centre for walk-in users. Project Investigators of the UGC project funded minor research projects were requested to submit softcopies and print copies of their project reports. Project Investigators, whose project

reports were received, are acknowledged and their project details were added into the database available at (http://www.inflibnet.ac.in/researchproject/).

VIDWAN: Expert Database

VIDWAN is the premier database of profiles of scientists and faculty members working at leading academic institutions and other R & D organizations involved in teaching and research in India. It provides important information about expert's background, contact address, skills and accomplishments. The objective of this database is to i) quickly and conveniently provide information about experts to peers, prospective collaborators, funding agencies, policy makers and research scholars in the country; ii) establish communication directly with the experts who possess the expertise needed by research scholars; iii) identify peer reviewers for review of articles and research proposals; iv) create information exchanges and networking opportunities among scientists and v) discover prospective collaborators for on-going research projects.

As on 31st March, 2014, the database contains 11,954 profiles of experts from 897 leading academic institutions, R&D organizations including IITs, CSIR, DRDO, etc. Persistent attempts are made to provide relevant, accurate and updated information about experts. Web enabled interface has been developed to facilitate the search and browsing of profiles of experts. The database can be searched on parameters such as name, designation, area of expertise, organization, state, etc. Profiles of experts can also be browsed using Web of Science subject categories and organization categories. Login IDs and passwords have been issued to experts whose profile is available in the database with a persistent URL enabling them to update their profiles.

On 6th December, 2013, the INFLIBNET Centre has proposed for funding support to the National Mission on Education through Information and Communication Technology (NME-ICT) to enrich the features& functionalities of the VIDWAN interface populate the database and publish the profiles in the semantic based VIVO platform. The NME-ICT has approved the proposal and sanctioned Rs. 52.70 Lakhs for the period of three years (2014-2017).

Illus.2.2: Screen Shot of VIDWAN

2.5.3. Software R&D Group

SOUL 2.0.

The SOUL 2.0 (Software for University Libraries) is state-of-the-art integrated library management software designed and developed by the INFLIBNET Centre based on requirements of colleges, universities and other academic libraries. It is user-friendly software developed to work under client server environment. The software is compliant to international standards for bibliographic formats and circulation protocols. After a comprehensive study, discussions and deliberations with the senior professionals of the country, the software was designed to automate all house-keeping operations in a library. The software is suitable for the academic libraries as well as for all kinds of other libraries. SOUL 2.0 is compliant to international standards such as MARC 21 for bibliographic format, Unicode based Universal Character Sets for multilingual bibliographic records and NCIP 2.0 and SIP 2 based protocols for RFID, electronic surveillance and control.

The SOUL 2.0 was released in January 2009 and was well received by the academic libraries in India. During the year under report, several new features were added to SOUL 2.0 as well as

several minor enhancements in reporting and other functionalities. New updates of the software are made available through the SOUL 2.0 website at no additional cost to existing users. The software was supplied to 2,832 institutions across the country as on 31st March, 2014. SOUL has adopted by Directorate of Libraries for their all public libraries as well as Department of Technical Education. State Governments of Madhya Pradesh, Haryana, Andhra Pradesh have fully automated their libraries using SOUL Software.

A separate website is maintained for the SOUL 2.0 as shown in Figure 11. The website provides detailed information about SOUL 2.0 along with the updates of software.

Illus. 2.3: Screen Shot of SOUL 2.0 Website

2.5.4. Web-based User' Interface for Union Databases

The search and browse interfaces for the union databases described above have been developed in-house by the Database R&D Group. These interfaces provide a visual window for users to search and browse relevant information stored in union databases and display it. While browse interface facilitates users to explore bibliographic information stored in union databases alphabetically by subject category or by name of the university or chronologically by years, the

search interface facilitates exploration of union databases by keywords, word in title, name of author or editor, etc. most search interfaces for the union databases support searching with varying degree of capabilities ranging from" simple search" to "Advanced Search". All the above mentioned databases can be accessed from URL: http://www.inflibnet.ac.in.

2.5.5. Bibliographic Standards

Bibliographic standards and protocols are backbone of any bibliographic databases. The standards and protocols streamline the implementation of activities, provided utmost quality, consistency and most importantly facilitate interoperability, data transfer and exchange.

Uniform standards and protocols are pre-requisite for data transfer, exchange and for merging records in union catalogue which is one of the primary functions of the centre. The centre has adopted MARC21 as bibliographic standards for SOUL software as well as for its union catalogues. Each participating library has been advised to implement MARC21 conforming to essential elements identified by the centre. Some of the guidelines prepared by the centre such as "Guidelines for Data Capturing: A User Manual" and "SOUL Guidelines for Data Capturing: A User Manual" are also available online to the libraries. The other standards recommended to the participating libraries are:

- Anglo American Cataloguing Rules 2 (Rev.)

  Library of Congress Subject Heading. The centre also participates in the activities of the National Information Standards Organization (NISO) as its member. The centre is one of the organizations, approved by the NISO Board of Directors, as a Voting Member. The centre is closely associated with the Technical Committee MSD5 on Documentation and Management of Bureau of Indian Standards, New Delhi (http://www.bis.org.in) at national level.

2.6. Human Resource Development and Consultancy

One of the important objectives of the Centre is to impart training in the use of ICT to library and information science professionals working in university and college libraries. So far about 561

programmes include annual conventions, training programmes, workshops and seminars focusing on the library automation, networking, e-resource awareness, theses repositories, institutional repositories, etc. have been conducted benefiting 44,698 participants. INFLIBNET Regional Training Programmes for Library Automation (IRTPLA) and User Awareness Training Programmes were conducted across the country in collaboration with the universities and colleges. National and international conventions called PLANNER in North-eastern regions and CALIBER in various states of India are being organized biannually as part of the human resource development activities. The Centre has also conducted a total no. of 112 Training Programmes on SOUL Installation and Operations for Libraries so far.

2.7. Publication of the Centre

The Centre brings out the following publications regularly:

- INFLIBNET Newsletter(Quarterly)
- Guidelines for Data Capturing: A Manual
- Proceeding of the CALIBER(Annual)
- Proceeding of the PLANNER(Annual)
- Information Brochures on INFLIBNET
- Course materials on Various Workshops and Training Programmes
- Annual Reports
- INFLIBNET Diary with Directory of Indian Universities (also accessible through INFLIBNET website. (http://libserver.inflibnet.ac.in:8080/wwwisis/add.01/form.htm)
- NUCSSAL: National Union Catalogue of Serials in Academic Libraries.

2.8. Consortia Based Subscription to E-Resources

The INFLIBNET Centre has set-up two separate consortia, namely UGC-INFONET Digital Library Consortium and N-LIST (National Library and Information Services infrastructure for Scholarly Contents) to extend access to e-resources to universities and colleges respectively. Two separate consortia were established not only to cater to the diverse needs of two sets of

institutions, namely universities and colleges, but also to satisfy the requirements of different funding sources and economic models. The researcher has conducted the study on UGC INFONET Digital Library Consortium. A brief description of the UGC INFONET Digital Library Consortium is discussed under.

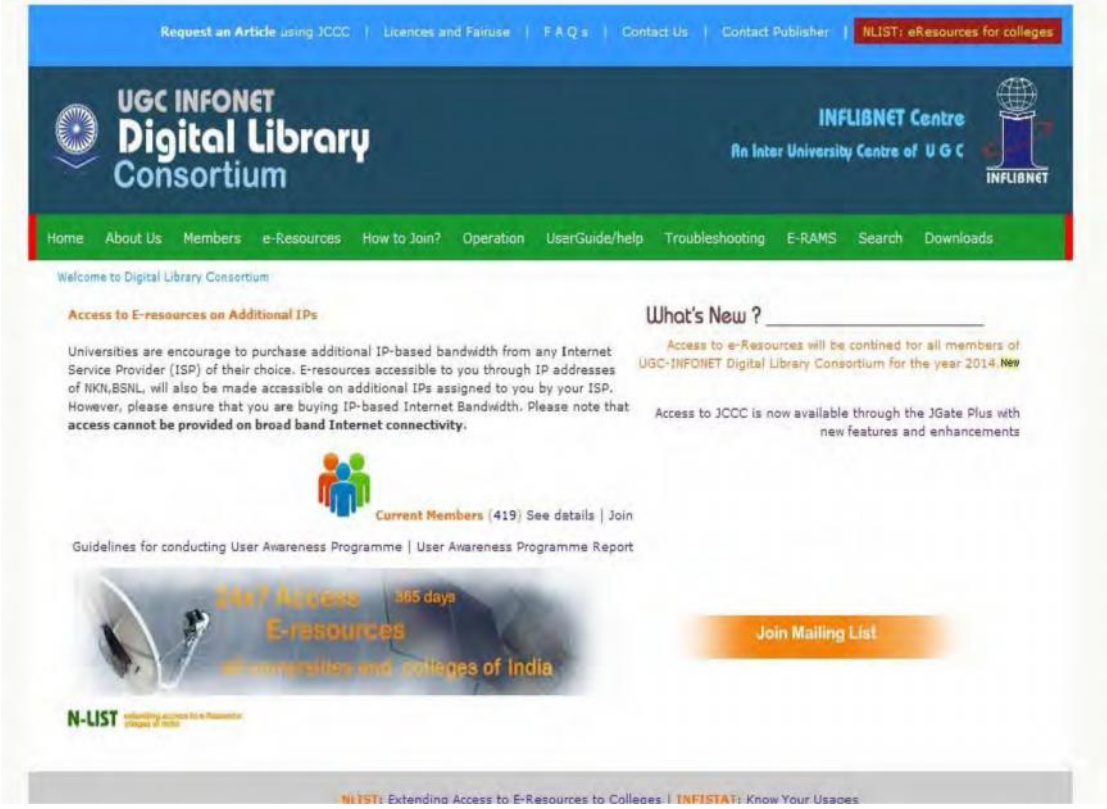
2.8.1. Advent of UGC-INFONET

The University Grants Commission (UGC) is the apex organization and was established under an Act of Parliament in 28th December, 1956. It has launched an ambitious programme to bring about a qualitative change in the academic infrastructure, especially for higher education and to make use of the benefits of Information and Communication Technology to all the universities and colleges across the country. Under this initiative, UGC is modernizing the university campuses with the state of- the-art Campus Wide Networks and has set up its own nationwide communication network named UGC-INFONET. The UGC-INFONET is supporting the higher education in several ways.

2.8.2. UGC-INFONET Digital Library Consortium

The UGC-INFONET Digital Library Consortium was launched by Dr. A.P. J. Abdul Kalam, the then President of India during December 2003. The UGC-INFONET Digital Library Consortium provides current as well as archival access to more than 8,500+ core and peer-reviewed journals and 11 bibliographic databases from28 publishers including commercial publishers, scholarly societies, university presses and aggregators indifferent disciplines. The programme was implemented in a phased manner. In the first phase that began in 2004, access to e-resources was provided to 50 universities who had Internet connectivity under the UGC-INFONET Internet Connectivity Programme. In the second phase, 50 more universities were added to the programme in the year 2005 as additional universities got Internet connectivity through UGC - INFONET Internet Connectivity Programme. So far 209 member institutions including 14 National Law Schools/ Universities and IUCs of the UGC, are being provided differential access

to subscribed e resources. These e-resources cover almost all subject disciplines including arts, humanities, social sciences, physical sciences, chemical sciences, life sciences, computer sciences, mathematics and statistics, etc. The programme is wholly funded by the UGC and executed by the INFLIBNET Centre. The Centre has also initiated Inter-Library Loan (ILL) through JCCC (Journal Custom Content for Consortium). The JCCC provides article-level access to all articles published in journals subscribed by the UGC-INFONET Digital Library Consortium as well as content in journals subscribed by 26 university libraries designated as ILL Centres of the INFLIBNET Centre. The Consortium has also launched its "Associate Membership Programme" wherein private universities and other research organizations are welcomed to join the Consortium for selected e-resources. The subjects under the consortium covered almost all areas, like Arts, Humanities, Social Sciences, Physical and Chemical Sciences, Life Sciences, Computer Sciences, Mathematics and Statistics.



Illus.2.4: Screen Shot of UGC INFONET Digital Library Consortium

The UGC-INFONET is using the backbone of ERNET2 network, which is a judicious mix of terrestrial and satellite-based wide area network. The Satellite Wide Area Network (SATWAN), using C-Band transponder on INSAT-3C and VSAT technology has facilitated reliable and quick access from remote areas. The SATWAN hub, located at STPI Bangalore, supports broadband VSATs with up to 52.5 Mbps shared bandwidth and Single Carrier Per Channel (SCPC) VSATs capable of providing up to 2 Mbps dedicated bandwidth.

UGC is modernizing the University Campuses with State-of-the-art Campus wide networks and setting up its own nationwide communication network namely UGC-INFONET. This is going to be a boon to the higher education systems in several ways to facilitate spread of quality education all over the country. This will function as a tool to distribute education material and journals to the remotest of areas and a resource centre for researchers and scholars for tapping the most up-to-date information. As a main feature of UGC-INFONET, a data center with large server capacity is being set up, where content of common interest can be maintained. Each University will have the option of hosting their website, digital content like ETDs and the E-journals subscribed through INFLIBNET Consortia. The infrastructure provided through UGC-INFONET is a minimum bandwidth of 256 kbps to 2Mbps.Keeping in view the large number of universities in the country, services of E journals has been planned to be implement in various phases which are given below:

Phase-I

In first phase, (2004), fifty universities were identified and provided access to more than 2000 E-journals in different disciplines. The first fifty universities have been selected based on certain criteria, viz. existing infrastructure, and number of scientific research, no of students and research scholars enrolled and Internet connectivity in the campus. National Negotiation Committee consisting of five members is responsible for selection, negotiation and identification of E-resources. In the year 2004, the committee, judiciously selected reputed society publications along with some reputed commercial publishers and finalized the deal for 18 publishers and spent Rs. 1681, 38,043/-.The access is given to first fifty universities. These fifty universities were given financial assistance to establish campus LAN and necessary infrastructure for Internet connectivity. After establishment of network, they were asked to send the IP addresses

to INFLIBNET. By using IP addresses of these universities, accesses to E-journals are being provided. INFLIBNET forwarded the IP addresses of respective universities to the publishers/aggregators.

Phase-II

New set of 50 more universities were given access to E-journals after releasing the grants for developing network infrastructure in the year 2005. Additional expenditure was incurred to subscribe new resources. The costs for inclusion of these universities and subscription of these e-resources is around 25 crores.

Phase-III

In the third year (2006), the consortium would cover remaining universities and colleges. There are around 50 universities which have been deprived of the access to E- journals and are expected to establish network infrastructure soon. Suitable measures have already been taken and grants were provided for networking. Colleges are integral part of education systems where millions of students enroll every year in pursuit of higher education. UGC aims to extend E-journals facility to select 200 colleges shortly.

2.8.3. Governance of UGC-INFONET Digital Library Consortium

The governance of UGC INFONET Digital Library Consortium are:

(a) National Steering Committee

The UGC-INFONET Digital Library Consortium is operated by the Centre under the guidance of a National Steering Committee (NSC) constituted by the UGC. The NSC is responsible for policy issues of the Consortium. The Committee decides on e-resources to be subscribed from various publishers and its numbers along with beneficiary universities. The NSC was also responsible for negotiating the subscription rates of e-resources in its formative years.

(b) **Negotiation Committee**

The Negotiation Committee is constituted as per the UGC Guidelines on UGC-INFONET Digital Library Consortium for negotiating the rates of subscription of e-resources.

2.8.4. E-Resources

The Consortium offers access to more than 8,500 peer reviewed electronic journals and 11 bibliographic databases from 28 major publishers and aggregators. The access of the journals includes current issues as well as 17 years back files (from 1997 in most cases) and from volume 1 onwards in some cases (American Chemical Society, American Physical Society, Institute of Physics and JSTOR). The service is offered to 189 universities, 5 IUCs & other institutes and 14 national law schools/universities as core members under different phases

The Consortium subscribes to electronic resources covering all major subject discipline being taught in universities. It includes wide variety of materials e.g. e-journals, bibliographic databases, reviews published by scholarly societies, university presses, institutional and commercial publishers. The member institutions are provided differential access to these resources based on their needs and activity profile as per the recommendation of the National Steering Committee. The list of e-resources subscribed under the UGC-INFONET Digital Library Consortium is given in Appendix-II.

The e-resources subscribed by the Consortium can broadly be divided into the following Two

Categories:

i) Full-text E- Resources

Full-text electronic resources contain complete articles along with their bibliographic details. The consortium subscribes to full-text e-resources from scholarly societies, university presses, commercial publishers and aggregators including American Chemical Society, American Institute of Physics, Oxford University Press, Cambridge University Press, Cell Press, Springer Link, JSTOR, Project Muse, etc. All full-text resources subscribed by the Consortium contain electronic journals.

ii) Bibliographic Databases

Bibliographic databases contain references to articles published in journals, conference proceedings or chapters in books. Most bibliographic databases contain abstracts of the articles along with links to their full-text. A list of full-text resources and bibliographic databases subscribed under the Consortium.

2.8.5. Aim and Objective of the Consortium

The main objective of the UGC INFONET Digital Library Consortium is to provide access to qualitative electronic resources including full-text and bibliographic databases to academic institutions at a lower rates of subscription. The major aims and objectives of the UGC-INFONET Digital Library Consortium are as follows:

- to subscribe electronic resources for the universities at a highly discounted rates of subscription and at the best terms and conditions;
- to extend the benefit of consortium-based subscription to all Indian universities and colleges;
- to extend the benefit of consortium to associate members of the Consortium;
- to impart training to the users, librarians, research scholars and faculty members in member institutions on the use of electronic resources with an aim to optimize their usage;
- to promote increased interactions amongst the member libraries;
- to catalyze increase in the research productivity of the institutions both in terms of quality and quantity of publications;
- to evaluate the usage of the resources subscribed; and
- to identify new resources that are required to be subscribed under the programme depending on the availability of funds.

2.8.6. Establishing a Mission and Goals

The consortium has essential statements of mission and goals that reflect its purposes as outlined in its foundational documents, state its commitment to support and facilitate high quality learning

and training, and define briefly its intention to maintain strong collaborative relationships among the consortium, participating institutions, and other stakeholders. The consortium needs to jointly develop the plan, specifying their purpose and what they hope to accomplish together. These will serve as the overarching framework for their activities. Objectives will be most useful if they include both measures of success and milestones for success. The consortium should encourage member organizations to develop their own measurable goals for participation in the consortium, beyond them jointly agreed to by the consortium members.

- The mission of the consortium is widely understood and accepted.
- They have been adopted or endorsed by the participants.
- They are public and widely distributed among participants in the consortium.
- The mission of the consortium enables public accountability.
- It aims to establish a foundation on which systems of accountability for the consortium can be structured.
- They establish the consortium‘s support of using technology for effective pedagogy and enhanced student learning, and for providing access for students.
- They establish the responsibility of the consortium to its participating institutions and the students using the consortium‘s services.

2.8.7. Salient Features of UGC-INFONET

The following are some of the most important features of UGC-INFONET:

- Scalable Architecture to grow nation-wide terrestrial backbone using fiber optic links.
- Integrated satellite WAN supporting broadband and SCPC technology.
- Comprehensive Network Management systems overall monitoring of the network.
- Linkage with other academic and research networks all over the world.
- Security for data and virus protection using firewalls and intrusion detection systems.
- Dedicated Data Centre for Web hosting, e-journals and Mail Boxes.
- Broadband Multimedia and Video Channels for Distance Learning.

With these salient features the UGC-INFONET is serving its clientele to the maximum extent. They mark the efficient service of the institution which holds good for the success of an institution.

2.8.8. UGC-INFONET Internet Connectivity Programme

Connectivity is one of the crucial infrastructure requirements for providing access to e-resources to universities. The UGC-INFONET Internet Connectivity Programme was launched in 2002 by the Hon'ble Prime Minister of India for bringing the qualitative changes in academic infrastructure of higher education. 157 universities were provided Internet bandwidth ranging from 256 Kbps to 2 Mbps using broadband LL/SCPC/DAMA/FTDMA/RF Open Network Architecture by signing a quadripartite agreement with UGC, INFLIBNET, ERNET India and universities.

With an aim to provide higher and scalable Internet bandwidth to universities even in remote locations, the UGC-INFONET was switched over to BSNL backbone w.e.f 1st April 2010 and renamed as UGC-INFONET 2.0. In the new scheme 10 Mbps (1:1) fiber-optic leased line is being established for more than 180 universities to provide Internet services. UGC-INFONETt 2.0 is laid on fiber backbone of BSNL network which covers almost 614755 Rkm of OFC Cable and BSNL's Points of Presence (PoP) Centres and Network Architecture across the country. The BSNL is using network infrastructure of MTNL in Mumbai and Delhi. Any university covered under 12 (B) and 2 (F) Section of UGC Act, is eligible to join UGC-INFONET 2.0 by requesting INFLIBNET Centre in prescribed format available at the UGC-INFONET website.

The entire project is funded by the UGC with 90% on capital investment and 100% of recurring bandwidth charges. The INFLIBNET plays an important role of monitoring and liasioning between the BSNL and the universities. Since UGC-INFONET 2.0 is using Fiber backbone, this will pave way for establishing National Knowledge Network (NKN) infrastructure with 1Gbps connectivity. The UGC-INFONET 2.0 will ultimately subsume into National Knowledge Network (NKN) and the project will adopt new format for better utilization of NKN.

2.8.9. Scope of UGC Connectivity Programme

To meet the objectives mentioned above, the scope of the work assigned to the ISP is as follows:

* Designing network infrastructure for the UGC-INFONET Connectivity Programme.

* To provide space for web services to the universities/UGC for hosting their web sites.

* To install equipment and establish Internet connectivity at universities.

* To provide training for personnel from universities to manage and maintain their networks and connectivity over ISP's backbone in collaboration with INFLIBNET; and

* To provide mailing and other services to the universities and the UGC offices.

The major benefits of the UGC-INFONET Connectivity Programme are as follows:

* Dedicated bandwidth up to 2 Mbps (1:1) with a possibility for further enhancement.

* Universities may host their own Web sites and other resources.

* Mirrored Website on ISP servers or data centres.

* Universities that do not have a Web server can host their Web sites on ISP servers with domain name as desired by universities.

* All servers at ISP site are maintained regularly to provide uninterrupted services.

* Universities can host academic content on Intranet server.

* Full-text e-resources and bibliographic databases, through the UGC-INFONET Digital Library Consortium can be accessed on a secured link with IP authentication.

* Bandwidth can be increased based on the usage of a university.

* To assist universities to establish their network infrastructure and Campus Wide Network and to train manpower to handle the networks properly.

2.8.10. Resources Selection

The print collection base available in university libraries and their requirements was surveyed with an aim to identify and determine e-resources to be subscribed under the UGC-INFONET Digital Library Consortium. In order to understand the collection base in universities, meetings of librarians were held in different parts of the country and their views and feedbacks were obtained. Based on the feedbacks received from librarians, e-resources of various publishers were identified and evaluated before negotiating licensing arrangements. Keeping in view the diversity of academic programmes offered by various universities, every attempt was made to subscribe to e-resources that are multidisciplinary in nature with wide scope and coverage.

2.8.11. Coverage of INFONET

The UGC-INFONET E-journal consortium covers all disciplines in the UGC curriculum. It also intended to cover all fields relevance to various Universities including, Arts & Humanities, Social Sciences, Physical and Chemical Sciences, Life Sciences, Computer Science, Mathematics, Statistics etc. The E-Journal Programme aims at covering all field of learning of relevance to various universities comprising of following areas:

- Arts, Humanities and Social Sciences; Physical and Chemical Sciences; Life Sciences; and Computer Science, Mathematics and Statistics.
- The literature, which is being made available to the university community, includes scholarly journals covering mainly research articles, reviews and abstracting databases.
- Access is being provided to current as well as archival literature depending upon the negotiations and availability of on-line version with the publishers.

2.8.12. Usage of E-Resources

Access is based on IP wherein multiple users can search the site and download the content. Most electronic resources available through consortia are served from the server maintained and controlled by publishers, aggregator and vendor. They control the data through the publishers. INFLIBNET spent increasing amount of money on electronic resources, many suspect that it

should be possible to use the actual electronic media to track usage of these journals more carefully than it was possible with paper journal.

It has been difficult and complex to obtain reliable data from publishers. This has created problems in obtaining accurate use statistics for E- journals. With new standards like COUNTER has made librarians job easy. COUNTER stands for (Counting Online Usage of Networked Electronic Resources) is an international initiative designed to serve librarians, publishers and intermediaries by facilitating the recording and exchange of online usage statistics. The use of online information resources has been growing exponentially and it is widely agreed by producers and purchasers of information that the use of these resources should be measured in a more consistent way. Building on a number of important, existing initiatives, COUNTER has set out to achieve this. During the last few years there has been a growing realization that a truly international effort, involving vendors, librarians and intermediaries, would be required to develop acceptable, global standards for measuring online usage. The seed for this international effort began to germinate in the UK, with the PALS (Publisher and Librarian Solutions) group formed by the Joint Information Systems Committee (JISC), the Association of Learned and Professional Society Publishers (ALPSP) and The Publishers Association. Under the Chairmanship of Richard Gedye of Oxford University Press, PALS made considerable progress in 2000 and 2001 in developing the framework and processes that evolved into COUNTER. In March 2002 COUNTER was formally launched, with a fully international Steering Group, a dedicated Project Director and a set of clear objectives.

Most publishers maintain detailed usage statistics for resources made accessible to universities by them. The publishers provide username and password to subscribing institutions for accessing the usage statistics for their resources for monitoring purpose. Most publishers provide COUNTER compliant usage statistics, which is an International standard for comparison of usage available through various platforms. The usage statistics from various publishers' website are downloaded on regular intervals and made accessible to the member universities on INFLIBNET website through an interface called e-RAMS (Electronic Resource Access Management System). Universities with low usage of e-resources are requested to optimize their usage.

2.8.13. Evaluation of E-Resources

E-Resources are evaluated on the following criteria:

- Qualitative and Quantitative contents.
- Coverage.
- Their availability on different platforms and their comparative advantages/disadvantages.
- Rates applicable for these resources to individual institutions as well as to other consortia.

2.8.14. Selection Criteria of Consortia based subscription

The E-resources proposed for consortia-based subscription were selected based on the

following major criteria.

- Resources from scholarly societies, university presses and not-for-profit projects were preferred over commercial publishers.
- Well-established multi-disciplinary resources with broad coverage were preferred over highly specialized sources targeted for specialists.
- E-resources already on subscription in the beneficiary universities were preferred over those which are not being used in any of them.
- Resources that are 'electronic-only' were preferred over those that are print-based.
- Resources that are very important but highly cost-intensive were preferred over those which are less important or less-used but low cost.
- Resources where electronic versions are made available free on subscription to their print versions were avoided as far as possible; and
- Selections were made on usage / suitability of e-resources to universities.

2.8.15. E-resources Subscription

Once the E-resources proposed for subscription are identified, proposals are invited from the publishers of e-resources / their authorized representatives. E- Publishers / their representatives are invited for formal negotiations on their products and services. In the formative years of the

Consortium, the National Steering Committee negotiated the lowest rates of subscription and favourable terms of agreement.

Negotiation for subscription to e-resources will now be done by a Negotiation Committee that will be constituted by the Governing Body of the INFLIBNET Centre as per the purchase rules of the Centre. While the National Steering Committee takes policy decision regarding inclusion of member institutions, e-resources, etc., the Negotiation Committee is responsible for negotiating rates of subscription to e-resources with different publishers for all universities. Once resources and members universities are finalized, the INFLIBNET Centre places order for subscription to e-resources to the publishers as per the purchase rules of the Centre. The INFLIBNET is also responsible for signing License agreement on behalf of the number of universities covered under the programme. INFLIBNET supports the administrative management of Consortium from its headquarter at Ahmedabad. Director, INFLIBNET Centre is Chief of Coordinator of the Consortium.

Member universities may send their suggestions for adding new resources to the Director, INFLIBNET Centre or to the Chairman, National Steering Committee. Proposals for new resources are discussed in the meetings of the National Steering Committee of the Consortium. If resource proposed for subscription qualifies the criteria of selection mention above, the resource is selected for further processing. Trial access for the resource is arranged from the publisher and its usage during the trial period is assessed. On successful completion of trial, negotiations are carried out with their publishers for providing differential access to selected e-resource. The subscription prices negotiated by the Negotiation Committee are placed before the National Steering Committee in their meetings for approval. Once the rates of subscription are approved, by the National Steering Committee, additional allocation is sought from the UGC. New resources are added once additional allocation is received from the UGC.

2.8.16. Allocation of Resources to the Universities

The National Steering Committee allocates resources to the universities based on following criteria:

- Availability of ICT infrastructure in universities.
- Number of students enrolled at UG, PG and doctoral level.
- Number and nature of academic programmes offered at PG and doctoral level.
- Number of Departments, Centre, Schools, Faculty, Research Scholars and PG Students.
- Type of university: Central. State, Deemed to be universities.
- Research output / publication in peer reviewed journals.

Universities were inducted into the programme in three phases. In the first phase that began in 2004, access to all e-resources from 18 publishers (subscribed in 2004) was provided to 50 universities who had Internet connectivity under the UGC-INFONET Connectivity program of the UGC. In the second phase, 50 more universities were added to the programme as soon as these universities got connectivity under the UGC-INFONET Connectivity program of the UGC. 50 universities covered in Phase II have access to 14 e-resources. In the third phase, 93 more universities and Inter-University Centres were added to the programme in the year 2014. The Phase III universities have access to only few resources based on their requirements. So far 193 out of 249 universities that come under the purview of the UGC, have been provided differential access to e-resources subscribed by the Consortium. All Inter-university Centres and the UGC Headquarters also have complementary access to selected e-resources. The following parameters were used for allocating resources to different universities.

All universities covered under Section 12B of the UGC Act, 1956 are eligible to get access to e-resources through the Consortium. Initially, 50 universities with potential for excellence in research were covered under the scheme. Subsequently, the service was extended to 50 additional universities. The facility has been extended to 193 universities till May 2014.

2.8.17. INFONET Consortium Policies

The consortium has operating policies and procedures, understood and accepted by participating institutions that give it sufficient authority to protect the integrity of activities it supports and coordinates and to be accountable for its activities.

The consortium maintains official records documenting decisions related to participating institutions.

- Sets clear standards against which of its courses and services can be held accountable to participating institutions and to the public at large.
- Assures that appropriate performance data are collected and its programs and services are evaluated and improved.
- Issues performance reports to its participating institutions and to the public at large.
- Exercises responsibility for the quality of the education provided through its services.
- Identify courses or services failing to meet the standard and require their remediation.
- Engages in planning processes necessary to ensure its long-term success.
- Appropriate technical requirement is fulfilled through good management, following a technology plan, and drawing on a human infrastructure capable of supporting the technology.
- Supports professional development and scholarly activity.
- Coordinates or provides comprehensive in- service training programs for its participating institutions, using virtual environments when appropriate.
- Enables its participating institutions to become familiar with emerging technology tools.
- Budget allows for its leadership group to participate in local, regional, and national conferences.

2.8.18. Responsibilities to Participating Institutions

The consortium has clearly stated policies and procedures, well-defined decision-making structures and processes through which it identifies and fulfils its responsibilities to participating institutions.

- Facilitates its programs and services are evaluated and improved rates access to programming provided by its member institutions rather than competing with them.
- Assures that each participating institution has access to programming from other participating institutions for its campus and its learners.
- Consortium policies, financial arrangements and marketing encourage participating institutions to offer the highest quality programming.
- Follows processes that honor each institution‘s policies and procedures in approving courses and degree programs for which the institution grants credit and/or awards degrees or certificates.
- Assumes responsibility for developing policies required for effective functioning of the consortium.
- Assures that the financial arrangements among the consortium and its participating institutions are clearly stated.
- The consortium has policies that establish the ownership of intellectual property shared with or created by the consortium.
- Recommends appropriate changes if participation in the consortium requires changes to existing institutional policy.
- Cooperates with its member institutions to develop the processes and systems necessary to accomplish its stated goals.
- Collaborates with its participating institutions to assure that they fulfill the expectations of government agencies and third-party quality assurance agencies.
- Establishes procedures through which the participating institutions share responsibility for the quality of the education facilitated by the consortium including but not limited to instruction, academic rigor, and educational effectiveness of all learning activities.
- Assures that either it or its participating institutions provide appropriate faculty support services specifically related to distance education.

UGC-INFONET as an organization solely meant for the encouraging the educational programmes under the banner takes cudgels on its shoulders for the satisfaction of the user public of the member universities and other institutions. The above enumerated responsibilities

go to ensure the services mentioned in each heads. The institution attends the services even beyond the limit of the said duties.

2.8.19. License Agreement

All electronic resources available through the Consortium are governed by license agreements. The terms and conditions for using these resources are spelled out in license agreements that are signed with each publisher by the Consortium on behalf of its member universities. The licenses for electronic resources impose two types of restrictions on its usage, namely i) who can use these resources; and ii) how the resources can be used. The first restriction defines authorized users for e-resources, which generally includes students, faculty, staff and onsite visitors of a subscribing institution. The second restriction deals with how these resources can be used. It is the responsibility of individual users to ensure that e-resources are used for personal, educational and research purposes only.

Most of the agreements entered into by the Consortium and publishers specify items that users are prohibited to do. Some of them are as follows:

- Systematic or programmatic downloading, retention, and printing are prohibited. For example, a user cannot download entire issue of a journal or print out several copies of the same article.
- Electronic distribution of content is also restricted although the specific restrictions vary from publisher to publisher. It may be permissible to forward an article to another colleague in in the same institution by email; however, transmitting an article to someone outside of the institution, or to a large group of recipients, a mailing list, or an electronic bulletin board, is not allowed.
- Faculty in a university can print out a copy of an article from an electronic journal and include it in their course pack. However, multiple copies should not be made for circulation. Copyright laws protect published material in any format so that it cannot be copied except in accordance with fair use. Providing access to material for educational purposes falls within the realm of fair use.
- Subscribed e-resource should be used for educational and research purposes and not for commercial purposes.

- Providing electronic links to the licensed resources on the course web pages is permitted but it is not permissible to post a PDF of an article on a website. However, a researcher can post a pre-print of an article written by him.
- As with any kind of scholarly communication, a researcher can use phrases or quotes from other articles and cite the source of information. However, a researcher is prohibited from using large chunk of information from an article or from a chapter in a book.

2.8.20. Violation of Terms and Condition of License Agreements

Every system devoid of its nature is to be governed by some of the standard sanctions for Violation of Terms of contract. UGC-INFONET too has some sanctions that bind this system to bring them into force.

Publishers track the use of their electronic resources in terms of number of downloads made by subscribing institution. Misuse, if any, is notified to the subscribing institution with details of kinds of violations and institution is expected to take action. The publisher also suspends the access to e-resource pending suitable action by subscribing institution. The access is stopped not only for journals where license agreement was violated but for all journals by the same publisher. Moreover, the access is suspended not only for the individual violator but for the entire institution.

It beyond the reasonable doubt that the sanctions if carried out strictly shall prevent the misuse of the complete freedom ensured by the UGC-INFONET for imparting of education in order to help research and development of the country. Therefore the UGC-INFONET as an organization has formulated some legal issues for the control of the institution

2.8.21. E-Resources Accessing

All electronic resources that are being subscribed through the Consortium are made accessible from the publisher's Website. The INLIBNET Centre maintains a web site especially for the Consortium for the benefit of its member universities. The Web site provides details of e-resources, its URL, member universities and resources subscribed for each one of them. The

access to electronic resources is IP-enabled for the member universities. As such a user does not require “Login ID and Password” to access resources available to his / her university, instead, the resources are accessible to them anywhere on their Campus network. Most universities provide links to such resources through their website.

The Consortium also maintains a website (http://www.inflibnet.ac.in/econ/) with a list of Frequently Asked Questions (FAQ) and their Answers. Users are encouraged to use the Consortium websites for correct URLs. While, the IP addresses provide by the ERNET India (current Internet Service Provider) to the universities under the UGC-INFONET Programme are already registered with the publishers for the access to e-resources, universities may obtain additional bandwidth from any other Internet Service Provider (ISP). However, IP addresses associated with the additional bandwidth should be communicated to the Consortium as well as to the publishers for getting access to e-resource on additional IPs. The INLIBNET Centre maintains a web site especially for the Consortium for the benefit of its member institutions. The Web site provides details of e-resources, member institutions and resources subscribed by each one of them. The Consortium acts as a bridge between members, publishers and funding agencies.

2.8.22. Organization

The consortium need to have an operating structure, an individual responsible for keeping the consortium on track, money to cover management and programme expenses, and a system for keeping members informed about the consortium‘s activities. Members need to be intimately involved in organization creation to ensure that the resulting system will meet their needs. The consortium operates through its headquarters at the INFLIBNET Centre Ahmedabad. INFLIBNET with an overall responsibility for making policies, monitoring the progress, coordinating with UGC for promoting the activities of UGC-INFONET E-journal Consortium. The Centre have independent electronic access to all the publications to help with the process and has also provided one free print copy of each journal from many publishers, which is being maintained as a National repository in its centre Archival Library. A web site has been created to provide all needed information to consortium members about the status of the programme at http://web.infonet.ac.in/econ/index.htm. INFLIBNET conduct various training programmes,

workshops, user awareness programme time to time at different places to spread awareness and to develop expertise in the university community in the use of E Resources. Special training programmes, seminars are conducted on different University campuses by publishers of complex databases viz. Chemical Abstracts, Biological Abstracts etc. The National Negotiation Committee members consisting of members from among the beneficiary institutes review the progress of the consortium from time to time.

2.8.23. UGC- INFONET Today

The UGC-INFONET, the aspiring and dream project of University Grants Commission, which also aims at Content Creation by Indian Academic Sector, will definitely boost this idea. University Campuses have been modernized by UGC is modernizing with local networks for setting up its own nationwide communication network named UGC-INFONET. UGC-INFONET will be a boon to the higher education systems in many ways to facilitate spread of quality education all over the country. This will function as a tool to develop education material and journals to reach the remotest of areas and a resource centre for researchers and scholars for tapping the most up-to-date information.

- UGC-INFONET E-journals Consortium is quite a remarkable programme initiated by chairman UGC to facilitate access to scholarly journals in all areas of learning.

- The programme is being executed by Director INFLIBNET, Ahmedabad.

- Is being helped by Quite a good number of scholars and academicians for this noble initiative.

- Regional meetings have been conducted at different places to take the expert opinions of university librarians across the country while selecting the journals.

- Expert opinions have also been taken from existing consortiums in few subjects;

- National Negotiation committee set up by UGC recommended number of resources to be subscribed in different areas of learning;

- The very purpose of this initiative is Indian Universities constitute one of the largest higher education systems in the world.

- Universities across the country are now facing acute shortage of funds to subscribe the costly journals and are deprived of access to latest literature published.

- This consortia initiative has helped to get discount of more than 85-90% on many scholarly journals and databases.

- This facility enables the subject experts and academicians to browse, download print the relevant articles for their research and academic development.

- Databases / journals licensed to a consortium available to all at the same time simultaneously.

- Facilitates the libraries to get the benefit of wider access to electronic resources at affordable cost.

- More importantly the entire programme is wholly funded by UGC and is executed by the Director INFLIBNET, Ahmedabad.

- It also maintains one print copy of the journals subscribed for many titles as a national archive at Ahmedabad, which can be accessed by the research and academic community across the country.

- The resources are accessed based on the IP address at individual universities and University signs MOU with INFLIBNET and UGC to use the resources for academic cause.

- Creates sharing of resources among the participating universities.

- The consortium received number of proposals and finalized with 15 publishers / vendors to cover journals and databases in sciences, humanities, social sciences.

- Many other journals and databases are also under consideration and are being taken up.

- This model provides access to and supports only electronic version and not to be linked with print subscription. Supplement to existing collection.

- Perpetual access to subscribed resources with archival access.

- Subscription for minimum 3 years initially and to be reviewed at the end of three years.

In view of the above statements relating to present status of the UGC-INFONET it is pertinently inferred that though there is still an urgent need of developing adequate ICT infrastructure in the colleges and universities. The initiatives taken up by the UGC-INFONET definitely will result in converging India into information society in the coming days.

2.8.24. Overcoming Barriers

Organizing and forming a consortium is not easy. There are many barriers to success, including lack of information and resources. But the barriers can be overcome, and the benefits of a consortium, particularly for small and mid-sized institutions are great. To succeed, consortia should:

- Gain commitment from the highest levels within member organizations and involve all levels of the organization in consortium activities.
- Gaining the full support of members is crucial to success.
- Consortium goals must be aligned with members ‘goals.
- Full support is achieved when the consortium‘s activities meet members‘needs.

- Recognize and address institution concerns about sharing information with competitors.
- Institution will participate if they feel their competitive position will not be jeopardized.
- Build the success of earlier efforts.
- Create consortia out of earlier group or collaborative efforts.
- Once in operation, seize on each small success and use it to spur members on to even greater achievements.
- Create a sense of permanence and stability.
- A clear purpose, structure, and process will provide security.
- Preparing members to take ownership of the consortium giving them control of activities will help secure their continuing involvement and support.
- The benefits to be gained from consortia are real. Institution members attest to lower training costs, better quality training, improved work processes, and increased productivity.
- While the barriers to forming learning consortia exist, they can be overcome, and they are worth overcoming.

The above steps at the instance of government and the policies in the implementation of them then will be a successful task of imparting of education through e journals and books available on internet. As it opens the window on the world to know the new and novel techniques and developments in science and other spheres of knowledge shall reach the users at a proper time and for the proper persons. Therefore it is indeed a herculean task by the UGC launched to reach the education elite within a fraction of second and thus will overcome the barrier of ignorance and innocence in case of science and technology.

2.8.25. Future Programmes of INFONET

The future programmes include user awareness training programmes at universities, Collect user feedback from time to time and publish in the newsletter as well as on website, UGC-

INFONETE-Journals Consortium. Annual Meet and meeting of librarians time to time, Intensive training programmes for professionals, Evaluation studies on the benefits of UGC-INFONET E-Journals Consortium etc.

2.9. Role of INFLIBNET

The INFLIBNET Centre acts as a nodal agency for implementation, monitoring and execution of the entire programme through the committees mentioned above. It coordinates all activities concerned with negotiation, renewal of subscription of e-resources and subsequent trouble shooting on behalf of the Consortium. The Centre also promotes cooperation amongst member universities and facilitates better terms of references for use and preservation of subscribed electronic resources. INFLIBNET is responsible for:

- Coordinating meetings of its Committees.
- Constitution of Negotiation Committee through its Governing Board.
- Negotiating rates of subscription and its terms and conditions.
- Ensures IP-based access of subscribed e-resources to beneficiary universities.
- Attend to the problems faced by universities and liaise with publishers to resolve such problems.
- Develop tutorials and promotion materials; impart training and technical support to member universities.
- Propagate the Consortium amongst other institutions so as to extend its benefits to other institutions by enrolling Associate Members.
- Evaluate subscribed e-resources and monitor its usage regularly.
- Signs license agreement for access to various electronic resources on behalf of members.
- Maintain and update website of the Consortium.
- Organize awareness programme to promote e-resources.
- Improve cooperation and communication amongst member universities;
- Measure impact of access to e-resources on research output in beneficiary Universities.
- Present periodic report to the UGC on extent of usage of e-resources, economics of the consortium and its impact on research output.

2.10. Role of UGC

The UGC-INFONET Digital Library Consortium is fully funded by the University Grants Commission. The UGC is responsible for constituting the National Steering Committee of the Consortium. The UGC is also responsible for making policies, monitoring the progress, coordinating with other Consortium in the country and to ensure gradual decrease in subscription of print resources in the beneficiary institutions. The UGC also monitors usage of e-resources and its impact on research output in beneficiary universities.

2.11. Conclusion

India has been able to achieve moderate success in making computer networks operational for communication, libraries and information, in spite of various inadequacies. The plans being drawn up are highly ambitious. Few networks still remain undeveloped, although existing networks have to be interconnected to achieve the desired goals. India aims to catch up with advanced countries through the application of modern technology, indigenous know-how, and reliance on local industry for hardware and software. What remains to be seen is how establishing these facilities will benefit and improve the socio-economic conditions of India's citizens, allowing the nation to emerge as an economic superpower in the next century.

Further the information diffusion has increased cost of information available in varied formats and has been showing its spontaneous effect on the limited financial resources of the library and information centers. Due to this, no single library is capable of procuring all kinds of information resources as demanded by its clientele. The library and information field has been looking for a viable solution through collective effort and mutual sharing of their resources. Here, the strength in number of approaches helps libraries to offer more and better services than before. The digital environment also emphasizes the need to function effectively, for cooperative arrangements, distribution of service and sharing of resources. The latest trend is moving towards consortia approach to form partnership for sharing the resources. Access of information to remote user has always been a challenge and delivery of information

service is not a new concept as it was before printing media was invented, but the newer technologies have helped to overcome these obstacles. In the changed environment INFLIBNET has moved to the digital environment in the delivery of information services to the academic community across the country. To achieve this UGC has initiated INFLIBNET to monitor UGC-INFONET programme. So that the existing resources can be used effectively and efficiently by the academic and research community in the Indian universities.

The UGC-INFONET Digital Library Consortium is to provide access to qualitative electronic resources including full-text and bibliographic databases to academic institutions at a lower rates of subscription. The consortium headquarter is assigned to function as a resource center with an aim to cater to the needs of its members for resources accessible to them in electronic media or are available in print media. With subscribed resources accessible online in electronic format, the member libraries would have less pressure on space requirement for storing and managing print based Library resources. Library Consortium is the best way of a common infrastructure and it has become very important in the last two decades with the emergence of e-publishing. Libraries have realized or have to realize that working together can accomplish far more than they can do individually. The age of library consortia is at the doorsteps to prove cooperation locally, regionally, nationally and internationally.

The initiatives has been taken by the University Grants Commission through INFLIBNET to provide Internet connectivity and E-journals started making good impact on researchers and academic community. The universities are showing high rate of use of internet and e-resources. As a result, universities are also demanding more bandwidth. Number of universities under UGC-INFONET are using satellite based communication network which is usually expensive and include more delay than terrestrial network. Therefore, efforts may be made to increase leased line connections in the UGC-INFONET, which will minimize the propagation delay and improve accessibility. Network security is one of the major problems for UGC-INFONET. However, to secure Internet connection from virus and spam at university end, is the responsibility of respective universities. Inadequate security infrastructure, security policy and

lack of trained manpower may reduce the bandwidth utilization. The UGC-INFONET network has vast capacity of carrying digital contents, is still not utilized till its maximum extended because of few applications are available over this network. However, the Govt. may take initiatives to encourage universities to host various applications like online full text thesis, course materials, online professional courses etc. within this network. This will encourage domestic network traffic, accessibility to e-contents that will in-turn reduce the bandwidth cost.

In the era of digital libraries, Web-based electronic databases have become important resources for education and research, providing functionality and ease of use superior to print products. Analysis of usage of such online systems can provide valuable information on user behavior and on usage of electronic information in general.

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3.1. Introduction

The rapid growth of information technology has generated the evolution of several terms such as paperless, electronic, gateway and global digital library. In modern time all the types of libraries –academic, public and special have not limited services in providing only printed resources. They provide both printed, electronic and internet resources for fulfilling the requirement of the user. In this information age there is so much information being generated that we are confronted with information explosion, information pollution and exponential growth of information. Due to this information explosion or information pollution the people are confuse about the information need, information access and information sources.

Consortia of libraries, on one hand, permits successful deployment and desktop access to electronic resources at a highly discounted rates of subscription and on the other hand, it meets with the increasing pressures of diminishing budget, increased user's demand and rising cost of journals. The library consortia, on the basis of sheer strength of the number of institutions, offer healthy business growth opportunities to the electronic publishers and thus
attract the best possible price and terms of agreements. With this welcome change, the libraries all over the world are forming consortia of all types and at all levels with an objective to take advantage of current global network to promote better, faster and more cost effective ways of providing electronic information resources to the information seekers.

GALILIO, OhioLink, TexShare, VIVA and SUNYConnect in USA, CALIS in China, CONCERT in Taiwan, INDEST-AICTE Consortium, UGC-INFONET Digital Library Consortium and CSIR E-Journals Consortium in India are some of the well-known library consortia. Besides, library consortia that emerged with primary motive to license e-resources for their member institutions, several existing library networks have also taken-up the task to license e-resources for their members.

Electronic publishing has been revolutionizing the format of the recorded knowledge. Electronic information services are attracting readers' attention in today's networked environment. E-journals and E-databases bring new challenges before the library and information professionals to give full text access to scholarly publications both in print and electronic version to its end

users. Further subscribing to printed journals by individual libraries is beyond human comprehension. Ever-increasing prices of journals accompanied with the shrinking budget of libraries, management/parent bodies are forced to resort to the best alternatives like consortia. In this respect the contributions and the benefits of E-journals and E-databases provided by UGC-INFONET are numerous.

Indian Universities constitute one of the largest educational system in the world. Fast changing curricula, frequent introduction of new subjects, globalization of education and competitive research, has increased the demand for scholarly journals over the years. But due to insufficient funds, which affects the research and academic activity. Realizing the need for a common mechanism for access to scholarly information, University Grants Commission (UGC) set the priority for providing access to scholarly information for the research and academic community by supplementing the existing collection in the individual universities. Under this initiative UGC is modernizing the University Campus with state-of-the-art campus wide net work and setting up its own nation wide communication network named 'UGC-INFONET". UGC, INFLIBNET and ERNET came together to meet the challenges that may face the education community with respect to real time information.

Journals still remains the most useful medium of scholarly communication in academic and research institutions. The momentum of its usage for reporting research results, obtaining up-to-date information and as reference sources is rather increasing. As a result, the amount of journals and the information that it contained are also increasing. The changes seen here are the medium of dissemination or the form of journal publication that has shifted from print to electronics. Whether this change from print to electronics has any effects on the quality of content is an intriguing query needed to be seen from a scientific perspective. The marketing strategy of electronic journals limited the scope of selection to a certain degree and junk journals finding its way into institutions of repute is common place. The advent of electronic journals have also ushered in certain issues like trustworthiness of the source, archival facilities for future references, plagiarism, copyright violation and intellectual dishonesty. These characteristics of electronic journals are universal in nature. On the contrary, the problems faced in the northeast Indian universities are still primitive in nature.

3.2. E-Resources for the Universities in India through UGC-INFONET Digital Library Consortium

UGC-INFONET Digital Library Consortium is major initiative of University Grant Commission (UGC) to bring qualitative change in academic libraries in India. It was formally launched in December, 2003 by Honorable Dr. A P J Abdul Kalam, the then President of India, soon after providing the Internet connectivity to the universities in the year 2003 under the UGC-INFONET programme. It is a national initiative for providing access to scholarly electronic resources including full-text and bibliographic databases in all subject disciplines to academic community in India. It facilitates access to high quality e-resources to academia in the country to improve teaching, learning and research. The Consortium provides current as well as archival access to nearly 9,000 core and peer-reviewed journals and five bibliographic databases in different disciplines from 42 publishers and aggregators.

The access to all major e-resources was given 50 universities in first phase in the year 2004.
It has now been extended to 193 universities in three different phases. In terms of number of users, the UGC-INFONET Digital Library Consortium is the largest Consortium in India with a vision and plan to reach out to all universities and colleges affiliated to these universities, over a period of time. E-resources accessible through UGC-INFONET Digital Library Consortium are discussed below:

3.3. E-Resources for Sciences, Technology and Allied subjects

Some of the E-resources for sciences, Technology and Allied subjects are:

3.3.1. American Chemical Society (ACS)

American Chemical Society provides the worldwide scientific community with a comprehensive collection of the most-cited, peer-reviewed journals in the chemical and related sciences. As reported in 2008 Journal Citation Reports® by Thomson Reuters, the peer-reviewed journals of the American Chemical Society rank #1 in citations or ISI Impact Factor in the seven core chemistry categories as well as eight additional categories ranging from Agriculture and Crystallography to Polymer Science and Nanoscience & Nanotechnology.

It provides features like Daily or weekly e-mail alerts when individual articles (Articles ASAPSM) from the selected journal(s) of your choice, are released on the web. Through the consortium ACS is giving access to 38 current full-text e-journals including the ACS Legacy Archives having back files of all the journals from vol.1 issue.1

3.3.2. American Institute of Physics

American Institute of Physics (AIP) is a non-profit corporation chartered in 1931 to advance and diffuse the knowledge of physics and its application to human welfare. An umbrella organization for 10 Member Societies, AIP represents more than 134,000 scientists, engineers and educators and is one of the world's largest publishers of physics journals. AIP's prestigious core journals (journals.aip.org) - many of which are among the most highly cited in their field - form the core of physics literature in libraries worldwide. With their high technical and editorial standards, these publications attract the most vital and current research papers from the world's leading authorities in fields ranging from chemistry, mathematics, fluid dynamics, and more.

AIP's online platform(Scitation) hosts more than 1,000,000 articles from more than 170 scholarly publications for 25 learned society publishers, in fields including physics, chemistry, geoscience, engineering, acoustics, and more. The members of the consortium have access to 18 Full text journals (10 AIP and 8 from AIP's member societies) with Archival access from 1997 onwards for most of the journals

3.3.3. American Physical Society (APS)

The American Physical Society was founded on May 20, 1899, when 36 physicists gathered at Columbia University for that purpose. . In 1913, the APS took over the operation of the Physical Review, which had been founded in 1893 at Cornell, and journal publication became its second major activity. Physical Review was followed by Reviews of Modern Physics in 1929 and by Physical Review Letters in 1958. Over the years, Physical Review has subdivided into five separate sections as the fields of physics have proliferated and the number of submission grew.

Through the consortium access of 8 Full text journals is available from 1997 onwards. Also the PROLA (Physical Review Online Archive) search engine (which indexes all APS journal material published from 1893 to present) is now freely available to all users.

3.3.4. Annual Reviews (AR)

Founded in 1932, Annual Reviews provides researchers, professors, and scientific professionals with a definitive academic resource in 37 scientific disciplines. Annual Reviews saves you time by synthesizing the vast amount of primary research literature and identifying the principal contributions in the field. Annual Reviews publications are among the highest cited publications by impact factor according to the Institute for Scientific Information® (ISI). Access is made available to 33 full text journals and archival access is provided up to 10 years back issues.

3.3.5. Institute of Physics (IOP)

The Institute of Physics is a leading international professional body and learned society, established to promote the advancement and dissemination of physics. The Institute has a world-wide membership and is a major international player in: scientific publishing and electronic dissemination of physics; setting professional standards for physicists and awarding professional qualifications; promoting physics through scientific conferences, education and science policy advise. Access is provided to 46 full text topmost journals in the area of physics, and the archival access is made available from Vol.1 issue.1 of all 46 IOP titles.

3.3.6. Portland Press

Portland Press limited is the wholly owned publishing subsidiary of “The Biochemical Society”. It is a not for profit publisher of journals and books in the cellular and molecular life sciences. Access to 8 peer-reviewed journals is being provided to the member universities with 1996 onwards back files.

3.3.7. Project Euclid

Project Euclid's mission is to advance scholarly communication in the field of theoretical and applied mathematics and statistics. Project Euclid is designed to address the unique needs of low-cost independent and society journals. Through a collaborative partnership arrangement, these publishers join forces and participate in an online presence with advanced functionality, without sacrificing their intellectual or economic independence or commitment to low subscription prices. Full-text searching, reference linking, interoperability through the Open Archives Initiative, and long-term retention of data are all important components of the project. Access to 18 journals with 2002 onwards back volume is being provided to 50 member universities.

3.3.8. The Royal Society of Chemistry (RSC)

Royal Society of Chemistry is the Professional Body of chemists and Learned Society for chemistry. It is one of the most prominent and influential scientific organizations in Britain. Through its 45,000 members, including academics, teachers and industrialists, the RSC promotes the interest of chemists and the benefits of chemical science. The RSC's educational activities provide information and training opportunities for both students and teachers. The RSC is extremely active in determining the future of chemical education, seeking to influence Government by submitting evidence to Parliament and anticipating developments in education policy.

The archival access is made available for 23 full text journals with 6 Databases from 1997-onwards.

3.3.9. Society for Industrial and Applied Mathematics (SIAM)

Inspired by the vision that applied mathematics should play an important role in advancing science and technology in industry, a small group of professionals from academe and industry met in Philadelphia in 1951 to start an organization whose members would meet periodically to

exchange ideas about the uses of mathematics in industry. This meeting led to the organization of the Society for Industrial and Applied Mathematics (SIAM). SIAM exists to ensure the strongest interactions between mathematics and other scientific and technological communities through membership activities, publication of journals and books, and conferences. Access to 14 Journals with 1997 onwards back files is made available to 50 member universities.

3.3.10. MathSciNet

MathSciNet is an electronic publication offering access to a carefully maintained and easily searchable database of reviews, abstracts and bibliographic information for much of the mathematical sciences literature. Over 80,000 new items are added each year, most of them classified according to the Mathematics Subject Classification. Authors are uniquely identified, enabling a search for publications by individual author rather than by name string. Continuing in the tradition of the paper publication Mathematical Reviews (MR), which was first published in 1940, expert reviewers are selected by a staff of professional mathematicians to write reviews of the current published literature; over 60,000 reviews are added to the database each year. Extending the MR tradition, MathSciNet contains over 2 million items and over 700,000 direct links to original articles. Reference lists are collected and matched internally from over 300 journals, and citation data for journals, authors, articles and reviews is provided. This web of citations allows users to track the history and influence of research publications in the mathematical sciences. Access to MathSciNet has started to 50 universities since 2005 covering files of 1940 onwards.

3.3.11. CAS (Chemical Abstracts Service)

CAS provides pathways to published research in the world's journal and patent literature? virtually everything relevant to chemistry plus a wealth of information in the life sciences and a wide range of other scientific disciplines back to the beginning of the 20th century. Since 1907, CAS has indexed and summarized chemistry-related articles from more than 40,000 scientific journals, in addition to patents, conference proceedings and other documents pertinent to chemistry, life sciences and many other fields. In total, abstracts for more than 23 million

documents are accessible online through CAS. SciFinder and SciFinder Scholar desktop research tools can be used to explore and search the CAS Substance identification is a special strength of CAS.

SciFinder Scholar is a desktop research tool that provides campus-wide access to the world's largest and most comprehensive databases of chemistry, biotechnology, engineering, life sciences and related sciences from CAS, with an ease of use never before. With SciFiner Scholar as a one single source, you can explore scientific information in several unique ways. The CAS access is given to 32 universities through Sci-Finder. The archival access is made available since 1907 onwards.

3.4. E-Resources in Social Science and Humanities

E-Resources covered under the subject of Social Science and Humanities are:

3.4.1. Emerald

For more than 40 years Emerald has operated as a specialist journals publisher, building a portfolio of 225 scholarly journals in business and management, library and information sciences, engineering and materials science. As the leading publisher for LIS research, Emerald's Library and Information Studies publications provide comprehensive and quality coverage in all areas of this field. Spanning a range of topics such as collection building to library finances, to document supply and inter-library lending, this is an essential resource for information professionals, librarians, educators, students and researchers around the world. Under UGC-Infonet e-journals consortium access is made available for 29 e-journals from Library and Information Science full text database and archival access is varies from journal to journal (mostly 2001- onwards

3.4.2. Economic & Political weekly

Economic & Political Weekly (EPW), published by the Sameeksha Trust, a registered charitable trust since 1949, is one of the Indian publications that enjoy a global reputation for excellence and scholarship. It occupies a special place in the intellectual history of independent India. It publishes analysis of contemporary affairs and academic papers in the social sciences. The focus

of the EPW is economic issues, but it is truly a multidisciplinary publication covering sociology, political science, history, gender and environment studies.

EPW publishes both research in social sciences in the “Special Articles” section and informed comment on current affairs in the “Commentary Section”. The access of EPW is provided to all the universities of the consortium.

3.4.3. HeinOnline

HeinOnline is Hein's premier online research product with more than 60 million pages of legal history available in an online, fully-searchable, image-based format. HeinOnline bridges the gap in legal history by providing comprehensive coverage from inception of more than 1,400 law and law-related periodicals. In addition to its vast collection of law journals, HeinOnline also contains the Congressional Record Bound volumes in entirety, complete coverage of the U.S. Reports back to 1754, famous world trials dating back to the early 1700's, legal classics from the 16th to the 20th centuries, the United Nation and League Treaty Series, all United States Treaties, the Federal Register from inception in 1936, the CFR from inception in 1938, and much more.

Access is made available to 14 National Law Schools and selected universities through UGC-INFONET Digital Library Consortium.

3.4.4. Manupatra

Manupatra are the leading law publisher and provider of Legal, Taxation, Corporate and Business Policy databases in India. With primary documents and proprietary analytical content covering commentaries, treaties, digests, editorial enhancements, Manupatra has created the largest and most comprehensive online resource of Indian materials.
Access is made available to 14 National Law Schools and selected universities through UGC-INFONET Digital Library consortium.

3.4.5. Project Muse

Project MUSE is a unique collaboration between libraries and publishers, providing 100% full-text, affordable and user-friendly online access to a comprehensive selection of prestigious humanities and social sciences journals. MUSE's online journal collections support a diverse array of research needs at academic, public, special and school libraries worldwide. Our journals are heavily indexed and peer-reviewed, with critically acclaimed articles by the most respected scholars in their fields. MUSE is also the sole source of complete, full-text versions of titles from many of the world's leading university presses and scholarly societies. Currently, MUSE provides full-text access to current content from over 400 titles representing nearly 100 not-for-profit publishers.

3.4.6. Westlaw India

Westlaw India contains an ever expanding collection of case law that is updated daily. Alongside Indian case law, Westlaw India also includes case law materials from the UK, EU, United States and other Commonwealth jurisdictions. Westlaw India contains over 300,000 full text decisions from 20 High Courts.

Coverage starts from 1886 and case head notes are included for a large number of editorially selected judgments. Like the Supreme Court, every High Court judgment is supplemented with our unique Case Analysis documents enabling users to view a judgments' appellate history through seamless linking between High Court and Supreme Court decisions. Access is made available to 14 National Law Schools and selected universities through UGC-INFONET Digital Library consortium.

3.4.7. The Institute for Studies in Industrial Development (ISID Database)

The Institute for Studies in Industrial Development (ISID), a sponsored institution of the Indian Council of Social Science Research (ICSSR), is a public-funded, non-commercial research and development institution in social science. ISID was set up as an independent organization to carry on the work initiated by the Corporate Study Group (CSG), at the Indian Institute of Public

Administration, during the early ‘eighties. ISID has developed databases on various aspects of the Indian economy, particularly concerning industry and the corporate sector. It has created access to indexes of Indian Social Science journals (OLI) and Press Clippings on diverse social science subjects. It provides access to indexes of 125 Indian Social Science journals and major newspaper articles, editorials and news features.

3.5. E-Resources of Multi Disciplines

Some of the e-resources access through UGC-INFONET Digital Library Consortium covers multiple disciplines which are given below:

3.5.1. Science Direct

Science Direct is a part of Elsevier. Headquartered in Amsterdam, The Netherlands, the company is the world's largest scientific, technical and medical information provider and publishes over 2,000 journals as well as books and secondary databases. There are currently more than 9.5 million articles/chapters, a content base that is growing at a rate of almost 0.5 million additions per year.

Access to Science Direct 10 subjects (1. Biochemistry, Genetics & Mol. Biology, 2. Agriculture &Biological Science, 3. Chemistry,4. Computer Science, 5. Economics, 6. Immunology & Microbiology, 7. Mathematics, 8. Physics & Astronomy, 9. Social Sciences, 10. Psychology) collection (1000+journals titles) is provided to 60 universities covered under UGC-INFONET Digital Library Consortium with back-files since 1995.

3.5.2. Nature

Nature is an international journal publishing original, ground breaking research spanning all of the scientific disciplines, as Articles, Letters to Nature and Brief Communications. Each issue also includes extensive secondary comment, including Reviews, News, New Features, Essays, News and Views, Book Reviews, Correspondence, Commentary, and Opinion. Nature has the highest Impact Factor (Thomson-ISI, 2003) of all multidisciplinary journals, and has achieved an

increase of 2.5 since 2002.Nature has also received acclaim for having the highest number of citations per paper over the last decade (1992-2002) of all multidisciplinary journals (Science Watch, Thomson-ISI,June 2003).Full text un-limited simultaneous access for Nature Weekly from 1997 onwards is available.

3.5.3. Oxford University Press (OUP)

Oxford Journals is a division of Oxford University Press, which is a department of Oxford University. It publish well over 230 academic and research journals covering abroad range of subject areas, two-thirds of which are published in collaboration with learned societies and other international organizations.

OUP collections cover Life Sciences, Mathematics & Physical Sciences, Medicine, Social Sciences, Humanities, and Law, and include some of the most authoritative journals in their fields.

3.5.4. Cambridge University Press

In line with the commitment of Cambridge University Press to advance learning, knowledge and research worldwide, the Press currently publishes over 220 peer-reviewed academic journals for the global market. Containing the latest research from a broad sweep of subject areas, Cambridge journals are accessible worldwide in print and online. As well as those journals owned by the Press itself, it also publishes on behalf of over 100 learned and professional societies. Through the consortium, 224 Cambridge University Press journals are available with back files since 1997.

3.5.5. Springer

Springer is the leading global scientific publisher, delivering quality content through innovative information products and services, as well as a trusted provider of local-language professional publications in Europe, especially in Germany and the Netherlands. It publishes high quality

content in various formats like books, journals, newsletters, CD-ROMs, Online platforms, Protocols, databases and conferences. It publishes some 2,000 journals and more than 6,500 new books titles every year in the STM sector, backlist of more than 45,000 titles. The coverage of the content is in 6 main publishing fields: Science, Technology, Medicine, Architecture, Business and Transport.

Overall journals can be accessed through Springer Link are around 1400 journals. The archival access is provided from 1997 onwards.

3.5.6. Taylor and Francis

Taylor and Francis, founded in 1798, is the oldest commercial journals publisher in the world, and one of the leading global academic publishers. Informa interface is a new and expanding platform, initially hosting the academic and scientific publications. Taylor & Francis Group publishes more than 1100 journals and around 1,800 new books each year Taylor and Francis provides quality information and knowledge that enable the customers and end-users to perform their jobs efficiently, continue their education, and help contribute to the advancement of their chosen profession.

It is a widely known publisher among researchers, students, academics and increasingly professionals. UGC-INFONET Digital Library Consortium can access more than 1365 journals with archival access to 1998 onwards issues.

3.5.7. Wiley-Blackwell

Wiley-Blackwell, created in February 2007 by merging Blackwell Publishing with Wiley's Global Scientific, Technical, and Medical business, is now one of the world's foremost academic and professional publishers and the largest society publisher.

With a combined list of more than 1,400 scholarly peer-reviewed journals and an extensive collection of books with global appeal, this new business sets the standard for publishing in the life and physical sciences, medicine and allied health, engineering, humanities and social

sciences. Access to 908 journals of Blackwell publishing with back files since 1997 is being provided to the members of the consortium.

3.5.8. Web of Science

Web of Science, provides access to the world's leading citation databases. It searches over 10,000 journals from over 45 different languages across the sciences, social sciences, and arts and humanities with back files to 1900.

The citations (or footnotes) allow one to navigate forward, backward, and through journal articles and both journal and book-based proceedings. Its Analyze Tool also helps in finding hidden trends and patterns, gain insight into emerging fields of research, identify leading researchers, institutions, and journals, and trace the history of a particular field of study. The access to Web of Science is provided to 100 universities of the consortium through the N-LIST Programme funded by MHRD.

3.5.9. J-Gate Custom Content for Consortium (JCCC) Database)

J-Gate Custom Content for Consortium is a virtual library of journal literature created as a customized e-journals access gateway and database solution. It acts as a one point access to 7900+ journals subscribed currently under UGC INFONET Digital library consortium as well as university libraries designated as Inter Library Loan (ILL) Centers besides index to open access journals. Inflibnet has identified 22 potential universities as ILL Centres in the country to fulfill ILL request from the users affiliated to universities covered under UGC Infonet Digital Library Consortium.

JCCC has facility to trigger e-mail request for article to Inter Library Loan Centers as well as to INFLIBNET Centre.

3.5.10. JSTOR

JSTOR was founded in 1995 to build trusted digital archives for scholarship. Today, we work with the scholarly community to preserve their work and the materials they rely upon, and to build a common research platform that promotes the discovery and use of these resources. In

2009, JSTOR merged with and became a service of ITHAKA, a not-for-profit organization helping the academic community use digital technologies to preserve the scholarly record and to advance scholarship and teaching in sustainable ways. The majority of the content in the archive is journal literature, through inclusion of other materials such as conference proceedings, transactions, pamphlets, monographs, manuscripts, and other materials is growing.

Currently, there are more than 2000 titles, including previous titles, as well as other content available. New titles and other materials are being added regularly.

3.6. Usage of UGC INFONET Digital Library Consortium in NEHU

NEHU has two campuses, one located at Shillong (Headquarters) and the other at Tura. In addition to academic departments/centres and supporting facilities, the campus also has residential quarters for teaching and non-teaching staff, separate halls of residence for boys and girls providing limited accommodation, international hostel, health centre, guest houses, auditoria, indoor and outdoor sports facilities, shopping complex, cafeteria, bank, post office, etc. Besides, Science Museum of National Council of Science Museums and campuses of Indira Gandhi National Open University (IGNOU), Indian Council of Social Science Research (ICSSR), English and Foreign Languages University (EFLU) and Sports Authority of India (SAI) are also located on the campus in Shillong. NEHU has 8 School of Studies with 42 departments located at two campuses.

Table 3.1: List of School Wise Faculty members of NEHU

School of Physical Sciences		
Sl.No.	**Name of Department**	**No.of faculty**
1.	Chemistry	20
2.	Mathematics	12
3.	Physics	9
4.	Statistics	6

School of Social Sciences		
1.	History	10
2.	Political Science	11
3.	Sociology	7
4.	Law	8
5.	Cultural & Creative Studies	4
6.	History & archaeology	3
School of Life Sciences		
1.	Biochemistry	11
2.	Biotechnology & Bioinformatics	7
3.	Botany	14
4.	Zoology	14
School of Human and Environmental Sciences		
1.	Anthropology	11
2.	Geography	10
3.	Environmental Studies	6
4.	Rural Development & Agricultural Production	
School of Humanities		
1.	English	15
2.	English (Tura Campus)	8
3.	Garo	4
4.	Hindi	4
5.	Khasi	7
6.	Linguistic	5
7.	Philosophy	9
School of Economics ,Management & Information Sciences		
1.	Commerce	7
2.	Economics	13
3.	Library & Information Science	6

4.	Management	8
5.	Journalism & Mass Communication	3
School of Education		
1.	Education	12
2.	Education (Tura Campus)	4
3.	Adult and Continuing Education	8
4.	Centre for Distance Education	2
5.	Centre for Science Education	4
School of Technology		
1.	Electronic & Communication Engineering	11
2.	Information Technology	11
3.	Basic Sciences & Social Sciences	15
4.	Nanotechnology	2
5.	Energy Engineering	4
6.	Computer Applications	3
7.	Architecture	3
	Total	331

Source: http:// www.nehu.ac.in/. Retrieved on 27th May 2015

The monitoring of the usage of consortium is not a simple task. Most of the electronic resources available through consortia are served from server maintained and controlled by publishers, aggregators and vendors. They control the statistics and we are rely upon them.This has created problems in obtaining usage statistics for E-journals.With new standards like COUNTER (Counting Online Usage of Networked Electronic Resources) has made libraries to serve librarians, publishers by facilitating the recording and exchange of online usage statistics .The North Eastern Hill University (NEHU), Shillong is covered under UGC Inflibnet Digital Library consortium. The following are some of the resources accessed by NEHU through UGC-INFONET Digital Library consortium:

- Science Direct 10 subject collection

- ❖ Wiley-Blackwell 908 titles
- ❖ Download Titles of UGC INFONET e-journals
- ❖ UGC INFONET e-journals Subject-wise
- ❖ Web of Science
- ❖ Other UGC INFONET Databases
- ❖ J-Gate Custom Content for Consortia (JCCC)

As the scholar has started data collection from 2011, the analysis of usage statistics of the three universities is started from 2011 to 2014.The tables and figures given below highlight the usage statistics of full text access of journals and databases by North Eastern Hill University during the year 2011, 2012, 2013 and 2014.

Table 3.2: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2011.

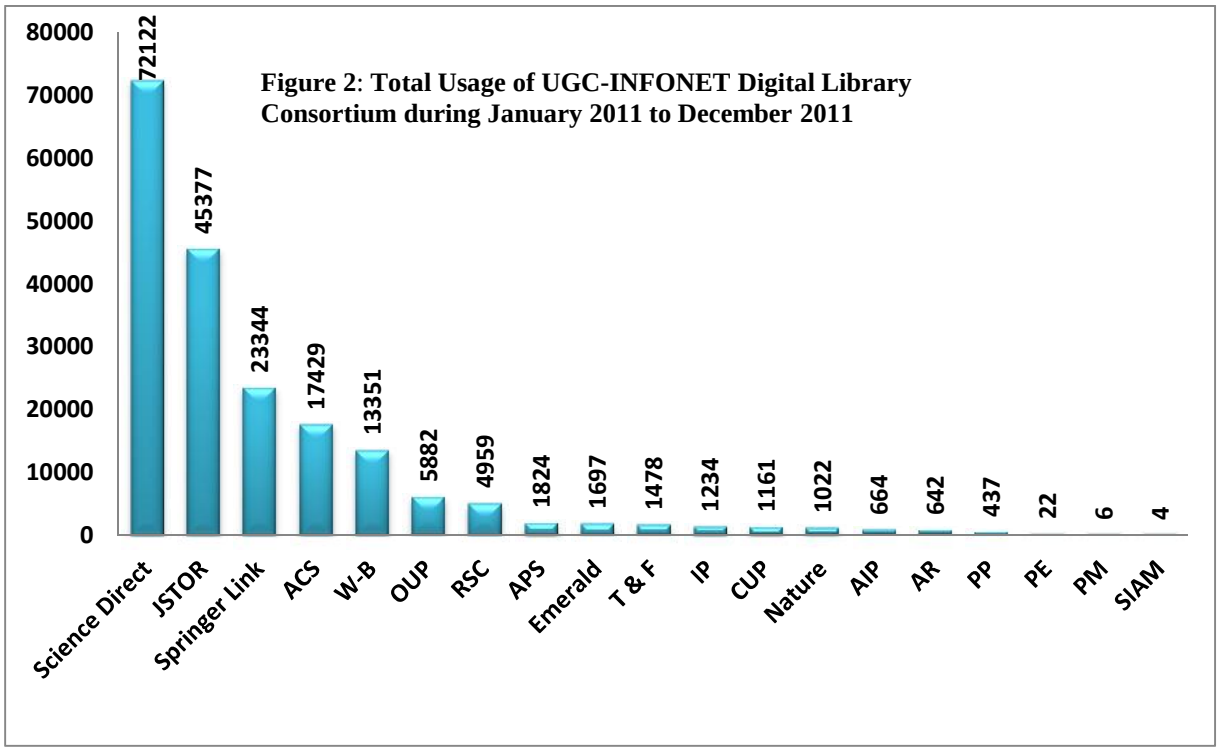
Plateform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	5176	12324	12547	2325	1164	5494	6920	5038	6131	3932	4435	6636	72122
JSTOR	741	2540	4359	6841	6802	5495	3638	3411	3081	3837	3195	1437	45377
Springer Link	722	1728	2908	2658	2276	2568	2065	2086	2154	1420	1546	1213	23344
ACS	496	1100	2262	2226	2818	1483	1681	1220	1217	1266	1093	567	17429
W-B	466	884	1282	1294	1647	1223	1422	1115	1519	738	1020	741	13351
OUP	257	467	376	347	699	697	507	504	655	386	587	400	5882
RSC	126	179	616	469	632	461	485	473	316	538	476	188	4959
APS	76	139	173	260	122	96	372	228	56	124	101	77	1824
Emerald	44	22	178	316	183	182	59	140	143	155	214	61	1697
T & F	189	149	333	807	0	0	0	0	0	0	0	0	1478
IOP	92	95	186	116	96	67	82	144	81	70	148	57	1234
CUP	18	95	91	120	98	152	109	113	117	111	77	60	1161
Nature	108	365	399	37	11	0	0	36	23	17	14	12	1022
AIP	42	49	71	84	57	37	50	39	39	130	37	29	664
AR	22	49	110	74	58	52	35	52	28	53	79	30	642
PP	17	37	37	34	33	36	54	46	44	28	41	30	437
PE	0	0	0	1	0	0	4	0	0	1	16	0	22
PM	0	0	0	0	1	0	2	0	1	1	0	1	6
SIAM	0	0	1	1	1	0	0	0	1	0	0	0	4

Source: Collected from Central Library, NEHU

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IOP- Institute of Physics, *AR- Annual Review,

*AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press.

Graph 3.1: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2011



The above table 3.2 and graph 3.1 reflects that during the year 2011, the highest usage was from Science Direct and the number of usage is 72,122. The second highest usage was from JSTOR and the number is 45,377 and the third highest usage was from Spriger link and the next highest publisher is ACS. The number of usage from Project Euclid, Project Muse ans SIAM were very low as compared to others.

Table 3.3: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2012.

Plateform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	4335	4380	7795	6117	6731	5743	4549	4323	4545	3647	3732	2219	58116
JSTOR	1200	2428	5187	4710	7235	5634	3738	4371	4615	4524	4110	1980	49732
Springer Link	1007	1327	2237	2547	2534	2163	1427	1539	1613	25	0	0	16419
W-B	537	960	1097	1378	1943	1686	1670	1368	925	1176	873	613	14226
ACS	833	1020	1540	1203	1408	1440	1431	1173	781	907	945	572	13253
OUP	382	475	666	768	830	1197	687	622	678	510	469	360	7644
RSC	270	370	464	657	632	568	689	549	401	562	646	198	6006
T & F	146	307	386	36	95	117	378	335	467	379	262	346	3254
APS	88	58	271	195	224	289	248	272	473	155	88	55	2416
Emerald	100	139	144	204	435	215	270	21	395	48	154	59	2184
IP	27	83	275	168	194	286	173	328	252	104	160	44	2094
CUP	44	112	129	241	156	150	86	89	74	113	69	74	1337
AR	30	37	28	69	105	98	63	54	136	75	37	20	752
AIP	30	61	87	86	118	90	51	43	63	52	42	20	743
PM	0	0	0	0	99	125	26	175	49	26	43	0	543
PP	18	24	24	49	63	58	59	68	88	29	27	16	523
Nature	19	3	36	8	24	23	36	53	34	15	1	0	252
PE	0	0	0	6	2	3	14	7	4	9	6	0	51
SIAM New	0	0	0	0	0	0	3	0	0	1	1	0	5
SIAM	0	0	0	1	0	3	0	0	0	0	0	0	4

Source: Collected from Central Library, NEHU

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press.

From the table 3.3 and graph 3.2, it is found that during the year 2012, the number of download was highest from Science Direct i.e.58, 116. The second highest total downloads was 16419 of JSTOR and followed by third highest usage was from Springer Link. The lowest number of access was from Project Euclid, SIAM New and SIAM as listed in the table.

Graph 3.2 : Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2012.

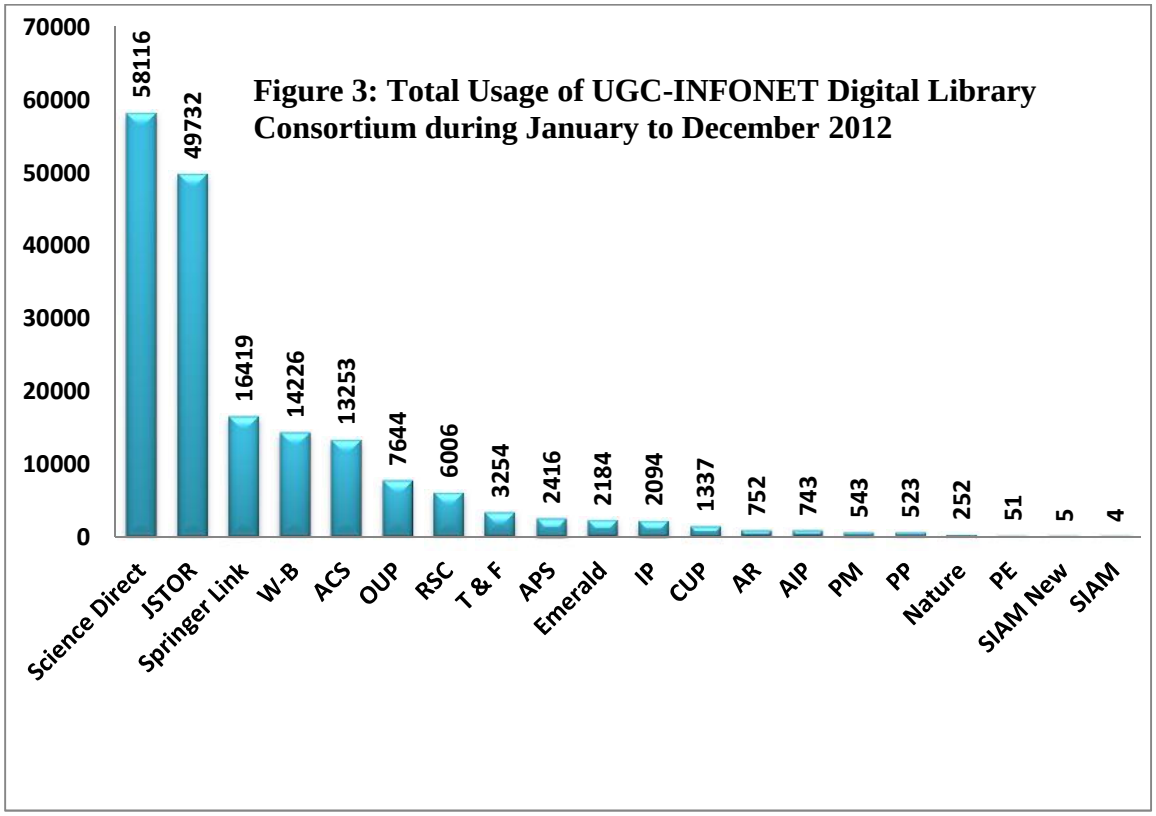


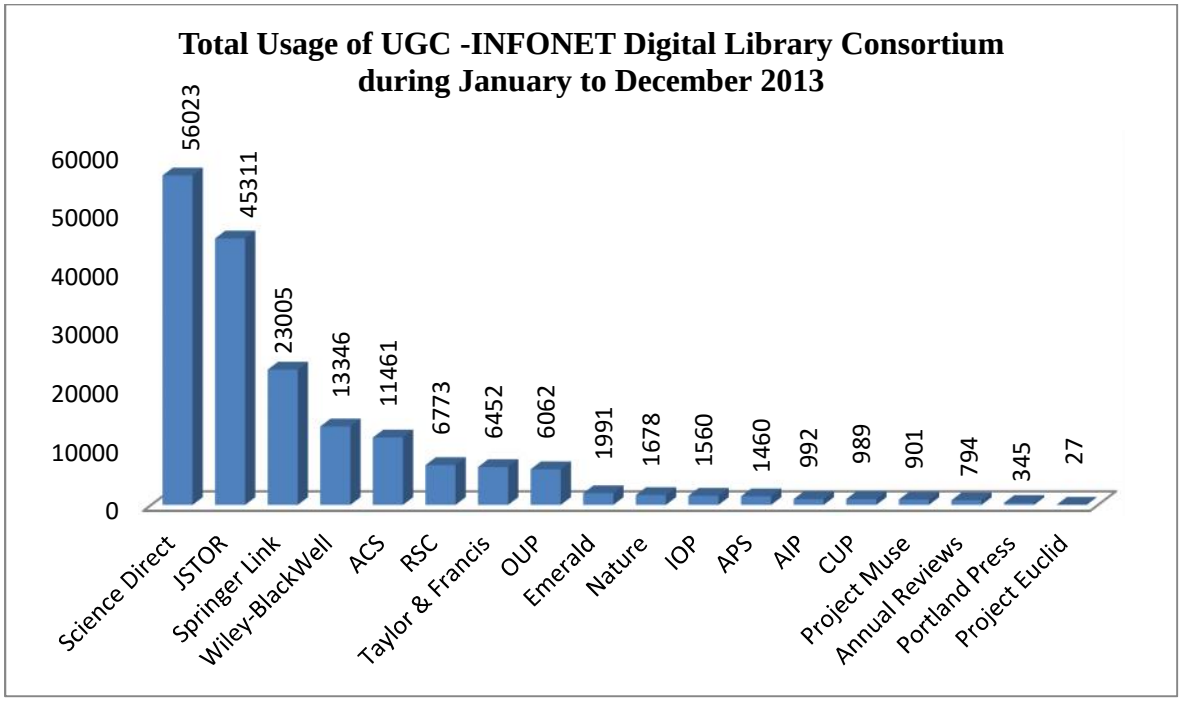
Table 3. 4: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January 2013 to December 2013

Platform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	2225	3869	5846	5414	4938	5054	5213	5902	4471	4024	5323	3744	56023
JSTOR	581	2361	4534	4717	7084	4479	3120	2585	4186	4661	5306	1697	45311
Springer Link	1366	1636	1921	2548	2762	2602	2164	1780	1728	1922	1450	1126	23005
Wiley-BlackWell	659	828	1415	1597	1812	1225	1263	1330	1405	953	859		13346
ACS	599	664	1119	1132	1146	1169	1136	1315	479	578	1527	597	11461
RSC	210	373	751	587	665	580	526	975	616	544	655	291	6773
Taylor &Francis	156	276	458	407	842	520	1050	468	501	563	869	342	6452
OUP	542	404	686	580	675	613	513	581	432	318	363	355	6062
Emerald	24	62	68	889	451	64	33	34	18	25	306	17	1991
Nature	6	17	17	12	188	189	218	248	247	144	239	153	1678
IOP	45	242	320	119	98	138	106	98	120	104	105	65	1560
APS	77	106	102	179	150	165	194	187	114	43	89	54	1460
AIP	102	122	156	282	95	103	6		13	28	41	44	992
CUP	56	67	92	77	102	111	143	100	66	52	79	44	989
Project Muse	9	40	79	76	122	80	103	61	162	61	83	25	901
Annual Reviews	26	28	67	74	80	75	74	92	56	136	70	16	794
Portland Press	26	37	31	36	31	21	45	50	19	19	25	5	345
Project Euclid	0	1	1	2	4	1	1	8	3	0	6	0	27
SIAM	0	4	3		1	2	1	1			3	1	16

Source: Central Library, NEHU

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press.

Graph 3.3: Usage Statistics of UGC INFONET Digital Library Consortium in NEHU during January to December 2013



From the above table 3.4 and graph 3.3, it is found that Science Direct is the highest downloaded publishers by the users of NEHU. Total 56,023 papers have been downloaded by the faculty members as well as researchers and students. The next highest downloaded is JSTOR. 45, 311 papers from JSTOR have been downloaded during the year 2013 and 23,005 papers from Springer link is also downloaded by the users. 13,346 papers from Wiley-Blackwell have been downloaded and followed by 11,461 of ACS, 6773 of RSC, 6452 of Taylor & Francis respectively. The least usage is project Euclid which is only 27 papers has been downloaded by the users.

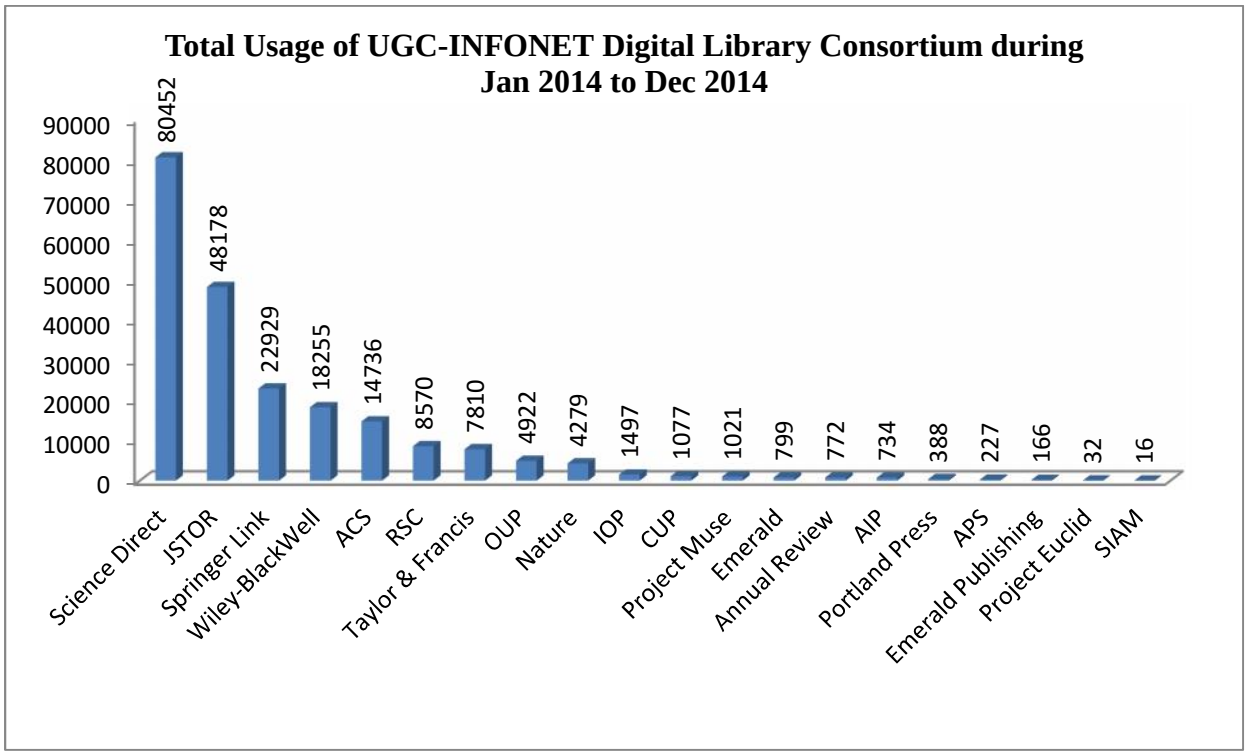
Table 3.5: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2014

Platform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	2956	4341	7704	7783	6075	7072	8427	8841	7279	5883	9006	5085	80452
JSTOR	1358	2549	7676	3528	6726	5450	3781	3770	3868	3305	3838	2334	48178
Springer Link	1194	1525	2105	1954	1607	2093	2103	2831	2423	1732	1794	1568	22929
Wiley-BlackWell	715	986	1979	1794	1376	1655	1775	1494	1971	1440	1127	1943	18255
ACS	131	736	1456	1674	1025	1592	1491	1452	1330	1371	1414	1064	14736
RSC	362	885	1069	668	434	827	669	832	922	714	670	518	8570
Taylor & Francis	237	378	914	677	840	551	697	498	627	434	738	1219	7810
OUP	285	333	177		357	703	589	527	565	396	500	490	4922
Nature	0	222	72	247	11	462	611	433	627	531	525	538	4279
IOP	72	98	202	92	108	110	132	97	120	173	181	112	1497
CUP	77	85	158	85	91	91	58	110	103	91	61	67	1077
Project Muse	73	147	167	104	55	141	59	52	47	100	40	36	1021
Emerald	4	58	294	119	157	167							799
Annual Review	27	43	110	62	63	95	69	60	91	35	50	67	772
AIP	33	21	35	43	41	73	149	80	66	57	68	65	734
Portland Press	10	39	28	51	18	25	66	43	48	30	18	12	388
APS	29	21	11	0	31	27	1	2	28	15	1	61	227
Emerald Publishing									58	55	53		166
Project Euclid	1	3	0	1	0	1	10	1	4	4	4	3	32
SIAM	0	0	2	0	1	0	3	4	0	5	0	1	16

Source: Central Library, NEHU

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press.

Graph 3.4: Usage Statistics of UGC-INFONET Digital Library Consortium in NEHU during January to December 2014



The above table and graph indicates that in 2014, 80,452 papers from Science Direct have been downloaded by the faculty members, Researchers and students of NEHU which is the highest among of all other publishers. The next highest publisher is JSTOR and the least downloaded paper is from SIAM.

From the above tables 3.2, 3.3, 3.4 and 3.5 it is analyzed that the Science Direct is the highest usage among of all publishers and the downloading of paper is increased annually. Some of the publishers whose usage are highest and increase every year are Science Direct, JSTOR, Springer

Link, Wiley Blackwell. The reason of the highest usage of these publishers is because of multidisciplinary subject. The lowest usage publishers are SIAM, Project Muse and Project Euclid.

3.7. Usage of UGC-INFONET Digital Library Consortium at Manipur University

There are five School of studies with full-fledge P.G. teaching Departments under the Manipur university. They are school of Humanities, School of Life Sciences, School of Social Science and School of Medical Science and School of Mathematical and Physical Sciences. Manipur University is having a college development council headed by a director to serve as an academic guide to the college system and to ensure inter action between the academic facilities in the university departments and those in the colleges.

Table 3.6: List of School Wise Faculties Members of Manipur University

School of Humanities		
Sl.No.	**Name of Department**	**No.of faculty**
1.	English	10
2.	Hindi	7
3.	Linguistics	8
4.	Manipuri	12
5.	Manipuri Dance	4
6.	Philosophy	7
School of Social Sciences		
1.	Adult Education and Extension	4
2.	Commerce	6
3.	Economics	9
4.	Education	4
5.	History	12
6.	Library & Information Science	6
7.	Mass Communication	5

8.	Manipur Institute of Management Studies	9
9.	Political Science	8
School of Life Sciences		
1.	Biochemistry	7
2.	Biotechnology	4
3.	Life Sciences	22
School of Human and Environmental Sciences		
1.	Anthropology	6
2.	Earth Science	7
3.	Geography	5
4.	Physical Education & Sport Sciences	8
School of Mathematical and Physical Sciences		
1.	Chemistry	12
2.	Computer Sciences	10
3.	Mathematics	8
4.	Physics	8
5.	Statistics	6
Total		**259**

Source: Manipur University Annual Report 2012-13

Manipur University Library is in the forefront of library automation and networking in the North East India. The library became a node of INFLIBNET since 1993.It has three databases viz: i) Books ii) Serials and iii) Thesis are incorporated in the union databases of INFLIBNET, Ahmedabad. The library is also a member of UGC-INFONET e-journal consortium. The consortium provides current as well as archival access to more than 8600 core and peer-reviewed journals and nine bibliographic databases from 23 publishers and aggregators in different disciplines. This facility is extended to other departments by Fiber Optic Cables and Wi-Fi. Manipur University library access the following e-resources through UGC-INFONET Digital Library Consortium:

- American Chemical Society
- American Institute of Physics
- American Physical Society
- Springer link
- Elsevier Science
- Emerald, Full Collection
- Institute of Physics
- JSTOR (Archival Access)
- Nature
- Oxford University Press
- Portland Press
- Project Euclid
- Project Muse
- Royal Society of Chemistry
- Society of Industrial and Applied
- Mathematics (SIAM)
- Taylor & Francis
- MathSciNet

- Institute for Studies in Industrial Development (ISID)
- JCCC

The tables and figures given below highlight the usage statistics of full text e-journals and Databases accessible through UGC-INFONET Digital Library Consortium by Manipur University during the year 2011, 2012, 2013 and 2014.

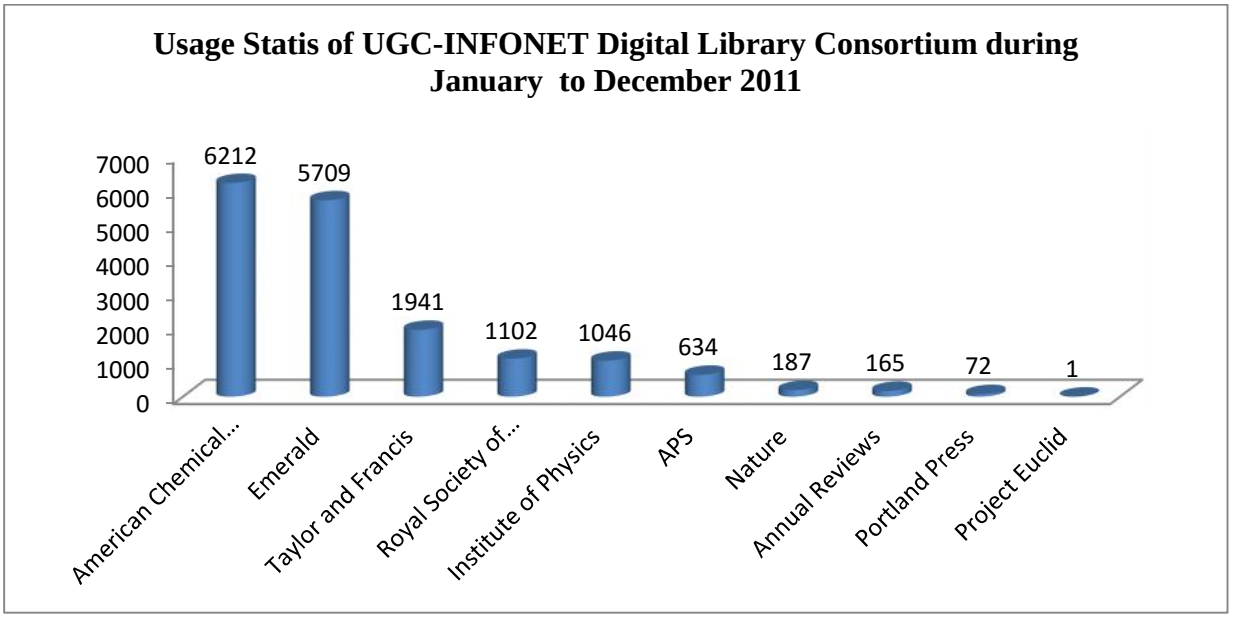
Table 3.7: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2011

Plateform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
American Chemical Society	258	1029	552	541	720	532	417	194	860	287	579	243	6212
Emerald	46	103	122	40	259	20	29	9	659	3902	239	281	5709
Taylor and Francis								514	353	260	547	267	1941
Royal Society of Chemistry	43	122	30	55	151	186	82	56	72	101	165	39	1102
Institute of Physics	48	67	105	88	147	125	82	32	53	87	142	70	1046
APS	41	83	72	65	133	33	43	16	52	33	31	32	634
Nature	23	118	27	19	0	0	0	0	0	0	0	0	187
Annual Reviews	9	20	5	4	14	2	33	12	30	23	4	9	165
Portland Press	15	9	2	5	4	2	12	8	6	2	5	2	72
Project Euclid	0	0	0	0	0	1	0	0	0	0	0	0	1

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.5: Usage Statistics of UGC-INFONET Digital Library Consortium in MU during January to December 2011



The above table 3.7and graph 3.5 indicates that the highest downloaded publisher is American Chemical Society. 6,212 papers from ACS have been downloaded by the users of MU and followed by 5,709 of Emerald, 1,941 of Taylor & Francis, 1,102 of RSC, 1,046 of Institute of Physics, 634 of American Physical Society respectively. The least downloaded publishers are Portland Press and Project Euclid.

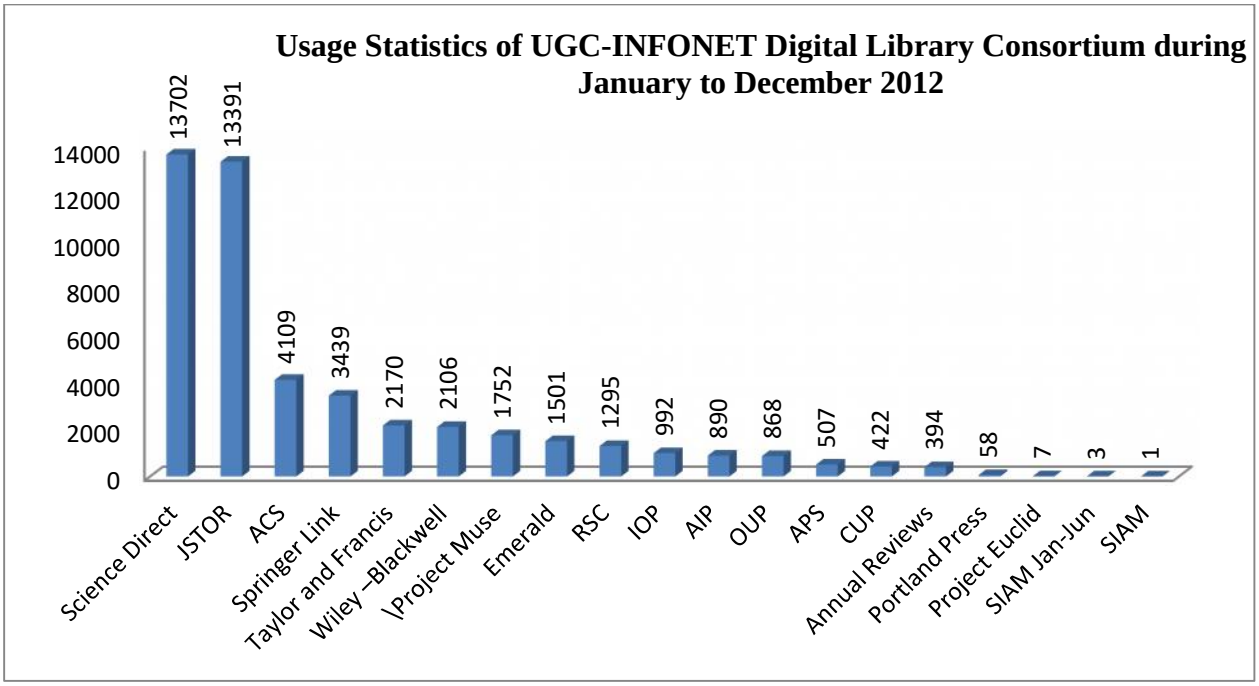
Table 3.8: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2012

Plateform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	698	991	1265	2104	1132	872	933	1170	1639	1532	970	396	13702
JSTOR	1435	1161	1561	618	1581	1181	1540	933	1029	1147	846	359	13391
American Chemical Society	249	437	320	434	308	315	260	273	633	564	184	132	4109
Springer Link	271	293	397	359	604	379	415	301	398	19	3	0	3439
Taylor and Francis	111	144	136	243	214	188	131	186	198	257	129	233	2170
Wiley – Blackwell	141	183	167	152	179	142	143	167	197	247	275	113	2106
\Project Muse	221	0	61	227	8	177	554	54	180	63	146	61	1752
Emerald	6	51	115	32	376	18	0	73	85	610	134	1	1501
Royal Society of Chemistry	70	149	112	109	106	77	89	111	157	152	63	100	1295
Institute of Physics	41	56	133	124	97	52	102	102	112	82	43	48	992
American Institute of Physics	24	77	85	123	88	87	52	146	92	66	36	14	890
Oxford University Press	76	62	32	80	149	53	83	115	64	73	61	20	868
APS	30	65	54	87	38	19	46	70	37	32	6	23	507
Cambridge University Press	8	15	38	22	124	9	28	74	40	41	20	3	422
Annual Reviews	8	36	24	40	85	58	12	39	34	37	9	12	394
Portland Press	1	1	10	2	12	4	15	3	1	7	1	1	58
Project Euclid	0	1	1	4	0	0	0	0	0	0	0	1	7
SIAM Jan-Jun(New)	0	0	0	0	3	0	0	0	0	0	0	0	3
SIAM	0	0	0	0	0	0	0	0	1	0	0	0	1

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.6: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2012



The table 3.8 and graph 3.6 shows that the faculty members and students have downloaded more papers from Science Direct which is the highest among other publishers and is followed by JSTOR which is the next highest. The downloading of paper from American Chemical Society is decreased in 2012 as compare to 2011 and it is due to the highest downloading in Science Direct and JSTOR. The downloading of paper from Project Euclid is increased to 7 from 1 in 2012.The least usage is SIAM.

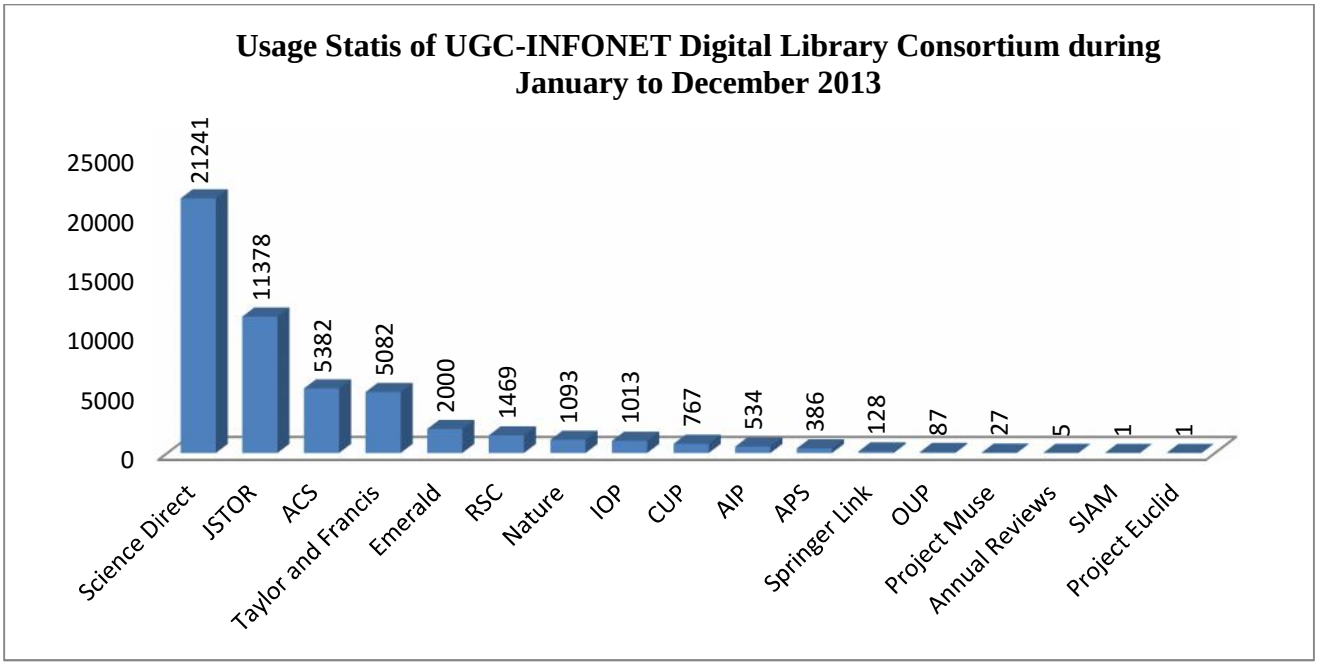
Table 3.9: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2013

Plateform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	432	1503	1243	1431	1466	1266	3197	1741	3899	2297	1058	1708	21241
JSTOR	316	1416	967	959	951	1108	1135	633	702	993	1195	1003	11378
American Chemical Society	167	482	384	801	321	310	458	312	1119	396	249	383	5382
Taylor and Francis	167	462	368	308	185	257	287	235	704	770	789	550	5082
Emerald	8	564	282	324	332	115	23	2	81	27	211	31	2000
Royal Society of Chemistry	37	54	86	141	102	242	262	111	181	99	82	72	1469
Nature	14	27	38	55	171	144	80	43	227	61	174	59	1093
Institute of Physics	38	43	65	137	151	71	58	56	103	87	68	136	1013
Cambridge University Press	5	50	47	51	22	47	57	138	168	61	18	103	767
American Institute of Physics	15	48	56	93	113	97	1		23	52	19	17	534
APS	8	38	34	54	27	29	16	19	29	20	27	85	386
Springer Link	128	0	0	0	0	0	0	0	0	0	0	0	128
Oxford University Press	17	0	0	0	0	0	0	0	0	0	0	70	87
Project Muse	27	0	0	0	0	0	0	0	0	0	0	0	27
Annual Reviews	5	0	0	0	0	0	0	0	0	0	0	0	5
SIAM	0	0			1								1
Project Euclid	0	0	0	0	0	0	0	0	0	1	0	0	1

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.7: Usage Statistics of UGC-INFONET Digital Library Consortium in MU during January to December 2013



It is evident from the table 3.9 and graph 3.7, Science Direct and JSTOR are highest downloaded publishers with the total of 21,241 and 11,378 and followed by 5382 of ACS, 5082 of Taylor & Francis, 2000 of Emerald, 1469 of RSC, 1093 of Nature, 1013 of IOP respectively. It is also found that Project Euclid is decreased to 1 in 2013 from 7 of 2012.

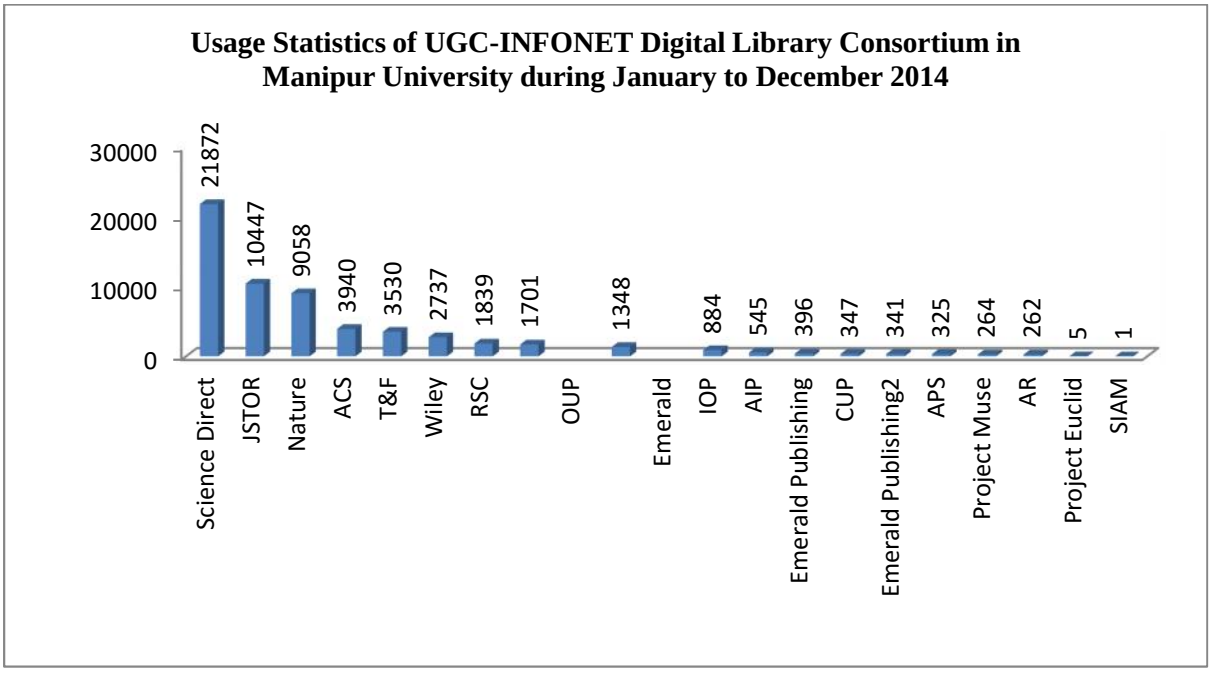
Table 3.10: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2014.

Platform	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
Science Direct	2724	2072	2288	2530	2232	1046	1890	2590	1369	1346	712	1073	21872
JSTOR	811	882	1147	773	1059	700	878	1404	1046	516	632	599	10447
Nature	0	661	24	48	2136	1445	418	2974	1105	161	25	61	9058
ACS	712	477	215	402	311	208	333	314	533	167	59	209	3940
T&F	469	364	398	251	334	136	496	358	164	114	180	266	3530
Wiley	22	469	333	299	265	221	227	180	281	154	127	159	2737
RSC	338	254	122	195	99	71	145	128	153	126	67	141	1839
OUP	188	93	195	157	226	125	129	113	156	142	57	120	1701
Emerald	178	591	107	104	212	156							1348
IOP	107	93	68	104	85	38	26	42	113	57	41	110	884
AIP	27	21	39	100	73	44	4	36	56	68	35	42	545
Emerald Publishing							0	28	76	135	130	27	396
CUP	39	11	24	46	35	33	48	58	17	8	14	14	347
Emerald Publishing2									76	135	130		341
APS	39	28	60	24	26	16	2	17	27	56	19	11	325
Project Muse	0	0	0	84	34	21	31	17	15	33	15	14	264
AR	6	9	13	9	30	26	62	14	19	11	9	54	262
Project Euclid	1	0	0	1	0	0	0	0	1	1	0	1	5
SIAM	0	0	0	0	0	0	1	0	0	0	0	0	1

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.8: Usage Statistics of UGC-INFONET Digital Library Consortium in Manipur University during January to December 2014



The above table 3.10 and graph 3.8 shows that maximum papers have been downloaded from Science Direct and JSTOR with a total of 21872 and 10447. The least downloaded publisher is Project Euclid and SIAM.

3.8. Usage of UGC -INFONET Digital Library Consortium at Mizoram University

Mizoram University in the current scenario has changed immensely since the recent move of the main administration to its permanent campus at Tanhril. The University is now well consolidated in its main campus. At present, there are 27 Under-Graduate Colleges including 2 Professional Institutions affiliated to the University. The total roll-strength in these institutions is approximately 8279 students. There are altogether 7 different schools of study constituting 30 various academic departments covering the streams of Science, Social Science, Engineering, etc. The following are the list of different schools with different academic departments attached to the respective schools. Two new Departments, namely, Electrical Engineering and Computer Engineering had

commenced their B.Tech course from August 2012. The School is in the process of setting up a Central Engineering Workshop. The list of faculty members department wise is given in Table 13.

Table 3.11: List of School Wise Faculty Members of Mizoram University

School of Earth Sciences & Natural Resource Management		
Sl.No.	**Name of the Department**	**No. of Faculty**
1.	Environmental Science	7
2.	Extension Education & Rural Development	1
3.	Forestry	9
4.	Geography & Resource Management	6
5.	Geology	5
6.	Horticulture Aromatic and Medicinal Plant	4
School of Economics ,Management & Information Science		
1.	Commerce	6
2.	Economics	6
3.	Library & Information Science	7
4.	Management	7
5.	Mass Communication	4
School of Education and Humanities		
1.	Education	7
2.	Hindi	5
3.	English	6
4.	Mizo	6
School of Engineering Technology		
1.	Computer Engineering	3
2.	Electrical Engineering	3
3.	Electronic & Communication Engineering	4
4.	Information Technology	3

School of Life Sciences		
1.	Biotechnology	4
2.	Batany	6
3.	Zoology	6
School of Physical Sciences		
1.	Chemistry	6
2.	Mathematics & Computer Science	6
3.	Physics	8
School of Social Sciences		
1.	History & Ethnography	5
2.	Political Science	5
3.	Psychology	5
4.	Public Administration	6
5.	Social Work	6
Total		162

Mizoram University is a member of UGC- INFONET Digital Library Consortium which is covered in phase III through which the students, faculty and staff can access more than 8000 core and peer-reviewed journals and 10 bibliographic databases from 23 publishers and aggregators in different disciplines. List of e-resources access through UGC-INFONET Digital Library Consortium is given below:

Table 3.12: List of E-Resources subscribed at Mizoram University through UGC-INFONET Digital Library Consortium

Mizoram University			
Sl.No.	**Resource Name**	**Resources URL**	**No. of Journals**
1.	American Chemical Society	http://pubs,acs,org/	37

2.	American Institute of physics	http://journals.aip.org/	18
3.	American Physical Society	http://publish.aps.org/browse.php	10
4.	Annual Reviews	http://arjournals.annualreviews.org/	33
5.	Cambridge University Press	http://journals.cambridge,org/	224
6.	Economic & Political Weekly	http://epw.in/	1
7.	Emerald	http://www.emeraldinsight.com/	29
8.	Institute of Physics	http://iopscience.iop.org/journals	46
9.	ISID	http://isid.org.in/	Database
10.	JCCC	http://www.jccc-ugcinfonet.in/	Database
11.	JSTOR	http://www.jstor.org/	2000+
12.	Math SciNet	http://www.ams.org/mathscinet	1 Database
13.	Nature	http://www.nature.com/	1
14.	Oxford University Press	http://www.oxfordjournals.org	198
15.	Portland Press	http://www.portlandpress.com/	8
16.	Project Euclid	http://projecteuclid.org	30
17.	Project Muse	http://muse.jhu.edu/journals	500+
18.	Royal Society of Chemistry	http://www.rsc.org/	29+6 Databases
19.	Springer Link	http://link.springer.com	1389+
20.	Taylor & Francis	http://www.tandfonline.com/	1079

21.	Web of Science	http://apps.isiknowledge.com/	1 Database
22.	Wiley -Blackwell	http://onlinelibrary.wiley.com/	908

The usage statistics of UGC-INFONET Digital Library Consortium from 2011 to 2014 of Mizoram University are discussed below:

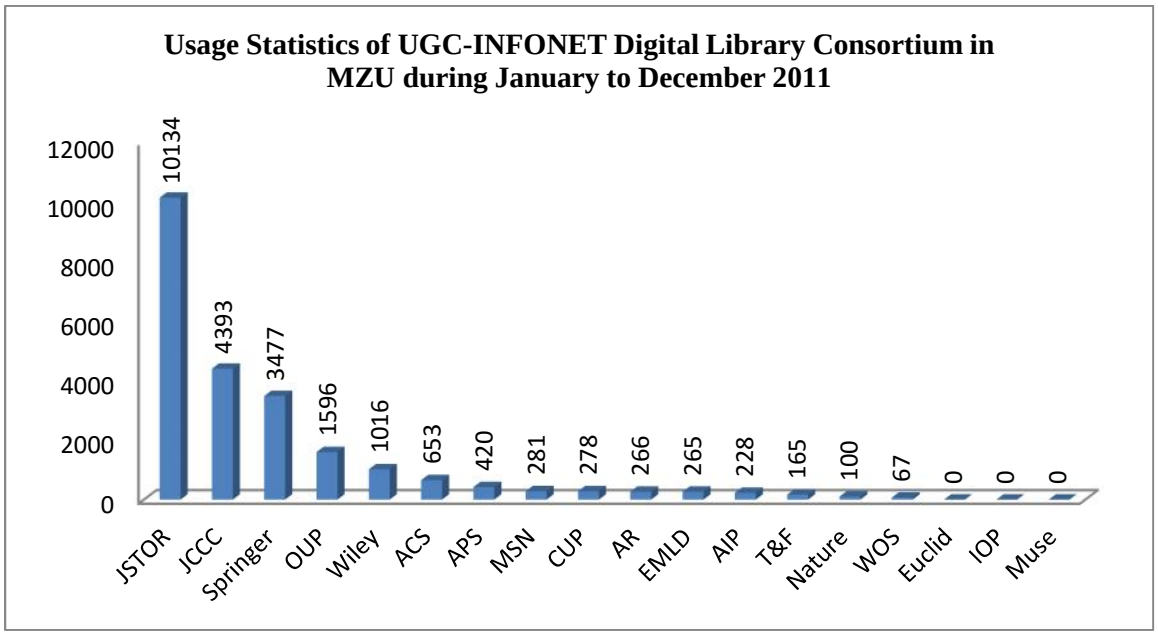
Table 3.13: Usage of UGC-INFONET Digital Library Consortium in Mizoram University during January to December 2011

Platform	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
JSTOR	118	924	633	778	1527	1189	583	1133	1079	1185	734	251	10134
JCCC	50	168	212	986	357	1528	34	12	310	402	251	83	4393
Springer	22	148	377	380	342	593	198	203	286	366	373	189	3477
OUP	21	24	85	184	256	284	68	162	96	235	138	43	1596
Wiley	31	43	54	128	146	221	73	65	79	65	85	26	1016
ACS	14	42	31	56	41	133	129	22	74	7	84	20	653
APS	0	2	17	186	83	28	104	0	0	0	0	0	420
MSN	0	59	19	170	26	0	0	0	0	6	1	0	281
CUP	0	31	22	50	18	16	7	16	22	25	54	17	278
AR	3	50	39	27	14	4	19	21	10	10	69	0	266
EMLD	0	0	49	10	22	3	0	35	10	53	73	10	265
AIP	25	0	9	26	43	20	11	14	6	11	40	23	228
T&F	15	42	50	58	0	73	0	0	0	0	0	0	165
Nature	1	2	2	3	2	0	0	1	38	10	29	12	100
WOS	0	0	0	0	0	0	4	15	10	24	14	0	67
Euclid	0	0	0	0	0	0	0	0	0	0	0	0	0
IOP	0	0	0	0	0	0	0	0	0	0	0	0	0
Muse	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.9: Usage Statistics of UGC-INFONET Digital Library Consortium in MZU during January to December 2011



The above table 3.13 and graph 3.9 shows that faculty members, Researcher Scholars and Students have downloaded paper from JSTOR which is the highest among of all other publishers. 10,134 papers from JSTOR have been downloaded by the users of Mizoram University.The next highest downloaded paper is from JCCC and followed by 3477 of Springer, 1596 of OUP, 1016 of Wiley, 653 of ACS, 420 of APS respectively. The least downloaded publisher is WOS. Nil paper has been downloaded from Euclid, IOP and Muse.

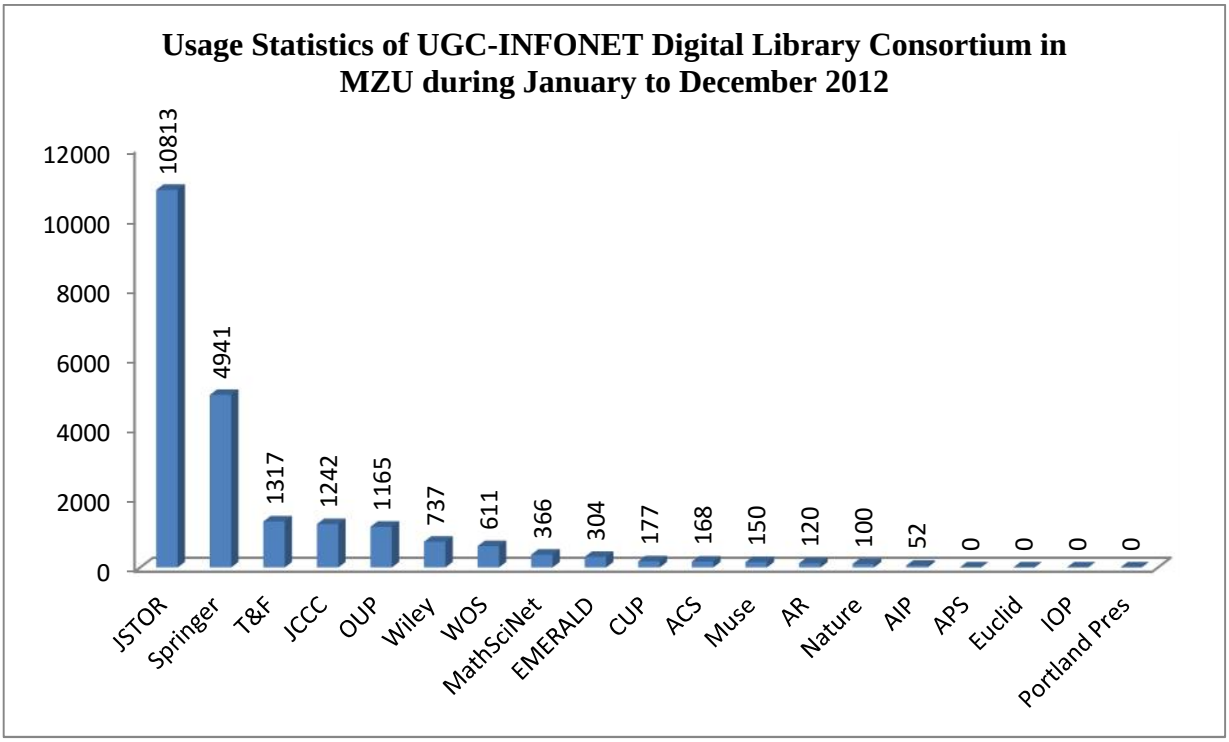
Table 3.14: Usage Statistics of UGC –INFONET Digital Library Consortium in Mizoram University during January to December 2012

Platform	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
JSTOR	296	903	879	576	1206	909	145	1028	1732	1958	1110	71	10813
Springer	209	271	367	603	2304	404	224	274	271	14	0	0	4941
T&F	40	218	164	16	26	6	41	131	225	232	91	127	1317
JCCC	66	153	305	95	178	14	72	25	78	163	84	9	1242
OUP	30	233	102	91	198	76	32	96	75	141	52	39	1165
Wiley	8	56	77	69	134	86	68	42	59	67	29	42	737
WOS	0	36	146	65	92	142	42	33	32	15	7	1	611
MathSciNet	0	11	28	0	24	163	39	10	91	0	0	0	366
Emerald	34	11	24	33	38	6	1	17	46	58	9	27	304
CUP	5	50	2	18	41	13	9	14	4	15	4	2	177
ACS	5	23	64	5	14	6	21	6	5	14	3	2	168
Muse	0	0	0	0	22	28	0	40	29	24	7		150
AR	11	4	10	7	10	12	7	25	13	6	14	1	120
Nature	3	2	9	8	27	11	13	9	7	3	1	7	100
AIP	0	0	7	19	3	0	5	17	0	0	0	1	52
APS	0	0	0	0	0	0	0	0	0	0	0	0	0
Euclid	0	0	0	0	0	0	0	0	0	0	0	0	0
IOP	0	0	0	0	0	0	0	0	0	0	0	0	0
Portland Pres	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.10: Usage Statistics of UGC –INFONET Digital Library Consortium in Mizoram University during January to December 2012



The above table 3.14 and graph 3.10 shows that faculty members, Researcher Scholars and Students have downloaded paper JSTOR which is the highest among of all other publishers. The next highest downloaded paper is from Springer and the least downloaded publisher is AIP. None of the users has downloaded APS, Euclid, IOP and Portland Press.

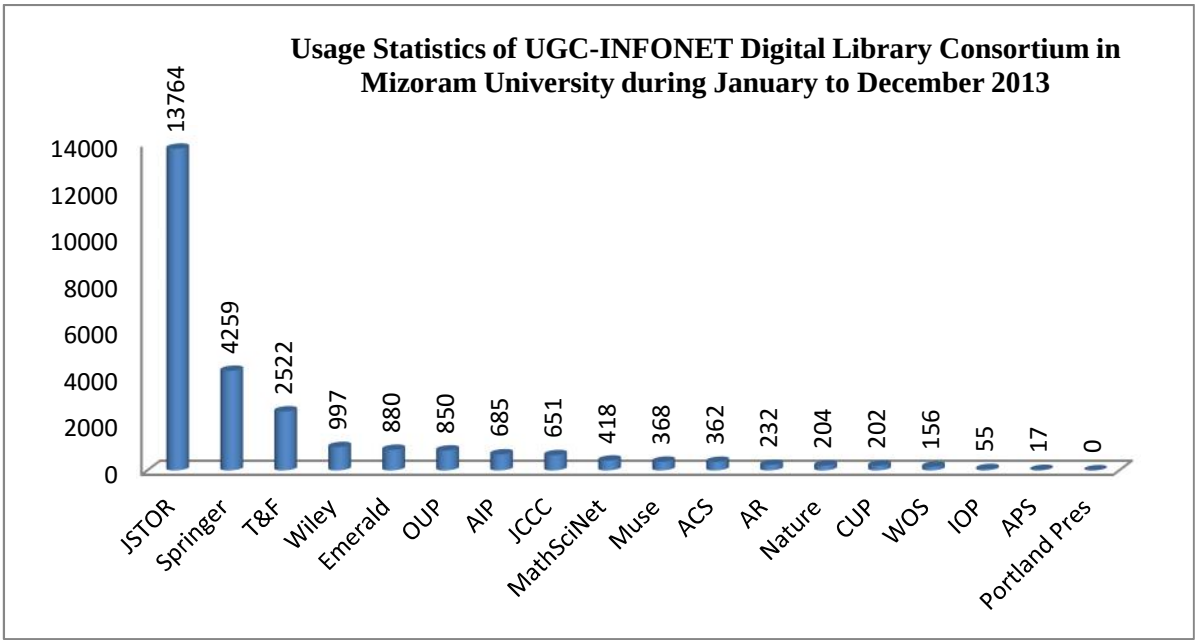
Table 3.15: Usage Statistics of UGC-INFONET Digital Library Consortium in Mizoram University during January to December 2013

Platform	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
JSTOR	75	938	1165	1331	1240	1720	492	357	1921	2398	1538	589	13764
Springer	99	267	391	485	417	554	724	423	294	410	175	20	4259
T&F	7	214	212	234	327	330	124	225	264	329	56	200	2522
Wiley	17	39	91	113	120	136	99	51	169	143	19	0	997
Emerald	0	200	36	20	152	92	92	28	128	96	12	24	880
OUP	16	43	83	85	29	30	40	153	223	117	31	0	850
AIP	0	0	232	287	15	75	6	0	64	6	0	0	685
JCCC	6	167	78	67	47	65	18	41	153	9			651
MathSciNet	34	0	142	66	76	4	42	8	20	16	10	0	418
Muse	0	36	75	42	9	36	9	21	54	51	30	5	368
ACS	2	9	7	12	21	13	12	18	20	42	164	42	362
AR	7	8	20	30	23	9	5	10	24	58	31	7	232
Nature	0	6	15	9	22	41	20	40	25	22	3	1	204
CUP	2	13	13	40	18	17	22	20	23	8	11	15	202
WOS	1	0	2	16	22	29	19	4	11	47	4	1	156
IOP	0	0	0	0	0	0	0	0	0	0	0	55	55
APS	0	0	0	1	0	2	0	0	1	10	1	2	17
Portland Pres	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.11: Usage Statistics of UGC-INFONET Digital Library Consortium in Mizoram University during January to December 2013



The above table 3.15 and graph 3.11 shows that faculty members, Researcher Scholars and Students have downloaded paper JSTOR which is the highest among of all other publishers. The next highest downloaded paper is from Springer and the least downloaded publisher is APS. None of the users has downloaded the Portland Press.

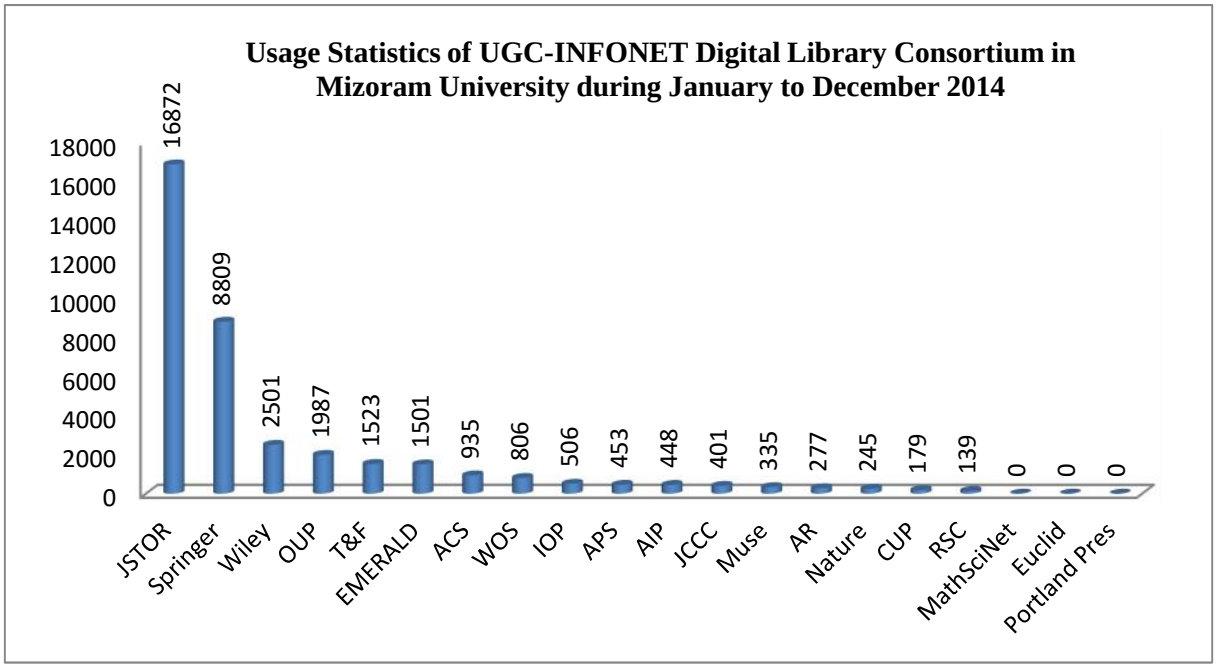
Table 3.16: Usage Statistics of UGC–INFONET Digital Library Consortium in Mizoram University during January to December 2014

Platform	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
JSTOR	105	447	1732	1336	2603	2159	683	1340	2315	1907	1590	655	16872
Springer	12	387	1074	766	574	835	485	934	975	1143	837	787	8809
Wiley	7	1	NA	NA	1	399	331	263	477	428	299	295	2501
OUP	84	229	162	227	222	232	150	214	173	115	90	89	1987
T&F	62	24	79	135	88	298	76	78	316	167	116	84	1523
Emerald	9	6	4	45	37	62	NA	33	625	305	300	75	1501
ACS	2	31	114	106	85	127	87	147	92	53	50	41	935
WOS	0	10	62	9	1	0	146	78	300	86	51	63	806
IOP	12	9	28	7	8	23	63	21	191	101	31	12	506
APS	1	10	6	0	5	5	43	16	77	243	4	43	453
AIP	2	NA	2	13	3	17	13	2	164	191	4	37	448
JCCC	0	18	40	9	2	1	5	14	73	102	106	31	401
Muse	0	14	30	8	47	15	26	15	26	104	38	12	335
AR	37	21	21	16	44	20	10	9	21	29	31	18	277
Nature	0	16	9	20	1	16	12	39	59	15	45	13	245
CUP	0	0	10	18	21	18	10	15	32	28	22	5	179
RSC	0	10	22	19	7	11	5	11	22	18	14	NA	139
MathSciNet	0	0	0	0	0	0	0	0	0	0	0	0	0
Euclid	0	0	0	0	0	0	0	0	0	0	0	0	0
Portland Pres	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Central Library, Manipur University

*ACS- American Chemical Society, *OUP- Oxford University Press, *RSC- Royal Society of Chemistry, *APS- American Physical Society, *IP- Institute of Physics, *AR- Annual Review, *AIP- American Institute of Physics, *PM- Project Muse, *PE- Project Euclid, *PP- Project Press, *T & F- Taylor and Francis, *W-B- Wiley and Blackwell, *CUP- Cambridge University Press

Graph 3.12: Usage Statistics of UGC-INFONET Digital Library Consortium in Mizoram University during January to December 2014



The above table 3.16 and graph 3.12 shows that faculty members, Researcher Scholars and Students have downloaded paper JSTOR which is the highest among of all other publishers. The next highest downloaded paper is from Springer and the least downloaded publisher is RSC. None of the users has downloaded the MathSciNet, Euclid and Portland Press.

3.9. Evaluation of E-Resources of NEHU, MU and MZU

The comparison of usage statistics of different publishers accessible through the UGC-INFONET Digital Library Consortium by the users of North Eastern Hill University, Manipur University and Mizoram University are evaluated by comparing the data from 2011 to 2014 and the following tables are given below:

Table 3.17: Comparison of downloaded publisher wise of UGC-INFONET Digital Library Consortium of NEHU, MU and MZU for the year 2011

	Science Direct	JSTOR	Springer Link	ACS	W-B	OUP	RSC	APS	Emerald	T&F
NEHU	72122	45377	23344	17429	13351	5882	4959	1824	1697	1478
MU				6212			1102	634	5709	1941
MZU		10134	3477	653	1016	1596		420	265	165

IOP	CUP	Nature	AIP	AR	PP	PE	PM	SIAM	JCCC	MathSciNet	WOS
1234	1161	1022	664	642	437	22	6	4			
1046		187		165	72	1	0				
0	278	100	228	266		0	0		4393	281	67

***NEHU:** North Eastern Hill University ***MU**: Manipur University

***MZU:** Mizoram University

The above table 3.17 reveals that NEHU is the only university which has downloaded the Science Direct even though it is the highest publisher downloaded as compared to others publishers but MU and MZU didn't subscribed Science Direct in 2011. The next highest downloaded publisher is JSTOR by NEHU University as compared to MZU whereas MU didn't subscribed JSTOR. In case of Springer link, NEHU download more as compared to MZU whereas MU didn't subscribe. In case of ACS publisher, all the three universities accessed the publisher and NEHU is the university which has downloaded the highest as compared to MU and MZU.

Table 3.18: Comparison of downloaded publisher wise of UGC-INFONET Digital Library Consortium of NEHU, MU and MZU for the year 2012

	Science Direct	JSTOR	Springer Link	W-B	ACS	OUP	RSC	T&F	APS
NEHU	58116	49732	16419	14226	13253	7644	6006	3254	2416
MU	13702	13391	3439	2106	4109	868	1295	2170	507
MZU		10813	4941	737	168	1165		1317	0

Emerald	IOP	CUP	AR	AIP	PM	PP	Nature	PE	SIAM (New)	SIAM
2184	2094	1337	752	743	543	523	252	51	5	4
1501	992	422	394	890	1752	58		7	3	1
304	0	177	120	52	150	0	100	0		

***NEHU:** North Eastern Hill University ***MU**: Manipur University

***MZU:** Mizoram University

The table 3.18 indicates that Science Direct is the highest publisher downloaded in 2012 as compared to other publishers. It is accessed by NEHU and MU and NEHU is more downloaded as compared to MU. But MZU didn't accessed.

The table further shows that the next highest downloaded publisher is JSTOR and NEHU is the university which has downloaded the highest as compared to MU and MZU. In case of Springer Link and ACS, NEHU is the university which has downloaded highest as compared to MU and MZU.

Table 3.19: Comparison of downloaded publisher wise of UGC-INFONET Digital Library Consortium of NEHU, MU and MZU for the year 2013

	Science Direct	JSTOR	Springer Link	W-B	ACS	RSC	T&F	OUP	Emerald	Nature
NEHU	56023	45311	23005	13346	11461	6773	6452	6062	1991	1678
MU	21241	11378	128		5382	1469	5082	87	2000	1093
MZU		13764	4259	997	362	79	2522	850	880	204

IOP	APS	AIP	CUP	PM	AR	PP	PE	SIAM	JCCC	WOS	MathSciNet
1560	1460	992	989	901	794	345	27	16			
1013	386	534	767	27	5		1	1			
55	17	685	202	368	232	0			651	156	418

***NEHU:** North Eastern Hill University ***MU**: Manipur University

***MZU:** Mizoram University

The table 3.18 shows that Science Direct is the highest publisher downloaded in 2012 as compared to other publishers. NEHU is more downloaded as compared to MU. But MZU didn't accessed. The next highest downloaded publisher is JSTOR and NEHU is the university which has downloaded the highest as compared to MU and MZU. In case of Springer Link and ACS, NEHU is the university which has downloaded highest as compared to MU and MZU.

Table 3.20: Comparison of downloaded publisher wise of UGC-INFONET of NEHU, MU and MZU for the year 2014

	Science Direct	**JSTOR**	**Springer Link**	**W-B**	**ACS**	**RSC**	**T&F**	**OUP**	**Nature**	**IOP**	**Math SciNet**
NEHU	80452	48178	22929	18255	14736	8570	7810	4922	4279	1497	
MU	21872	10447		2737	3940	1839	3530	1701	9058	884	
MZU		16872	8809	2501	935	139	1523	1987	245	506	0

CUP	**PM**	**Emerald**	**AR**	**AIP**	**PP**	**APS**	**Emerald Pub.1**	**PE**	**SIAM**	**Emerald Pub.2**	**JCCC**	**WOS**
1077	1021	799	772	734	388	227	166	32	16			
347	264	1348	262	545		325	396	5	1	341		
179	335	1501	277	448	0	453		0			401	806

***NEHU:** North Eastern Hill University ***MU**: Manipur University

***MZU:** Mizoram University

According to the table 3.20, Science Direct is the highest downloaded publisher as compared to others. NEHU is the university which has downloaded the highest. In case of JSTOR, NEHU has downloaded the maximum as compared to MU and MZU. Springer Link is accessed by NEHU and MZU. NEHU has downloaded more as compared to MZU. Further the table also depicts that ACS publisher is downloaded more by NEHU as compared to MU and MZU.

3.10. Benefit of UGC -INFONET Digital Library Consortium to academic fraternity

The consortia-based subscription to e-resources is a viable solution for increasing the access to electronic resources across institutions at a lower rate of subscription. Major benefits of UGC-INFONET Digital Library Consortium are as follows:

- The Consortium acts as a single-window service for a large number of universities with their diverse research and academic interest.
- The Consortium, with its collective strength of participating institutions, attracts highly discounted rates of subscription with most favourable terms of agreement for a wider range of e-resources. Most of the e-publishers have responded positively to the call of the Consortium. The rates offered to the consortium are lower by 60% to 99%depending upon the category of institutions.
- Users have immediate access to material previously not subscribed to, at no incremental cost for accessing back files.
- It improves the existing library services and reduces the subscription cost.
- The research productivity of beneficiary institutions is expected to improve with increased access to international databases and full-text resources.
- The Consortium is expected to trigger remarkable increase in sharing of both print and electronic resources amongst participating library through J-GATE Custom Contents for Consortia (JCCC).
- The Consortium has been opened-up for all other universities / educational institutions through its “Associate Membership Programme”. Private universities 3and other institutions can join the Consortium and get the benefit of not only highly discounted rates of subscription but also the favourable terms and conditions.
- Members of the Consortium have the benefit of cap on the annual increase in the rates of subscription. While the usual increase in price of e-resources vary from 15 to 20%, the consortium enjoys the cap on increase in price ranging from 5% to 8%.
- The Consortium is offered better terms of agreement for use, archival access and preservation of subscribed electronic resources, which would not have been possible for any single institutions.

- Since the subscribed resources is accessible online in electronic format, the beneficiary institutions have less pressure on space requirement for storing and managing print-based library resources. Moreover, all problems associated with print media such as their wear and tear, location, shelving, binding, organizing, etc. are not an issue for electronic resources.

3.11. Awareness programmes to the faculty members

Awareness is the key for success of the programme, INFLIBNET conducted number of training courses, workshops and user awareness training programmes and will continue to organize for the success of any new initiative and INFLIBNET has conducted several such programmes for the benefit of universities and institutions.

3.12. Conclusion

The UGC INFONET Digital Library Consortium is to provide access to qualitative electronic resources including full-text and bibliographic databases to academic institutions at a lower rates of subscription. The consortium headquarter is assigned to function as a resource center with an aim to cater to the needs of its members for resources accessible to them in electronic media or are available in print media. With subscribed resources accessible online in electronic format, the member libraries would have less pressure on space requirement for storing and managing print based Library resources. Library Consortium is the best way of a common infrastructure and it has become very important in the last two decades with the emergence of e-publishing. Libraries have realized or have to realize that working together can accomplish far more than they can do individually. The age of library consortia is at the doorsteps to prove cooperation locally, regionally, nationally and internationally.

The study shows that there is an upward trend in the usage of e-resources except some few resources like Project Muse, Project Euclid. Science Direct, JSTOR are the most downloaded publishers in these three universities.

The scope of the electronic collection in UGC-INFONET Digital Library consortium has to be improved particularly in humanities and social sciences disciplines.

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4.1. INTRODUCTION

An attempt has been made in this chapter to analyze and interpret the data collected from faculty members of North Eastern Hill University, Manipur University and Mizoram University to determine the usage of the services provided by the UGC-INFONET Digital Library Consortium. Analysis means categorizing, ordering, manipulating and summarizing the data to obtain response to research questions. Data collected are to be processed and analyzed for a scientific conclusion and for ensuring all relevant data that are used for making comparisons and analyses.

The purpose of analysis is to reduce data to intelligible and interpretable form so that the relation of research can be studied and tested. Analysis of data also refers to see that data collected and analyzed meet the hypothesis or research questions to formulate appropriate theory. In short, analysis seeks to distinguish, differentiate, isolate, identify and discriminate different characteristics to derive a suitable conclusion .For improvement of various services provided by UGC-INFONET Digital Library Consortium, analysis and interpretation of data collected through questionnaire method in this study is very much necessary.

4.2. Analysis of Data

The analysis and interpretation of data involve the objective material in the possession of the researcher and his subjective reaction and desires to derive from the data, the inherent meaning in their relation to the problem. Analysis of data is the most skilled task of all the stages of research. It is a task calling for the researcher's own judgment and skill. Proper analysis requires a familiarity with the background of the study.

Keeping in view the objectives of the study in mind, a structured questionnaire was prepared to distribute among the faculty members of NEHU, MU and MZU and the study is restricted to the school of social sciences, sciences and Economics, Management and Information Sciences faculty members. 239 questionnaires were circulated among the faculty members and a total number of 169 questionnaires were received which constitute 70.7% of the total response. The collected data were analyzed, tabulated, interpreted to draw the inferences.

4.2.1. University Wise Response of the Sample

The study has taken for the faculty members of the School of Sciences and Social Sciences of North Eastern Hill University, Manipur University and Mizoram University. 239 questionnaires have been distributed to these three university faculty members and 169 nos of respondent have been received and shown in the table 4.1.

Table 4.1: University Wise Response of the Sample

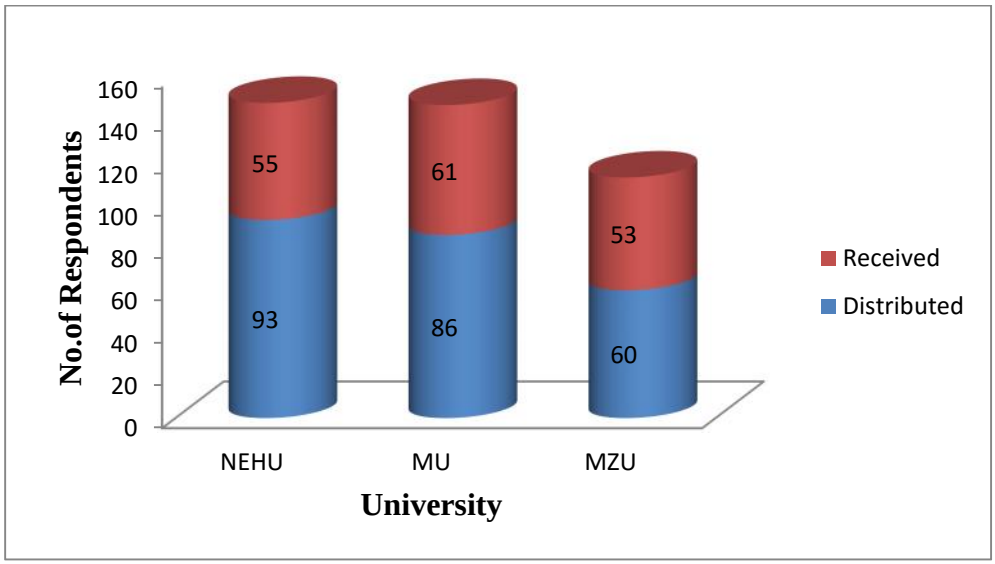
Particulars	**NEHU**		**M.U**		**MZU**		**Total**	**Percentage**
	No.	**%**	**No.**	**%**	**No.**	**%**		
Questionnaire Distributed	93	100	86	100	60	100	239	100
Questionnaire Received	55	59.1	61	70.9	53	88.3	169	70.7

Source: Questionnaire Survey

The above table shows that the total 239 questionnaires have been circulated to the faculty members of North Eastern Hill University, Manipur University and Mizoram University out which 169(70.7%) Questionnaires have been received. 70(29.3%) faculty members of the three universities have not responded the questionnaire. This is due to the unavailability of some faculty members who were engaged in their academic activities.

Analysis of the table also shows that 93 questionnaires have been distributed to the North Eastern Hill University out of which 55(59.1%) questionnaires have been received from faculty members whereas 86 questionnaires were distributed to faculty members of Manipur University out of which 61(70.9%) questionnaires have been received for data analysis and 60 questionnaires have been distributed to the faculty members of Mizoram University out of which 53(88.3%) have been received. The graph 4.1 gives a clear picture for more understanding.

Graph 4.1: University Wise Response of the Sample



4.2.2. Personal Data

Personal data categorizes the department, designation, qualifications; sex etc. of the faculty members and it gives the details of the faculty members of the three universities who have responded to the questionnaire.

4.2.2.1. Department Wise Response of the Faculty Members

In academic institutions, faculties play an important role for providing research outputs and to provide service related to their discipline and their teaching enhance institutional. 239 questionnaires have been distributed to the faculty members of various departments of North Eastern Hill University, Manipur University and Mizoram University. The total response of the faculty members from 17 departments are arranged accordingly as shown in table 4.2 and supported with a graph 4.2.

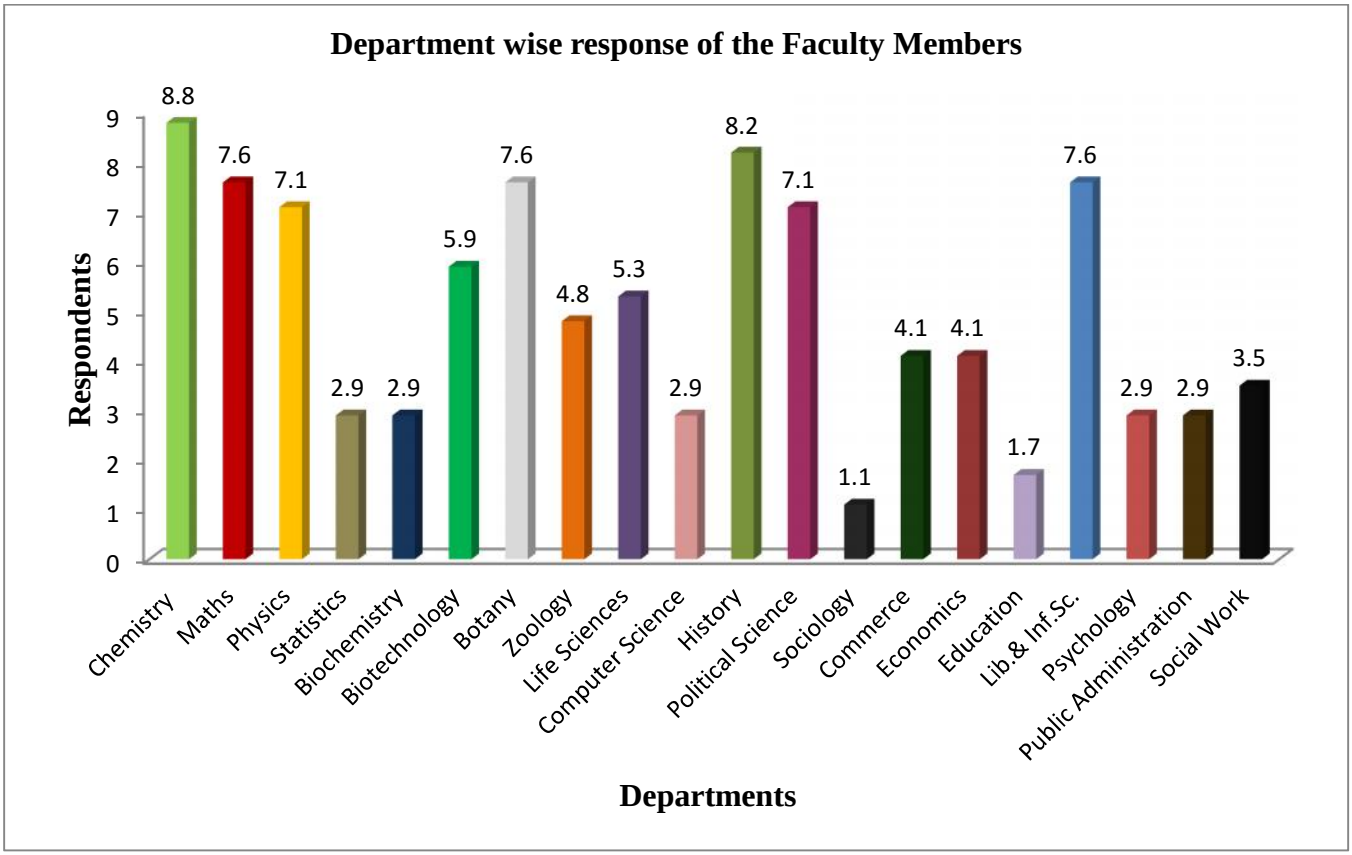
Table 4.2: Department Wise Response of the Faculty Members (Respondents)

Department	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
Chemistry	6	10	6	9	3	5	15	8.8
Mathematics	5	9	5	8	3	5	13	7.6
Physics	4	7	4	6	4	7	12	7.1
Statistics	1	1	4	6	-	-	5	2.9
Biochemistry	2	3	3	4	-	-	5	2.9
Biotechnology	3	5	3	4	4	7	10	5.9
Botany	8	14	-	-	5	9	13	7.6
Zoology	4	7	-	-	4	7	8	4.8
Life Sciences	-	-	9	14	-	-	9	14
Computer Science	-	-	5	8	-	-	5	8
History	4	7	5	8	5	9	14	8.2
Political Science	4	7	3	4	5	9	12	7.1
Sociology	2	3	-	-	-	-	2	3
Commerce	5	9	2	3	-	-	7	4.1
Economics	3	5	4	6	-	-	7	4.1
Education	-	-	3	4	-	-	3	1.7
Library & Information Science	4	7	5	8	4	7	13	7.6
Psychology	-	-	-	-	5	9	5	9
Public Administration	-	-	-	-	5	9	5	9
Social Work	-	-	-	-	6	11	6	11
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**: North Eastern Hill University ***MU:** Manipur University ***MZU:** Mizoram University

Graph 4.2: Department Wise Response of the Faculty Members



The above table 4.2 and graph 4.2 shows that the faculty members from 14 departments of NEHU have responded the questionnaire whereas faculty members of 15 departments of Manipur University have responded the questionnaire.

It also reveals that the questionnaires have been responded by faculty members of 12 departments of Mizoram University under the different school of studies.

4.2.2.2. Gender Wise Distribution of Faculty Members

Personal detail section of the questionnaire provides information regarding gender. Analysis of the study by gender has been discussed under the Table 4.3 supported with a graph 324.3 for better understanding.

Table 4.3.Gender Wise Distribution of Faculty Members

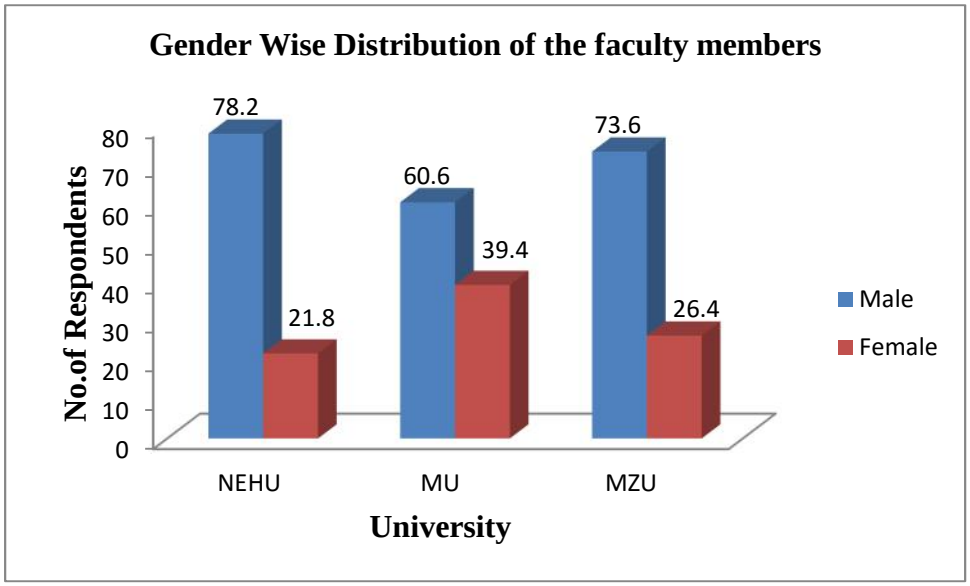
Gender	University						Total	Percentage
	NEHU		MU		MZU			
	No.	%	No	%	No	%		
Male	43	78.2	37	60.6	39	73.6	119	70.4
Female	12	21.8	24	39.4	14	26.4	50	29.6
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**: North Eastern Hill University ***MU:** Manipur University ***MZU:** Mizoram University

Gender Wise analysis of data in the table and graph shows that out of the total 169 respondents, majority of the faculty members i.e. 119(70.4%) belongs to the male group and the rest of them 50(29.6%) are females.

Graph 4.3: Gender Wise Distribution of the Faculty Members



In case of NEHU, male faculty members response is 78.2% which is more than the female respondent i.e. 21.8% and in case of Manipur University, male faculty members response is 60.6% whereas female is 39.4%.In the same way male faculty members response is 73.6% at Mizoram University and female faculty members is 26.4%. This analysis shows that the male faculty members are ahead of female faculty members dominating in the University of NEHU, MU and MZU.

4.2.2.3. Designation Wise Responses of Faculty Members

It can be inferred from the table and graph that, out of the total respondents (169) of three universities, 78(46.1%) of the faculty members are belongs to Assistant Professors, while 48(28.4%) belongs to Associate Professor's category and 29(17.1%) constitute Professor and 14(8.2%) belongs to Guest Lecturers.

Table 4.4. Designation Wise Response of Faculty Members

Designation	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Professor	13	23.6	12	19.6	4	7.5	29	17.1
Associate Professor	14	25.4	17	27.8	17	32	48	28.4
Assistant Professor	28	50.9	18	29.5	32	60.3	78	46.1
Guest Lecturer	-	-	14	22.9	-	-	14	8.2
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

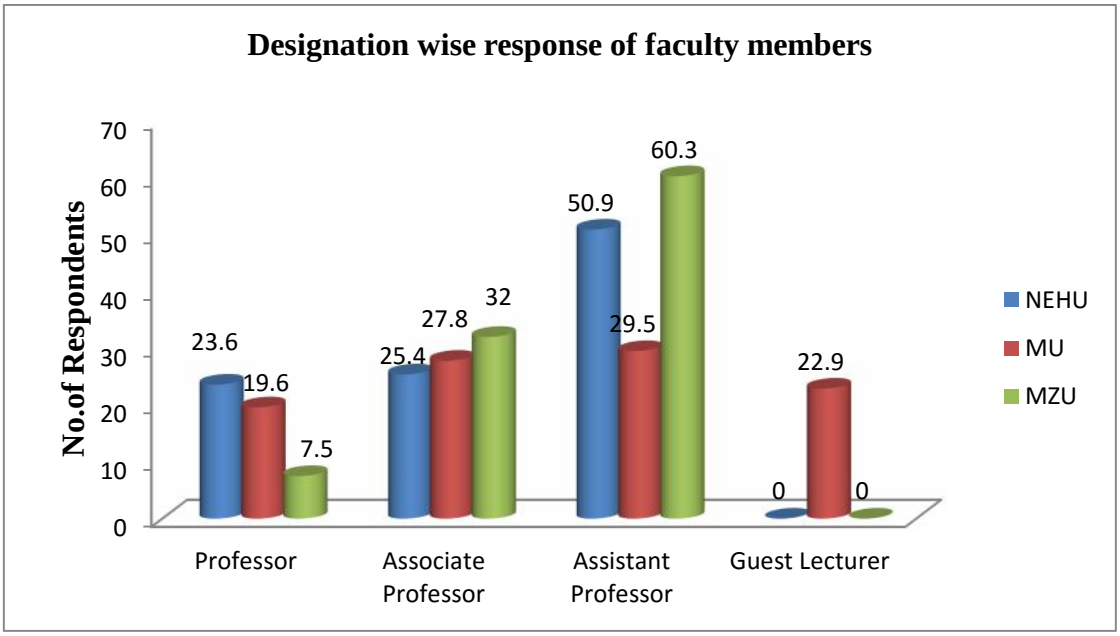
***NEHU**-North Eastern Hill University, ***MU**-Manipur University, ***MZU**-Mizoram University

The table no.4.4 and graph4.4 indicates that in NEHU, out of 55 faculty members, 28(50.9%) belongs to Assistant Professor, 14(25.4%) belongs to Associate Professor and the least respondent 13(23.6%) belongs to Professor.

On the other hand in Manipur University, the highest respondent is 18(29.5%) belongs to Assistant Professor, next highest is 17(27.8%) belongs to Associate Professor, 14(22.9%) respondent belongs to Guest Lecturer and the least respondent is 12(19.6%) belongs to Professor.

In Mizoram University, Assistant Professor is the highest respondent i.e.32 (60.3%), next is 17(32%) belongs to Associate Professor and 4(7.5 %) belongs to Professor.

Graph 4.4: Designation Wise Response of Faculty Members



4.2.2.4. Qualification Wise Response of Faculty Members

The Table 4.5 shows the qualification wise response of the faculty members of NEHU, MU and MZU. As a whole, out of 169 faculty members of NEHU, MU and MZU, 133(78.6%) are the faculties with PhD degree, 33(19.6%) faculty members are with M Phil Degree and very few 3(1.8%) faculty members are with M Sc/M Com/MA degree.

Table 4.5: Qualification Wise Response of the Faculty Members

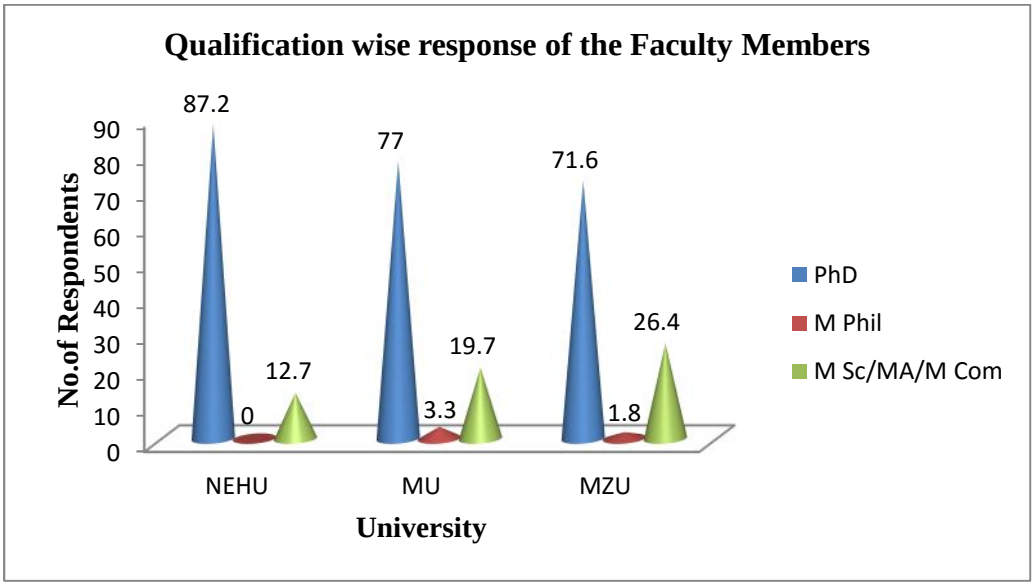
Qualification of faculty members	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
PhD	48	87.2	47	77	38	71.6	133	78.6
M Phil	-	-	2	3.3	1	1.8	3	1.8
M Sc/MA/M Com	7	12.7	12	19.7	14	26.4	33	19.6
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

***MZU**-Mizoram University

Graph 4.5: Qualification Wise Response of the Faculty Members



The analysis of the above table shows that in NEHU, 48(87.2 %) faculty members have Ph D degree, 7(12.7%) faculty members have M Sc/MA/M Com degree whereas in MU, 47(77%)

faculty members have PhD degree, 2(3.3%) have MPhil degree and 12(19.7%) have MSc/MA/MCom degree.

In case of MZU, the highest respondents 38(71.6%) faculty members have PhD degree, 14(26.4%) faculty members have MSc/MA/MCom degree and 1(1.8%) faculty members have MPhil degree.

4.2.2.5. Employment Type of Response of Faculty Members

Data presented in Table 4.6 and graph 4.6 shows that out of 169 faculty members, 155(91.7%) belongs to permanent type of employment and 14(8.3%) faculty members belongs to part time type of employment.

Table 4.6: Employment Type Response of Faculty Members

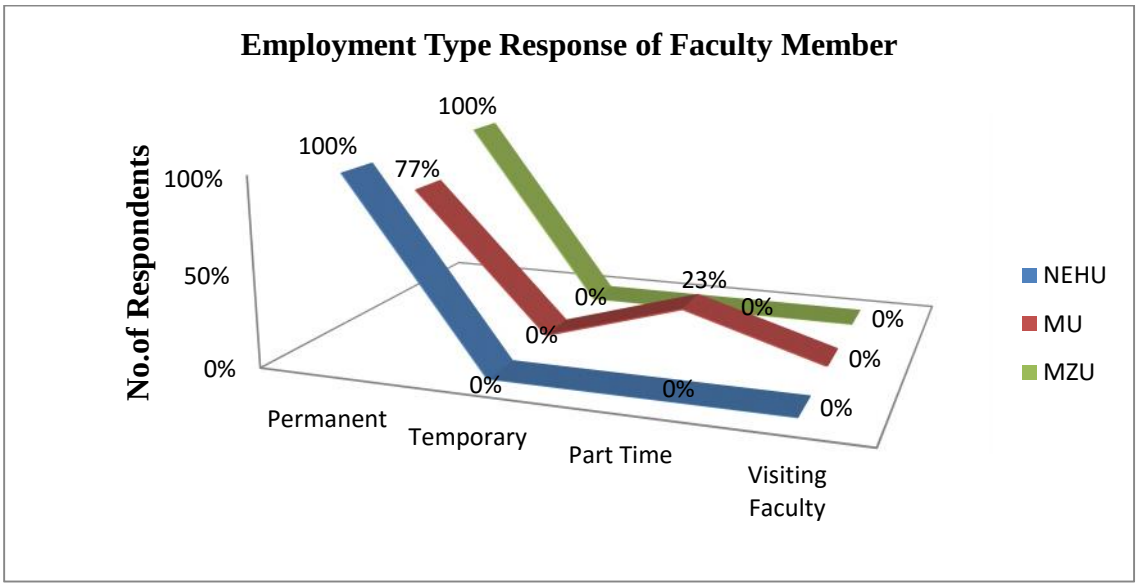
Type of Employment	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Permanent	55	100	47	77	53	100	155	91.7
Temporary	-	-	-	-	-	-	-	-
Part Time	-	-	14	23	-	-	14	8.3
Visiting Faculty	-		-	-	-	-	-	-
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

***MZU**-Mizoram University

Graph 4.6: Employment Type Response of Faculty Members



The analysis of the above table and graph reflects that all the faculty members of NEHU responded to questionnaire i.e.55(100%) are permanent type of employment whereas in MU, 47(77%) faculty members belong to permanent type of employment and 14(23%) belongs to Part time type of employment. In case of MZU, the total respondent 53(100%) faculty members belong to permanent type of employment.

4.2.3. Knowledge about Consortium

Library consortium facilitates the end users with benefits of more resources than would be available in one library, and library staff can customize the system to meet their individual library's need. It creates an opportunity to provide enhance library services by making use of electronic resources, bibliographic databases and services offered through internet and World Wide Web.

4.2.3.1. Awareness of INFLIBNET

The Information and Library Network (INFLIBNET) Centre is an autonomous Inter-University Centre(IUC) of the University Grants Commission (UGC) located at the Infocity, Gandhinagar. Major activities and services of the Centre are geared towards modernization of academic libraries and information centres, to promote information transfer and access, to support scholarship, learning and academic pursuits. The Centre acts as a nodal agency for networking of libraries and information centres in universities, institutions of higher learning and R & D institutions in India. UGC-INFONET Digital Library Consortium is initiated by INFLIBNET to provide e-resources services to the institutes.

Table 4.7: Awareness of INFLIBNET

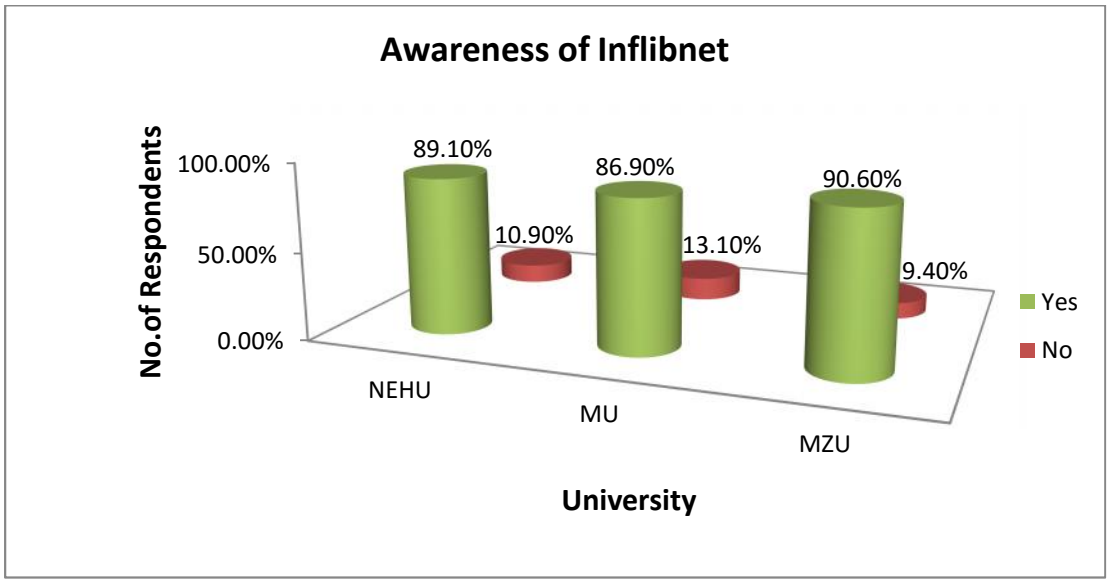
Awareness of INFLIBNET	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
Yes	49	89.1	53	86.9	48	90.6	150	88.7
No	6	10.9	8	13.1	5	9.4	19	11.3
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

***MZU**-Mizoram University

Graph 4.7: Awareness of INFLIBNET



The above Table and graph indicates that out of 169 faculty members of NEHU, MU and MZU, 49(89.1%) faculty members of NEHU are aware of INFLIBNET and only 6(10.9%) of them are not aware of INFLIBNET. In case of Manipur University, 53(86.9%) faculty members are aware of INFLIBNET and 8(13.12%) are not aware. In case of Mizoram University 48(90.6%) faculty members are aware of INFLIBNET and 5(9.4%) faculty members are not aware of INFLIBNET. From the above analysis it is cleared that most of the faculty members of the three universities are aware of INFLIBNET and very of them are not aware.

4.2.3.2. Awareness of UGC-INFONET Digital Library Consortium

The University Grant Commission (UGC) has launched UGC-INFONET Digital Library Consortium to facilitate access to e-resources to students, researchers and faculty members in institutes of higher learning, especially universities.

UGC-INFONET Digital Library Consortium provides current as well as archival access to more than 8,500+ core and peer-reviewed journals and eleven bibliographic databases from 28

publishers including commercial publishers, scholarly societies, university presses and aggregators in different disciplines.

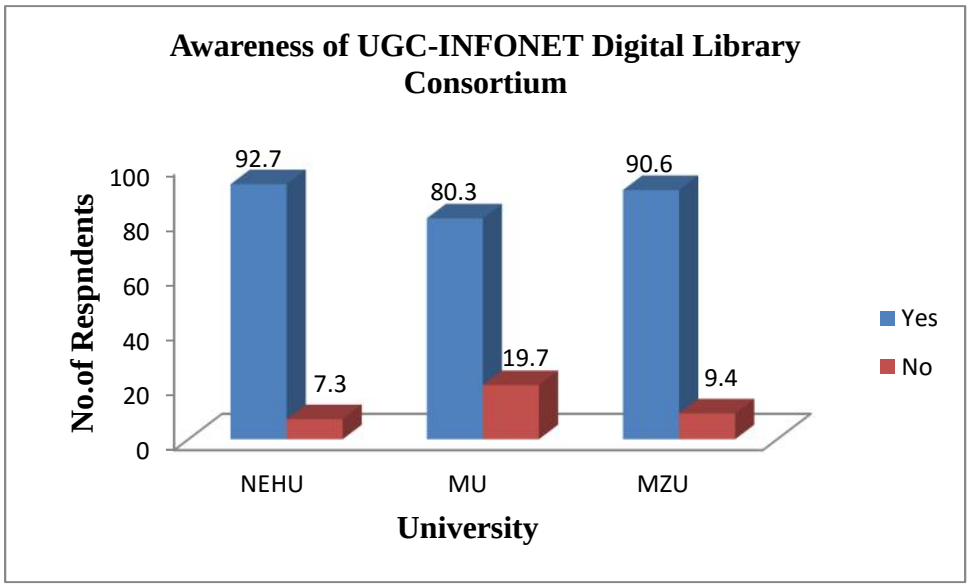
Table 4.8: Awareness of UGC-INFONET Digital Library Consortium

Awareness of INFLIBNET	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
Yes	51	92.7	49	80.3	48	90.6	148	87.6
No	4	7.3	12	19.7	5	9.4	21	12.4
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,
***MZU**-Mizoram University

Graph 4.8: Awareness of UGC-INFONET Digital Library Consortium



The above table depicts that out of 169 faculty members of the three universities, 148(87.6%) faculty members are aware of UGC-INFONET Digital Library Consortium and 21(12.4%) are

not aware. The table further reveals that, 51(92.7%) faculty members of NEHU are aware of UGC-INFONET Digital Library Consortium and 4(7.3%) of them are not aware whereas 49(80.3%) faculty members of MU are aware and 12(19.7%) are not aware. In case of MZU, 48(90.6%) faculty members are aware of UGC-INFONET Digital Library Consortium and 5(9.4%) are not aware. It could be observed from the above analysis that most of the faculty members are aware of UGC-INFONET Digital Library Consortium and are accessing the e-resources available through the consortium.

4.2.3.3. Access Point of UGC-INFONET Consortium

E-resources through consortium can be accessed from different places by faculty members according to their convenient and availability of access facilities. The faculty members were asked the places where they can access the consortium. Out of 169 faculty members of NEHU, MU and MZU, the highest response 130(76.9%) faculty members of NEHU, MU and MZU access the consortium from their department, 37(21.9%) faculty members access from University Library and 2 (1.2%) faculty members access from any other points.

Table 4.9: Access Point of UGC-INFONET Consortium

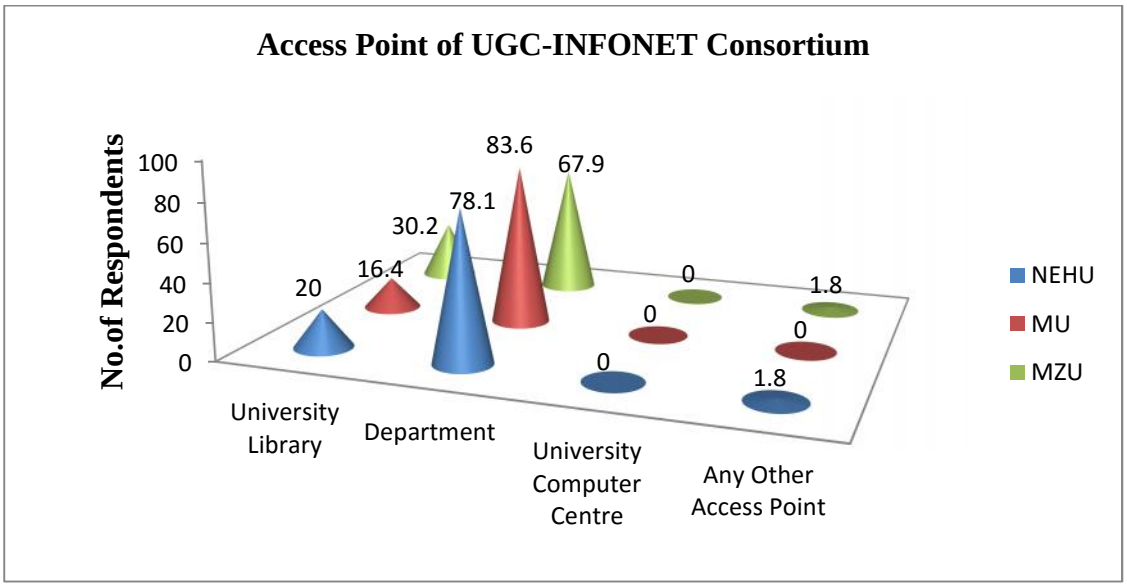
Access Places	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
University Library	11	20	10	16.4	16	30.2	37	21.9
Department	43	78.1	51	83.6	36	67.9	130	76.9
University Computer Centre	-	-	-	-	-	-	-	-
Any Other Access Points	1	1.8	-	-	1	1.8	2	1.2
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**: North Eastern Hill University, ***MU**: Manipur University

***MZU**: Mizoram University.

Graph 4.9: Access Point of UGC-INFONET Consortium



The above analysis reveals that, out of 55 faculty members of NEHU, 43(78.1%) faculty members access the consortium from their departments and followed by 11(20%) of University Library and 1(1.8%) of from any other access point respectively.

In case of MU, same with NEHU, the majority of the faculty members 51(83.6%) access the consortium from their department and the next highest 10(16.4%) faculty members access the consortium from university library and none of the faculty responded the option any other access point. In case of MZU, the highest response 36(67.9%) faculty members access the consortium from their departments and followed by 16(30.2%) of university library and 1(1.8%) of from any other access points.

4.2.3.4. Level of satisfaction of resources and services available through consortium

Table 4.10 and graph 4.10 summarizes the responses regarding the level of satisfaction of resources and services available through consortium in three university of study area, NEHU, MU and MZU. Regarding the level of satisfaction of resources and services available through consortium, the overall 120(71%) faculty members are satisfied with good and followed by

41(24.2%) of average satisfaction, 6 (3.6%) of general satisfaction and 2(1.1%) of not sufficient with the resources and services available through consortium respectively.

Table 4.10: Level of satisfaction of resources and services available through consortium

Level of Satisfaction	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
Good	49	89.1	44	72.1	27	50.9	120	71
Average	6	10.9	17	27.8	18	33.9	41	24.2
General	-	-	-	-	6	11.3	6	3.6
Not Sufficient	-	-	-	-	2	3.8	2	1.1
Total	55	100	61	100	53	100	169	100

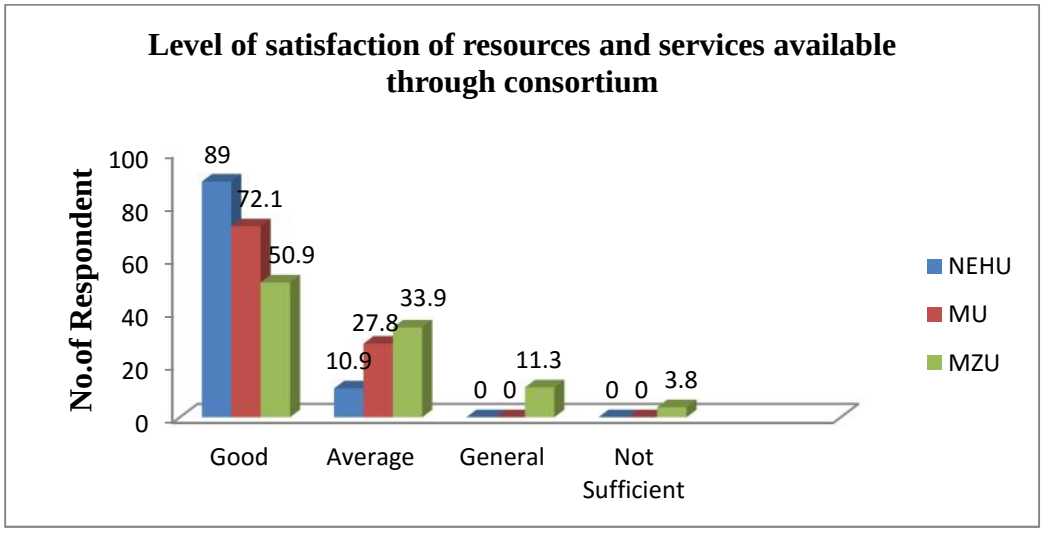
Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

***MZU**-Mizoram University.

As tabulated in above table for NEHU, 49(89%) faculty members are satisfied with the resources and services available through consortium and expressed their view as good, 6(10.9%) faculty members go with average satisfaction level and none of the faculty members responded the option general and not sufficient.

Graph 4.10: Level of satisfaction of resources and services available through consortium



In case of MU, 44(72.1%) faculty members satisfied the services and resources available through consortium with good and followed by 17(27.8%) of average and none of the faculty members responded to the option general and not sufficient.

In case of MZU, the highest 27(50.9%) faculty members satisfied with good to the resources and services available through consortium, the next highest is 18(33.9%) satisfied with average, 6(11.3%) with general and 2(3.8%) faculty members are not sufficient with the resources and services available through consortium.

4.2.4. Use of the Consortium

The consortium is useful to the faculty members, students and research scholars of the universities by providing scholarly resources including peer reviewed journals, databases, abstract, proceeding, etc.

4.2.4.1. Frequency of using the consortium

The table 4.11 and graph 4.11 shows the frequency of using the consortium by faculty members of NEHU, MU and MZU. 79(46.7%) faculty members out of 169 uses the consortium 2-3 times in a week, 65(38.4%) faculty members use daily, 22(13%) faculty members use rarely and 3(1.7%) faculty members are not using the consortium at all.

Table 4.11: Frequency of using the consortium

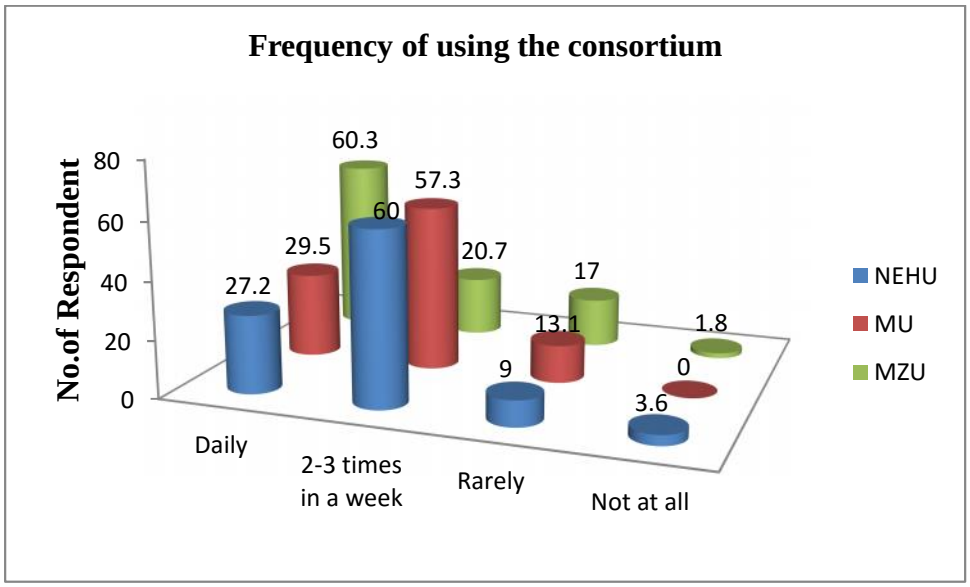
Frequency	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No.	**%**	**No.**	**%**	**No.**	**%**		
Daily	15	27.2	18	29.5	32	60.3	65	38.4
2-3 times in a week	33	60	35	57.3	11	20.7	79	46.7
Rarely	5	9	8	13.1	9	17	22	13
Not at all	2	3.6	-	-	1	1.8	3	1.7
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

***MZU**-Mizoram University.

Graph 4.11: Frequency of using the consortium



The analysis of the above table and graph reveals that, in NEHU, 33(60%) faculty members use the consortium 2-3 times in a week and followed by 15(27.2%) of daily, 5(9 %) of rarely use and 2(3.6 %) of them are not using the consortium at all.

In case of MU, the highest 35(57.3%) faculty members use the consortium 2-3 times in a week followed by 18(29.5%) of daily, 5(13.1%) of rarely use and none of the faculty members responded to the option not at all. Further the analysis from the table indicates that, 32(60.3%) faculty members of MZU use the consortium daily, 11(20.7%) use 2-3 times in a week, 9(17%) use rarely and 1(1.8%) are not using at all.

4.2.4.2. Duration of using UGC-INFONET for research purpose

The duration of accessing the UGC-INFONET for research purpose is depend upon the nature of the work of faculty members. The highest 99(58.5%) faculty members are using the UGC-INFONET for their research purpose for 0-5 hours in a day and followed by 54(31.9%) of 6-10 hours, 9(5.3%) of 16-20 hours and 7(4.1%) of 11-15 hours respectively.

Table 4.12: Duration of using UGC-INFONET for research purpose

Duration	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
0-5	33	60	37	60.6	29	54.7	99	58.5
6-10	17	30.9	20	32.7	17	32	54	31.9
11-15	-	-	4	6.5	3	5.6	7	4.1
16-20	5	9	-	-	4	7.5	9	5.3
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU**-North Eastern Hill University, ***MU**-Manipur University,

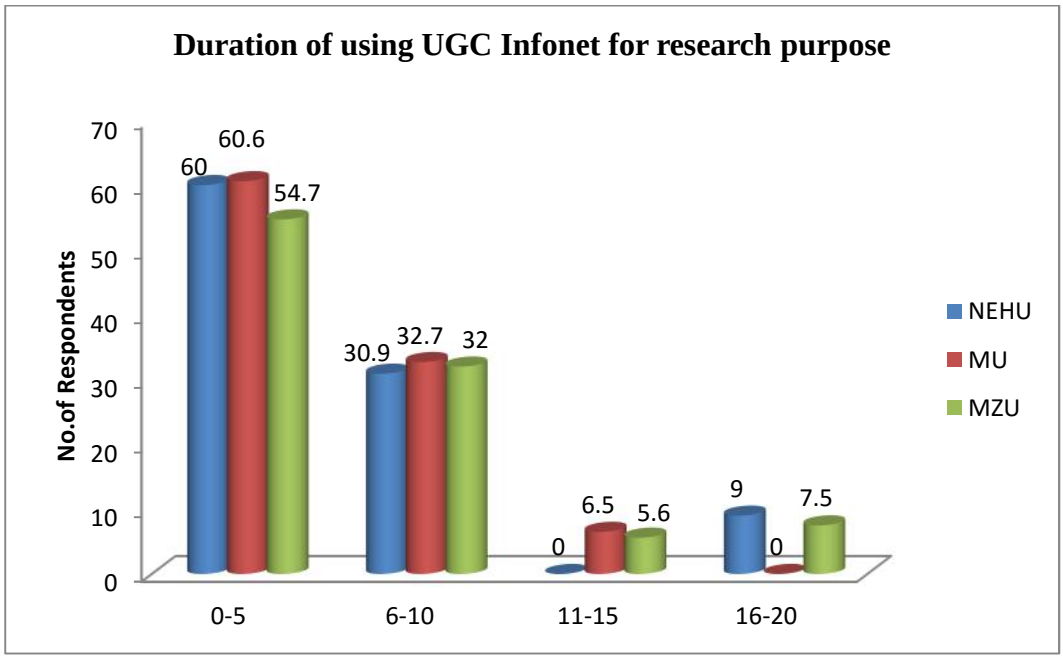
***MZU**-Mizoram University.

The table 4.12 indicates that in case of NEHU, the highest 33(60%) faculty members use UGC-INFONET for research purpose is 0-5 hours, the next highest 17(30.9%) faculty members use for 6-10 hours and 5(9%) faculty members spent the time for 16-20 hours for using the UGC-INFONET for their research purpose.

On the other hand in case of MU, 37(60.6%) faculty members take 0-5 hours for using the UGC-INFONET for research purpose and followed by 20(32.7%) of 6-10 hours and 4(6.5%) of 11-20 hours respectively.

In case of MZU, the highest 29(54.7%) faculty members access the UGC-INFONET for 0-5 hours for their research purpose, 17(32%) faculty members use 6-10 hours, 4(7.5%) faculty members use 16-20 hours and 3(5.6%) faculty members use for 11-15 hours. The above table 4.12 is supplemented with the graph 4.12.

Graph 4.12: Duration of using UGC-INFONET for research purpose



4.2.4.3. Purpose of using the consortium

The faculty members of North Eastern Hill University, Manipur University and Mizoram University are using the consortium for different purposes like teaching, research, writing paper, writing book, dissertation/theses, etc.

Table 4.13: Purpose of using the consortium

University	Purpose											
	Teaching						Research					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	32	58.1	8	14.5	3	5.4	27	49	3	5.4	-	-
MU	30	49.1	-	-	-	-	29	47.5	3	4.9	-	-
MZU	49	92.4	4	7.5	-	-	51	96.2	6	11.3	-	-
Total	111	199.6	12	22	3	5.4	107	192.7	12	21.6	-	-

University	Purpose											
	Writing paper						Writing Book					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	24	43.6	7	12.7	-	-	7	12.7	4	7.2	6	10.9
MU	28	45.9	6	9.8	3	4.9	4	6.5	8	13.1	6	9.8
MZU	47	88.6	7	13.2	4	7.5	8	15	5	9.4	6	11.3
Total	99	178.1	20	35.7	7	12.4	19	34.2	17	29.7	18	32

University	Purpose											
	Writing Report						Dissertation/Theses					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	6	10.9	6	10.9	4	7.2	33	60	8	14.5	-	-
MU	6	9.8	9	14.7	6	9.8	9	14.7	3	4.9	7	11.4
MZU	6	11.3	3	5.6	2	3.7	11	20.7	6	11.3	3	5.6
Total	18	32	18	31.2	12	20.7	53	95.4	17	30.7	10	17

University	Purpose											
	Presenting Paper in Seminar						Guiding Research					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	21	38.1	10	18.1	-	-	13	23.6	6	10.9	3	5.4
MU	8	13.1	4	6.5	4	6.5	10	16.3	6	9.8	5	8.1
MZU	7	13.2	3	5.6	2	3.7	9	16.9	-	-	2	3.7
Total	36	64.4	17	30.2	6	10.2	32	56.8	12	20.7	10	17.2

Source: Questionnaire Survey

N.B: Multiple answers permitted

1: Generally

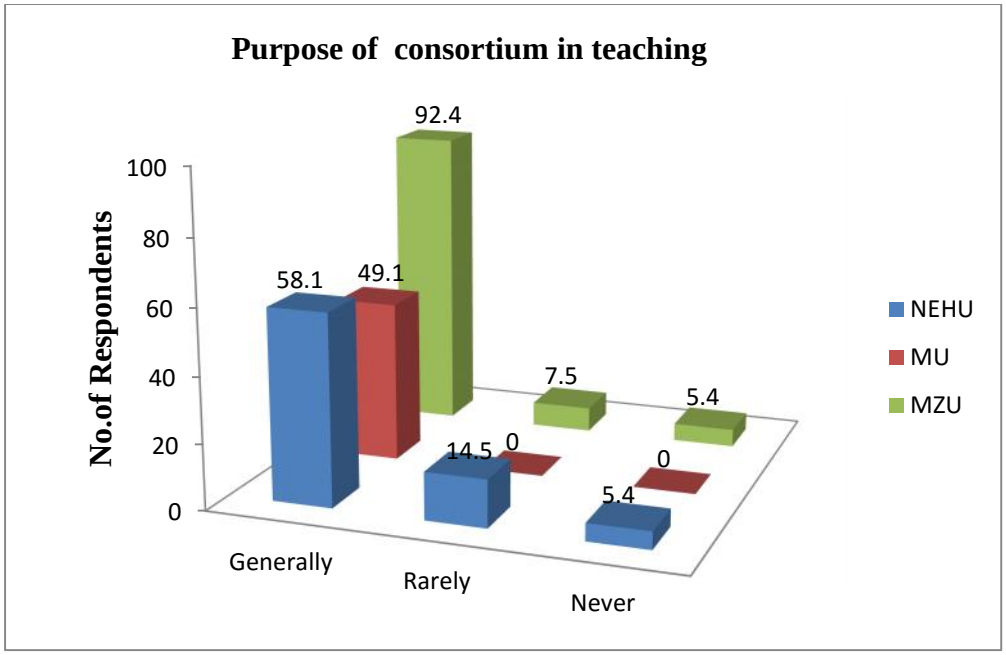
2: Rarely

3: Never

- **Purpose of Consortium in Teaching**

The table 4.13 is supplemented with the graph 4.13 for better understanding

Graph 4.13: Purpose of Consortium in Teaching



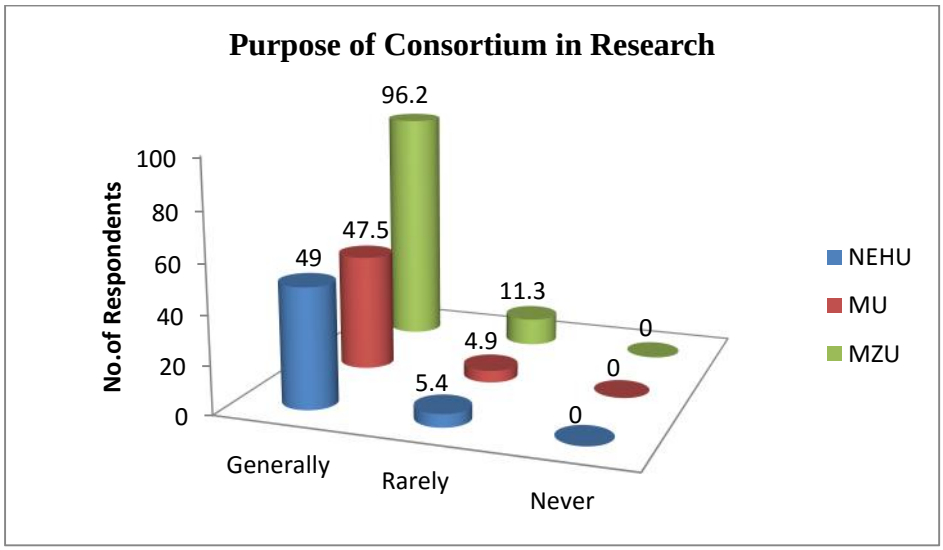
The above table and graph shows that, in case of NEHU, the highest 32(58.1%) faculty members generally use the consortium for the purpose of teaching, 8(14.5%) rarely use, 3(5.4%) faculty members never use the consortium for the purpose of teaching whereas in case of MU, 30(49.1%) faculty members use the consortium for the purpose of teaching which is the highest response and none of the faculty members responded to the option rarely and never.

In case of MZU, the highest 49(92.4%) faculty members generally use the consortium for teaching purpose, 4(7.5%) rarely use and none of the faculty members responded to the option never use for teaching purpose.

- **Purpose of Research**

The faculty members of North Eastern Hill University, Manipur University and Mizoram University are using the consortium for the purpose of research work and it is illustrated with the following graph 4.14 for more clarity.

Graph 4.14: Purpose of Consortium in Research

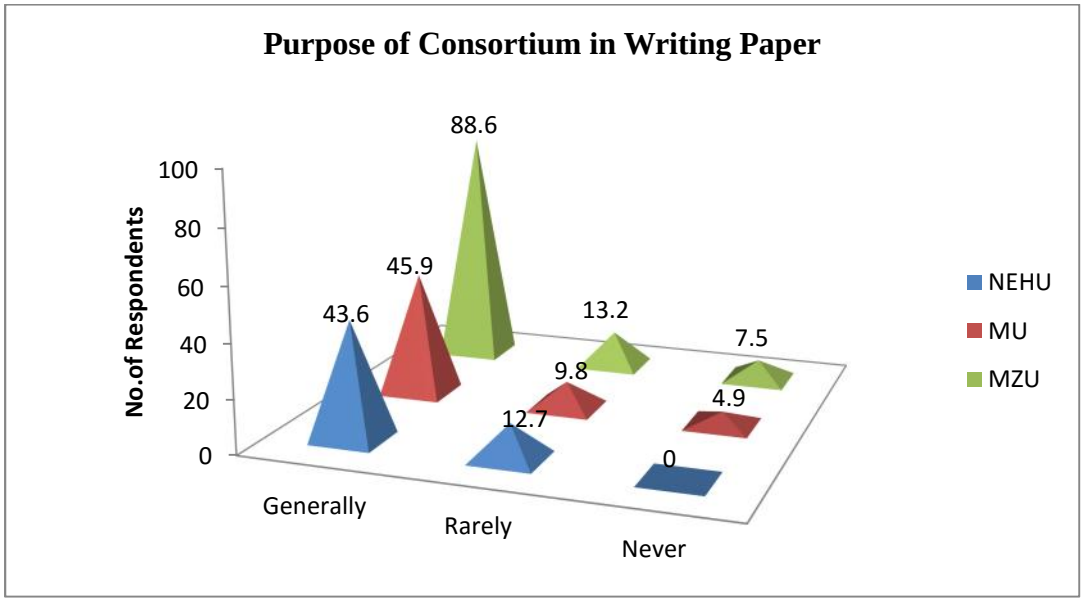


The graph indicates that in case of NEHU, 27(49%) faculty members generally use the consortium for the purpose research work and 3 (5.4%) faculty members rarely use. Whereas in case of MU, the highest 29(47.5%) faculty members generally use the consortium for the purpose of research and 3(4.9%) rarely use the consortium for research purpose. In case of MZU, 51(96.2%) faculty members generally use the consortium for research purpose and 6(11.3%) faculty members rarely use. None of the faculty members of NEHU, MU and MZU responded to the option never use.

- **Purpose of using the consortium in Writing Paper**

The faculty members of NEHU, MU and MZU are also using the consortium for the purpose of writing paper.

Graph 4.15: Purpose of using consortium in Writing Paper



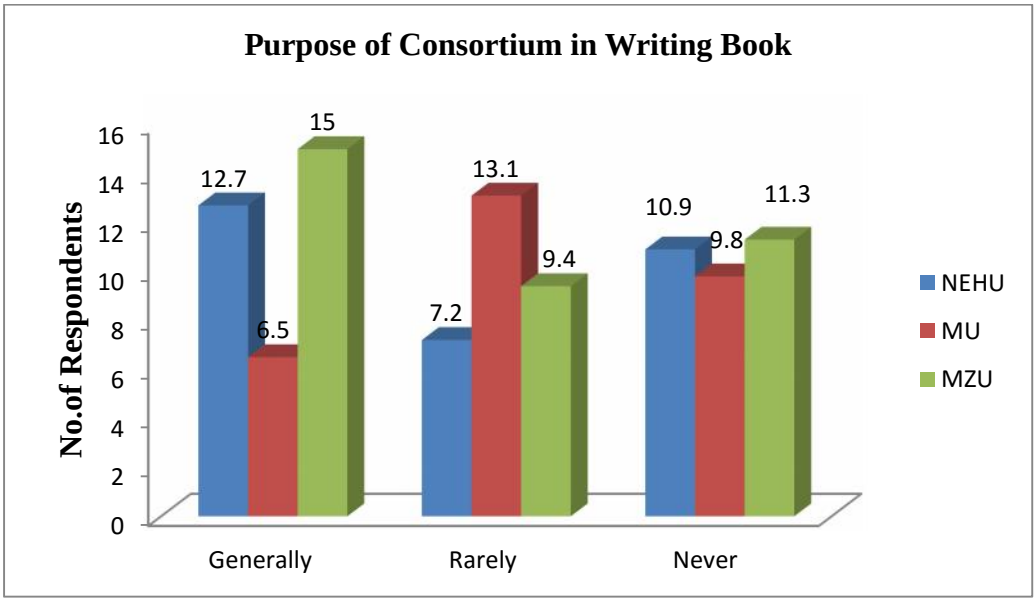
The above graph shows that in case of NEHU, 24(43.6%) faculty members generally used the consortium for the purpose of writing paper and 7(12.7%) faculty members rarely use. None of the faculty members responded to the option never.

In case of MU, the highest response 28(45.9%) faculty members generally use the consortium for the purpose of writing paper and followed by 6(9.8%) of rarely and 3(4.9%) of never.

- **Purpose of Consortium in Writing Book**

For the purpose of writing book by faculty members of NEHU, MU and MZU is supported with the graph 4.16 to give better understanding.

Graph 4.16: Purpose of Consortium in Writing Book



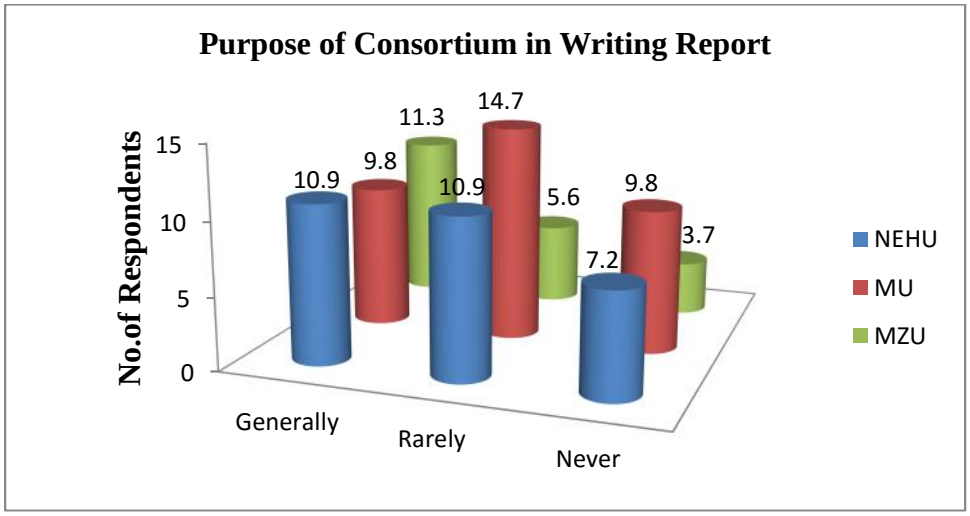
The above graph reveals that in case of NEHU, the highest 7(12.7%) faculty members generally use the consortium for the purpose of writing book and followed by 6(10.9%) of rarely use and 4(7.2%) of never use whereas in case of MU, 8(13.1%) faculty members generally use the consortium for writing the book, 6(9.8%) faculty members rarely use and 4(6.5%) faculty members never use the consortium for writing book.

On the other hand in case of MZU, the highest response 8(15%) faculty members generally use the consortium for the purpose of writing book, 6(11.3%) faculty members rarely use and 5(9.4%) faculty members never use.

- **Purpose of Consortium in Writing Report**

The table 4.13 highlights the purpose of consortium in writing report and it is supported by the graph 4.17 given below:

Graph 4.17: Purpose of Consortium in Writing Report



The graph 4.17 reveals that generally 6(11.3%) faculty members of MZU use the consortium for the purpose of writing report and followed by 6(10.9%) of NEHU and 6(9.8%) of MU.

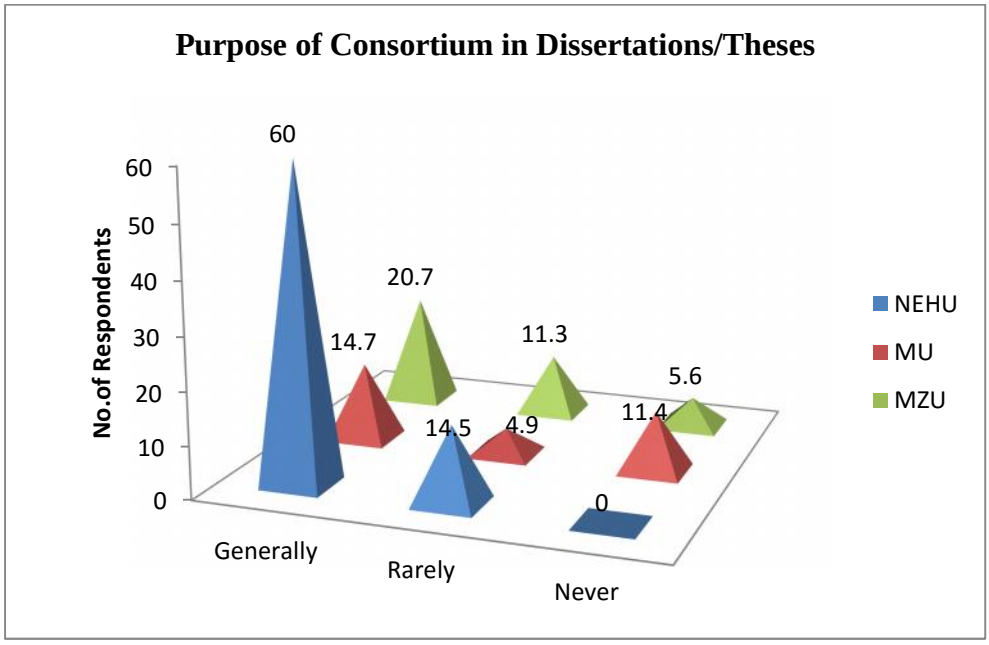
The graph further shows that rarely 9(14.7%) faculty members of MU use the consortium for the purpose of writing report and followed by 6(10.9%) of NEHU and 3(5.6%) of MZU respectively.

The graph also indicates that 6(9.8%) faculty members of MU never use the consortium for writing the report, 4(7.2%) of NEHU never use the consortium for writing report and 2(3.7%) faculty members of MZU never use.

- **Purpose of Consortium in Dissertations/Theses**

The table 4.13 for the purpose of using consortium in dissertations/theses is supported with the relevant graph 4.18 for better clarity.

Graph 4.18: Purpose of Consortium in Dissertations/ Theses



The above graph shows that 33(60%), 11(20.7%) and 9(14.7 %) faculty members of NEHU, MZU and MU generally use the consortium for the purpose of dissertations/theses.

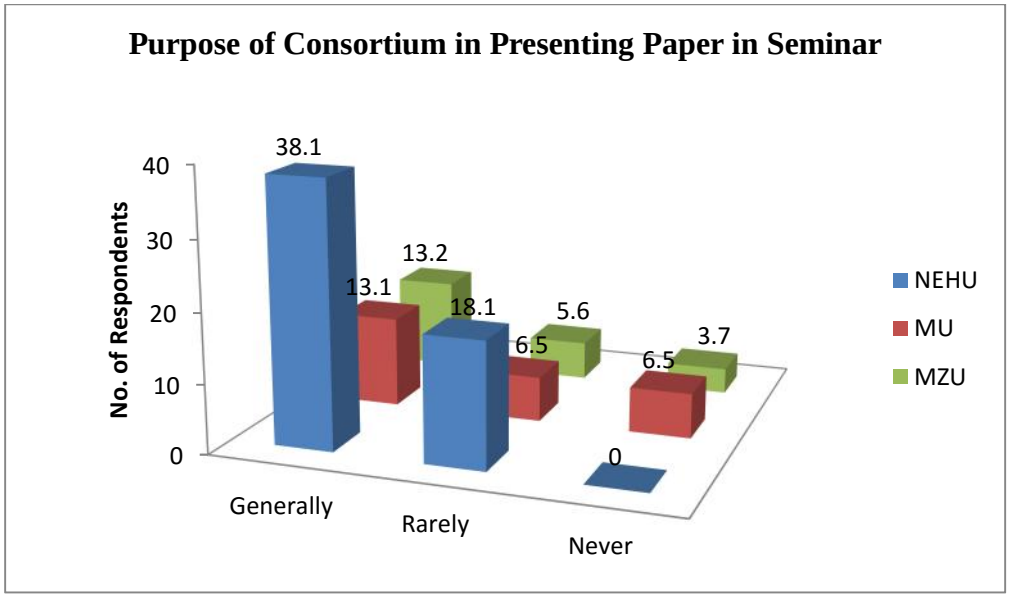
It is also indicates that 8(14.5%), 6(11.3%) and 3(4.9 %) faculty members of NEHU, MZU and MU rarely use the consortium for the purpose of dissertations/theses.

Further the graph reveals that 7(11.4%) and 3(5.6%) faculty members of MU and MZU never use the consortium for the purpose of dissertations/theses.

- **Purpose of Consortium in Presenting Paper in Seminar**

Purpose of consortium in presenting paper in seminar has been illustrated in the given graph 4.19 for better understanding of the above table.

Graph 4.19: Purpose of Consortium in Presenting Paper in Seminar



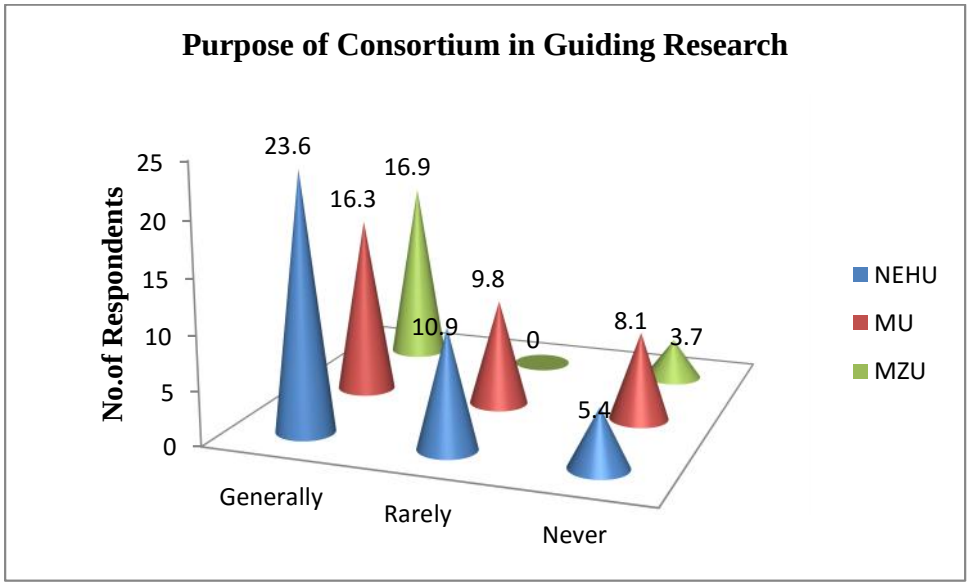
The graph 4.19 indicates that in case of NEHU, 21(38.1%) faculty members generally use the consortium for the purpose of presenting paper in seminar, 10(18.1%) faculty members rarely use and none of the faculty responded to the option never whereas in case of MU, 8(13.1%) faculty members generally use the consortium for the purpose of presenting paper in seminar, 4(6.5%) faculty members rarely use and again 4(6.5%) faculty members never use the consortium for the purpose of presenting paper in seminar.

In case of MZU, the highest response 7(13.2%) faculty members generally use the consortium for presenting paper in seminar, 3(5.6%) rarely use the consortium for presenting paper in seminar and 2(3.7%) faculty members never use the consortium for presenting paper in seminar.

- **Purpose of Consortium in Guiding Research**

Table 4.13 is supported by the following graph for better clarity.

Graph 4.20: Purpose of Consortium in Guiding Research



The above graph shows that in case of NEHU, 13(23.6%) faculty members generally use the consortium for guiding the research and followed by 6(10.9%) of Rarely and 3(5.4%) of never use the consortium for guiding research.

In case of MU, 10(16.3%) faculty members generally use the consortium for the purpose of guiding research, 6(9.8%) faculty members rarely use and 5(8.1%) faculty members never use the consortium for guiding research.

In case MZU, the highest response 9(16.9%) faculty members generally use the consortium for guiding the research and 2(3.7%) faculty members never use the consortium for guiding research.

4.2.4.4. Most accessed e-resources under the consortium by faculty members

The following e-resources are mostly accessed by the faculty members of NEHU, MU and MZU according to the questionnaire.

E-Journals

- JSTOR
- Environment Development and Sustainability
- Economic & Political Weekly
- The World Bank Economic Review
- Cambridge Journal of Economics
- Econometric Theory
- Accounting Review
- Cost & Management Accountant
- Journal of Education for Library and Information Sciences
- Library Hi-Tech
- Aslib Proceeding
- Journal of Academic Librarianship
- Nature Biotechnology
- Cytologia(J-Gate)
- Biologia Plantarum

Publishers

- Taylor & Francis
- Cambridge University Press
- Science Direct
- Nature
- Emerald
- Spriger Link

Database

- JCCC(J-Gate Custom Content for Consortium)

4.2.4.5. Beneficial of Consortium

The Consortium subscribes to electronic resources covering all major subject discipline being taught in universities. It includes wide variety of materials e.g. e-journals, bibliographic databases, reviews published by scholarly societies, university presses, institutional and commercial publishers which is benefited to the faculty members for their academic activities.

The table 4.14 and graph 4.21 shows the beneficial of consortium of faculty members. The average 150(88.7%) faculty members benefited with the consortium as well as 19(11.2%) faculty members are not benefited with the consortium.

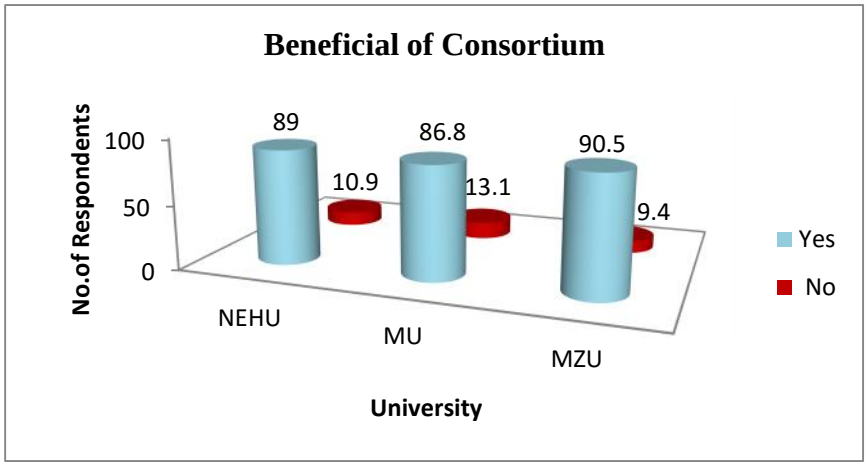
Table 4.14: Beneficial of Consortium

Beneficial	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No.**	**%**	**No.**	**%**		
Yes	49	89	53	86.8	48	90.5	150	88.7
No	6	10.9	8	13.1	5	9.4	19	11.2
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

NEHU:** North Eastern Hill University,MU:** Manipur University
***MZU:** Mizoram University

Graph 4.21: Beneficial of Consortium



The above table and graph depicts that 48(90.5%), 49(89%) and 53(86.8%) faculty members of MZU, NEHU and MU are benefited with the consortium whereas 8(13.1%), 6(10.9%) and 5(9.4%) faculty members of MU, NEHU and MZU are not benefited with the consortium.

4.2.4.6. Level of satisfaction on the use of consortium

The faculty members of NEHU,MU and MZU were asked the level of satisfaction on the use of consortium with the given different option like to a great extent, to some extent, to little extent and not at all. The responses received from faculty members are analyzed and is given in table 4.15 and graph 4.22. The highest 97(57.3%) faculty members satisfied on the use of consortium to some extent, 60(35.5%) faculty members satisfied to a great extent and 12(7.1%) faculty members satisfied to a little extent on the use of consortium.

Table 4.15: Level of satisfaction on the use of consortium

Level of Satisfaction	**University**						**Total**	**Percentage**
	NEHU		**MU**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
To a great extent	19	34.5	23	37.7	18	33.9	60	35.5
To some extent	31	56.3	35	57.3	31	58.4	97	57.3
To a little extent	5	9	3	4.9	4	7.5	12	7.1
Not at all	-	-	-	-	-	-	-	-
Total	55	100	61	100	53	100	169	100

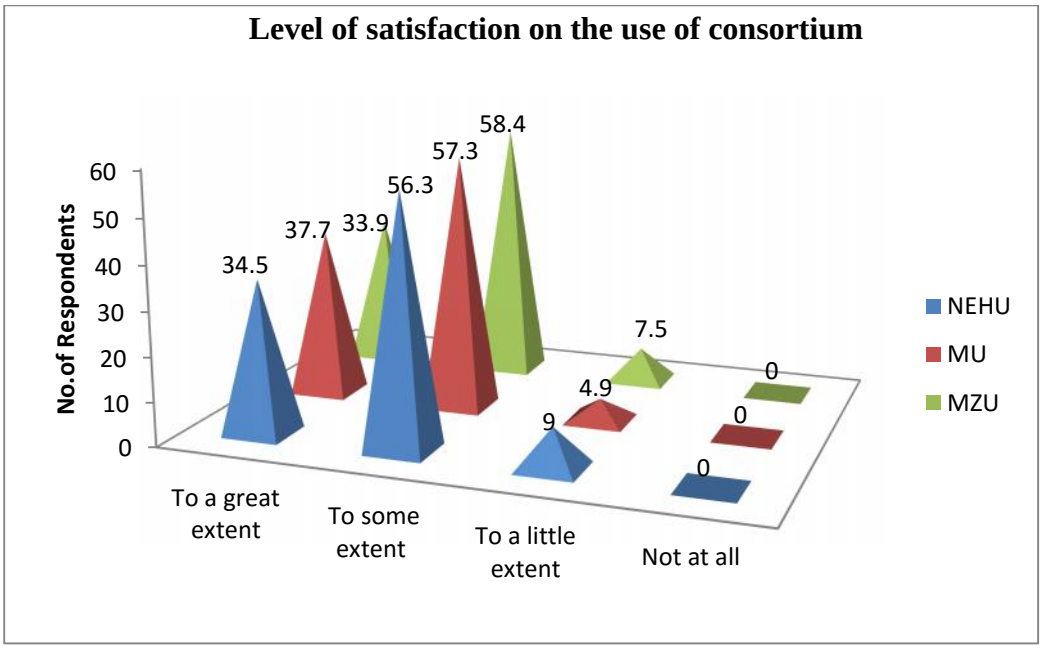
Source: Questionnaire Survey

NEHU:** North Eastern Hill University,MU:** Manipur University
***MZU:** Mizoram University

The table 4.15 and graph 4.22 shows that in case of NEHU, 31(56.3%) faculty members are satisfied to some extent on the use of consortium, 19(34.5%) faculty members satisfied to a great extent and 5(9%) faculty members satisfied to a little extent whereas in case of MU, 35(57.3%) faculty members are satisfied to some extent on the use of consortium, 23(37.7%) faculty members satisfied to a great extent and 3(4.9%) faculty members satisfied to a little extent on the use of consortium.

In case of MZU, the highest response 58.4% faculty members are satisfied to some extent on the use of consortium, the next highest is 33.9 % faculty members satisfied to a great extent and 7.5 % faculty members satisfied to little extent on the use of consortium.

Graph 4.22: Level of satisfaction on the use of consortium



It reveals from the analysis of the table that the faculty members of MZU benefited the highest to some extent on the use of consortium as compare to MU and MZU.

Regarding the level of satisfaction of to a great extent, the faculty members of MZU benefited the highest as compare to NEHU and MU and to the level of to a little extent, the faculty members of NEHU benefited the highest as compare to MU and MZU.

4.2.4.7. Various sources of information used by faculty members

Various sources of information use by faculty members are monographs, journals articles, theses/dissertations, Abstract Reports, research report and bibliographies.

Table4.16: Various sources of information used by faculty members

University	Source of Information											
	Monographs						Journals /Articles					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	9	16.3	6	10.9	8	14.5	27	49	4	7.2	-	-
MU	4	6.5	12	19.6	3	4.9	30	49.1	-	-	-	-
MZU	4	7.5	9	16.9	4	7.5	27	50.9	3	5.6	-	-
Total	17	30.3	27	47.4	15	26.9	84	149	7	12.8	-	-

University	Source of Information											
	Theses/Dissertations						Abstract Reports					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	16	29	10	18.1	4	7.2	10	18.1	9	16.3	3	5.4
MU	15	24.5	6	9.8	-	-	10	16.3	8	13.1	-	-
MZU	17	32	10	18.6	1	1.8	18	33.9	11	20.7	-	-
Total	48	85.5	26	46.5	5	9	38	68.3	28	50.1	3	5.4

University	Source of Information											
	Research Reports						Bibliographies					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	15	27.2	8	14.5	4	7.2	9	16.3	11	20	6	10.9
MU	6	9.8	9	14.7	-	-	6	9.8	6	9.8	3	4.9
MZU	10	18.8	8	15	2	3.7	8	15	6	11.3	2	3.7
Total	31	55.8	25	44.2	6	10.9	23	41.1	23	41.1	11	19.5

Source: Questionnaire Survey

NEHU:** North Eastern Hill University,MU:** Manipur University
***MZU:** Mizoram University

N.B: Multiple answers is permitted

1: Generall**y**

2: Rarely

3: Never

It is evident from the above table 4.16 that generally the average 84(149%) faculty members of NEHU,MU and MZU used journal articles, 48(85.5%) used theses/dissertations, 38(63.3%) used abstract reports, 31(55.8%) used research reports, 23(41.1%) used bibliographies and 17(30.3%) used monographs. It is also clear from the table that rarely 28(50.1%) faculty members of NEHU, MU and MZU used abstract reports and is followed by 27(47.4%) of monographs, 26(46.5%) of theses/dissertations, 25(44.2%) of research reports, 23(41.1%) of bibliographies and 7(12.8%) of journals articles respectively.

The table further shows that 15(26.9%) faculty members of NEHU, MU and MZU never used monographs, 11(19.5%) never used bibliographies, 6(10.9%) never used research reports, 5(9%) never theses/dissertations and 3(5.4%) never used abstract reports.

Analysis from the table reveals that the highest respondent 27(50.9%) faculty members of MZU generally used journal articles as a source of information as compare to MU and NEHU. 11(20.7%) faculty members of MZU rarely use abstract report as a source of information as compare to NEHU and MU. 8(14.5%) faculty members of NEHU never use monograph as a source of information.

4.2.4.8. Electronic Databases Awareness by Faculty Members

The faculty members can access journals articles, conference proceeding, newspapers, etc through electronic databases. The table 4.17 shows the aware of electronic databases by faculty members. The average 62.1% faculty members are aware JSTOR, 39.6% aware of SCOPUS, 26% aware of J-Gate, 15.3% aware of Pro Quest, 7.6 % aware of LISA, 6.5% aware of EBSCOHost, 5.3% aware of Dissertation Abstract , 4.1% aware of ERIC and 2.9 % faculty members aware of Lexis .

Table 4.17: Electronic Databases awareness by Faculty Members

Electronic Databases	University							
	NEHU		M U		MZU		Total	Percentage
	No	%	No	%	No	%		
Psych Info	-	-	3	4.9	5	9.4	8	4.7
Pro Quest	10	18.1	8	13.1	8	15	26	15.3
EBSCOHost	5	9	4	6.5	2	3.7	11	6.5
Lexis	3	5.4	1	1.6	1	1.8	5	2.9
ERIC	2	3.6	2	3.2	3	5.6	7	4.1
LISA	4	7.2	5	8.1	4	7.5	13	7.6
JSTOR	38	69	41	67.2	26	49	105	62.1
SCOPUS	22	40	24	39.3	21	39.6	67	39.6
J-Gate	19	34.5	15	24.5	10	18.8	44	26
Dissertation Abstract	2	3.6	4	6.5	3	5.6	9	5.3

N.B: Multiple answers is permitted **Source:** Questionnaire Survey

NEHU:** North Eastern Hill University,MU:** Manipur University
***MZU:** Mizoram University

Table 4.17depicts that in case of NEHU, 38(69%) faculty members are aware of JSTOR which is the highest response and followed by 22(40%) of SCOPUS, 19(34.5%) of J-Gate, 10(18.1%) of Pro Quest, 5(9%) of EBSCOHost, 4(7.2%) of LISA , 3(5.4%) of Lexis and 2(3.6%) of ERIC and Dissertation Abstract respectively.

In case of MU, 41(67.2%) faculty members aware of JSTOR, 24(39.3%) aware of SCOPUS, 15(24.5%) aware of J-Gate, 8(13.1%) aware of Pro Quest, 5(8.1%) aware of LISA, 4(6.5%) aware of both Dissertation Abstract and EBSCOHost, 3(4.9%) aware of Pschy. Inf., 2(2%) aware of ERIC and 1(1.6%) faculty members aware of Lexis.

In case of MZU, 26(49%) faculty members are aware of JSTOR and followed by 21(39.6%) of SCOPUS, 10(18.8%) of J-Gate, 8(15%) of Pro Quest, 5(9.4%) of Psych Inf., 4(7.5%) of LISA, 3(5.6%) of both ERIC and dissertation abstract, 2(3.7%) of EBSCOHost and 1(1.8%) of Lexis respectively.

4.2.4.9. Electronic Databases generally used by faculty members

The faculty members were asked for generally used electronic databases like Psych Info, Pro Quest, EBSCOHost, Lexis, ERIC, LISA, etc. The average 87(51.4%) faculty members generally use JSTOR and is followed by 22(13%) of SCOPUS, 18(10.6%) of Pro Quest, 10(5.9%) of LISA, 8(4.7%) of ERIC, 5(2.9%) of both Pscych Info as well as EBSCOHost, 4(2.3%) of Dissertation Abstract and 2(1.1%) of J-Gate respectively.

Table4.18: Electronic Databases used by faculty members

Electronic Databases	**University**							
	NEHU		**M U**		**MZU**		**Total**	**Percentage**
	No	**%**	**No**	**%**	**No**	**%**		
Psych Info	-	-	-	-	5	9.4	5	2.9
Pro Quest	6	10.9	4	6.5	8	15	18	10.6
EBSCOHost	3	5.4	2	3.2	-	-	5	2.9
Lexis	-	-	-	-	-	-	-	-
ERIC	4	7.2	2	3.2	2	3.7	8	4.7
LISA	4	7.2	4	6.5	2	3.7	10	5.9
JSTOR	35	63.6	27	44.2	25	47.1	87	51.4
SCOPUS	9	16.3	13	21.3	-	-	22	13
J-Gate	-	-	2	3.2	-	-	2	1.1
Dissertation Abstract	2	3.6	-	-	2	3.7	4	2.3

N.B: Multiple answers is permitted **Source:** Questionnaire Survey

NEHU:** North Eastern Hill University,MU:** Manipur University
***MZU:** Mizoram University

The above table reveals that in case of NEHU, 35(63.6%) faculty members generally used JSTOR, 9(16.3%) used SCOPUS, 6(10.9%) used Pro Quest, 4(7.2%) used both ERIC as well as LISA, 3(5.4%) used EBSCOHost and 2(3.6%) use Dissertation Abstract. None of the faculty members use Psych Info, Lexis and J-Gate databases.

The table further analyzed that in case of MU, 27(44.2%) faculty members use JSTOR, 13(21.3%) use SCOPUS, 4(6.5%) use both Pro Quest and LISA and 2(3.2%) use J-Gate, ERIC and EBSCOHost.

In case of MZU, 25(47.1%) faculty members use JSTOR, 8(15%) Use Pro Quest, 5(9.4%) Psych. Info. And 2(3.7%) uses Dissertation Abstract, LISA and ERIC databases.

4.2.4.10. Types of Information Resources generally access by Faculty Members

There are different types of information generally access by faculty members. Some of them are books, journals, dissertation & theses, Newspaper, etc. The highest 80(47.3%) faculty members access journals and is followed by 48(28.4%) of books, 32(18.9%) of dissertations & theses, 26(15.3 %) of conference proceeding, 19(11.2%) of databases, 8(4.7%) of govt.document and 5(2.9%) of newspapers respectively.

Table 4.19: Types of Information Resources generally access by Faculty Members

Information Resources	University						Total	Percentage
	NEHU		M U		MZU			
	No	%	No	%	No	%		
Books	18	32.7	16	29	14	26.4	48	28.4
Journals	27	49	30	49.1	23	43.3	80	47.3
Dissertations & Theses	17	30.9	6	9.8	9	16.9	32	18.9
Databases	8	14.5	8	13.1	3	5.6	19	11.2
Newspapers	1	1.8	-	-	4	7.5	5	2.9
Conference Proceeding	8	14.5	12	19.6	6	11.3	26	15.3
Govt. Documents	-	-	2	3.2	6	11.3	8	4.7

N.B: Multiple answers is permitted **Source:** Questionnaire Survey

***NEHU:** North Eastern Hill University, ***MU:** Manipur University
***MZU:** Mizoram University

The above table indicates that in case of NEHU, the highest response 27(49%) faculty members generally access journals, the next highest 18(32.7%) access books, 17(30.9%) access dissertation & theses, 8(14.5%) access both conference proceeding and databases, 1(1.8%) access newspaper. None of the faculty members access govt. documents whereas in case of MU, 30(49.1%) faculty members generally access journals, 16(29%) access books, 12(19.6%) access

conference proceeding, 6(9.8%) access dissertations & theses and 2(3.2%) faculty members access govt.documents.

In case of MZU, 23(43.3%) faculty members generally access journals, 14(26.4%) access books, 9(16.9%) dissertations & theses, 6(11.3%) access both conference proceeding and govt. documents, 4(7.5%) access newspaper and 3(5.6%) access databases.

4.2.4.11. Top five library resources used for academic and research work by Faculty Members

The table 4.20 shows the five library resources used for academic and research work by faculty members. The average 134(79.2%) faculty members use electronic journals for academic and research work, 122(72.1%) use print journals, 117(69%) use text books, 99(58.5%) use reference books, 92(54.4%) use electronic databases and 80(47.3%) use newspaper (Online or Print).

Table 4.20: Top five library resources used for academic and research work by Faculty Members

Library Resources	**University**						**Total**	**Percentage**
	NEHU		**M U**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Text Books	45	81.8	38	62.2	34	64.1	117	69
Reference Books	34	61.8	28	45.9	37	69.8	99	58.5
Print Journals	35	63.6	39	63.9	48	90.5	122	72.1
Electronic Journals	36	65.4	50	81.9	48	90.5	134	79.2
Electronic Databases	32	58.1	35	57.3	25	47.1	92	54.4
Newspaper (Online or Print)	13	23.6	44	72.1	23	43.3	80	47.3
Inter Library Loan or Document Retrieval	-	-	-	-	-	-	-	-

N.B: Multiple answers is permitted **Source:** Questionnaire Survey

***NEHU:** North Eastern Hill University, ***MU:** Manipur University
***MZU:** Mizoram University

The above table indicates that in case of NEHU, the highest response 45(81.8%) faculty members use text books for academic and research work, the next highest 36(65.4%) use electronic journals and is followed by 35(63.6%) of print journals, 34(61.8%) of reference books, 32(58.1%) of electronic databases and 13(23.6%) of newspaper(online or print) respectively.

The table further depicts that in case of MU, 50(81.9%) faculty members use electronic journals for academic and research work, 44(72.1%) use newspaper (online or print), 39(63.9%) use print journals, 38(62.2%) use text books, 35(57.3%) use electronic databases and 28(45.9%) use reference books for academic and research work.

In case of MZU, the highest response 48(90.5%) faculty members use both electronic as well as print journals for academic and research work, 37(69.8%) use reference books, 34(64.1%) use text books, 25(47.1%) electronic databases and 23(43.3%) use newspaper(online or print).

4.2.4.12. Preference of the use of documents in print form or electronic form by the Faculty Members

The faculty members were asked for the use of documents in print form or electronic form and the data collected are analyzed and depicts that the out of 169 faculty members of NEHU, MU and MZU the average 80(47.3%) faculty members prefer to use documents both in print or electronic form, 51(30.1%) faculty members prefer to use in print form and 38(22.4%) prefer to use document in electronic form and it is reflected in the given table 4.21 and supported by the graph 4.23.

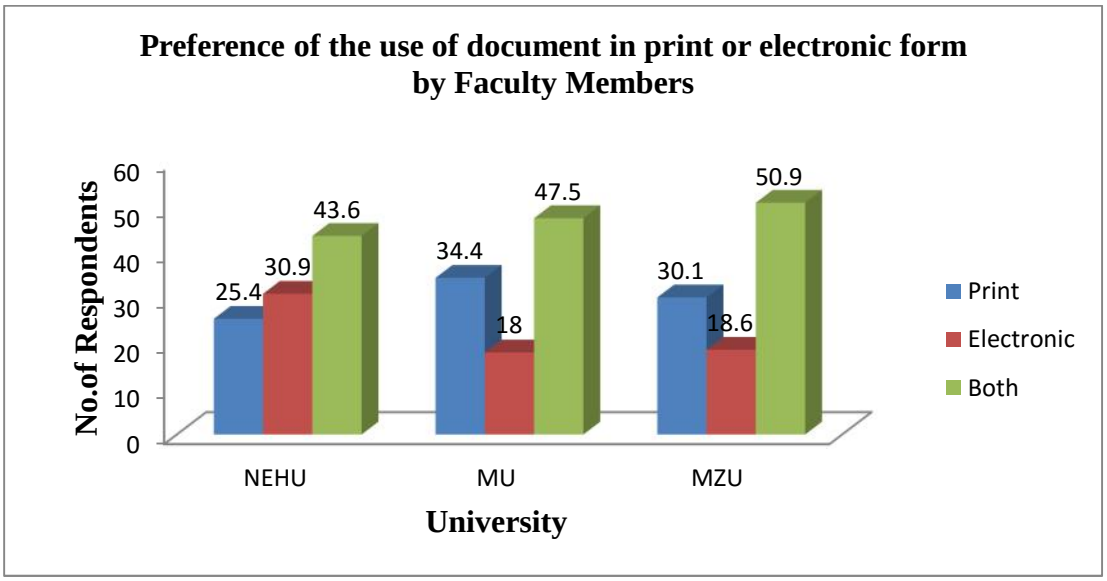
Table 4.21: Preference of the use of documents in print form or electronic form by the Faculty Members

Preference	**University**						**Total**	**Percentage**
	NEHU		**M U**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Print	14	25.4	21	34.4	16	30.1	51	30.1
Electronic	17	30.9	11	18	10	18.6	38	22.4
Both	24	43.6	29	47.5	27	50.9	80	47.3
Total	55	100	61	100	53	100	169	100

*__NEHU__: North Eastern Hill University **Source:** Questionnaire Survey

*__MU__: Manipur University *__MZU__: Mizoram University

Graph 4.23: Preference of the use of documents in print form or electronic form by the Faculty Members



The above table and figure shows that in case of NEHU, 24(43.6%) faculty members prefer to use document in both form, 17(30.9%) prefer to use electronic form and 14(25.4%) faculty members prefer to use print form whereas in case of MU, 29(47.5%) faculty members prefer to use document in both form, 21(34.4%) prefer print form and 11(18%) prefer electronic form.

In case of MZU, 27(50.9%) faculty members prefer to use document in both form, 16(30.1%) faculty prefer print form and 10(18.6 %) prefer electronic form.

4.2.4.13. Number of journals used by Faculty Members on a regular basis

The UGC-INFONET Digital Library Consortium provides number of journals which can be access by faculty members of NEHU, MU and MZU on regular basis. Out of 169 faculty members of North Eastern Hill University, Manipur University and Mizoram University, the average 85(50.30%) faculty members access 0-5 number of journals on regular basis and is followed by 67(39.65%) of 6-10 number and 17(10%) of 11-15 number of journals respectively.

Table 4.22: Number of journals used by Faculty Members on a regular basis.

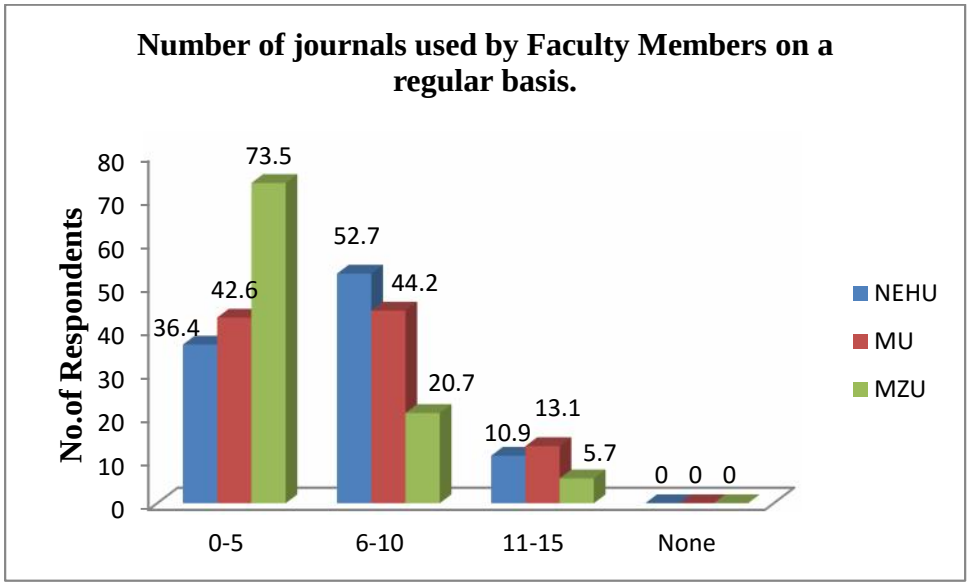
No. of journals used on regular basis	University						Total	Percentage
	NEHU		M U		MZU			
	No	%	No	%	No	%		
0-5	20	36.4	26	42.6	39	73.5	85	50.3
6-10	29	52.7	27	44.2	11	20.7	67	39.6
11-15	6	10.9	8	13.1	3	5.7	17	10
None	-	-	-	-	-	-	-	-
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

*__NEHU__: North Eastern Hill University *__MU__: Manipur University

*__MZU__: Mizoram University

Graph 4.24: Number of journals used by Faculty Members on a regular basis.



The above table and graph reveals that, in case of access of 0-5 number of journals on regular basis, 39(73.5%) faculty members of MZU is the highest, the next highest is 26(42.6%) faculty members of MU and the least is 20(36.4%) faculty members of NEHU.

It is further shows that in case of access of 6-10 nos of journals on regular basis, 29(52.7%) faculty members of NEHU is the highest response and is followed by 27(44.2%) of MU and 11(20.7%) of MZU.

The table and graph also reveals that in case of access of 11-15 number of journals on regular basis, the highest is 8(13.1%) faculty members of MU and is followed by 6(10.9%)of NEHU and 3(5.7%) of MZU respectively.

4.2.4.14. Bibliographic Sources used by Faculty Members

The faculty members of NEHU, MU and MZU use bibliographic sources of information like abstracting journals, documentation received from outside, indexing journals, subject bibliographies, etc.

Table 4.23: Bibliographic Sources used by Faculty Members

University	Bibliographic sources											
	Abstracting Journals						Documentation list received from outside					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	18	32.7	16	29	-	-	5	9	15	7.2	12	21.8
MU	12	19.6	15	24.5	8	13.1	9	14.7	12	19.6	8	13.1
MZU	14	26.4	12	22.6	8	15	3	5.6	13	24.5	11	20.7
Total	44	78.7	43	76.1	16	28.1	17	29.3	40	51.3	31	55.6

University	Bibliographic sources											
	Indexing Journals						Subject Bibliographies					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	17	30.9	14	25.4	3	5.4	15	27.2	17	30.9	4	7.2
MU	15	24.5	13	21.3	4	6.5	11	18	13	21.3	6	9.8
MZU	14	26.4	13	24.5	-		11	20.7	15	28.3	-	-
Total	46	81.8	40	71.2	7	11.9	37	65.9	45	80.5	10	17

The above table 4.23 shows that generally the average 46(81.8%) faculty members of NEHU, MU and MZU use indexing journals and is followed by 44(78.7%) of abstracting journals, 37(65.9%) of subject bibliographies and 17(29.3%) of documentation list received from outside.

The table further depicts that the average 45(80.5%) faculty members of NEHU,MU and MZU rarely used subject bibliographies, 43(76.1%) rarely use abstracting journals, 40(71.2%) rarely use indexing journals and 40(51.3%) rarely used documentation list received from outside.

It is also evident that the average 31(55.6%) faculty members of NEHU, MU and MZU never used documentation list received from outside and is followed by 16(28.1%) of abstracting journals, 10(17%) of subject bibliographies and 7(11.9%) of indexing journals.

The above analysis also reveals that 18(32.7%) faculty members of NEHU is the highest generally use abstracting journals as bibliographic sources as compare to MU and MZU, In case of rarely use in subject bibliographies, 17(30.9%) faculty members of NEHU is the highest as compare to MU and MZU. In case of never use in documentation list received from outside, 12(21.8%) faculty members of NEHU is the highest as compare to MU and MZU.

4.2.4.15. Methods used to locate relevant information for research

Various methods adopted by faculty members to locate the relevant information of their need according to their convenient and access facilities. Some of the methods are browse print journals, browse electronic journals, browse library catalog, etc. 133(78.7%) faculty members in average browse electronic journals to locate the information for research and is followed by 128(75.8%) of browsing print journals, 54(31.10%) of searching references of relevant articles, 47(27.9%) of browsing the relevant internet site, 11(6.6%) of browsing the library catalog and to browse the stack at the library respectively.

Table 4.24: Methods used to locate relevant information for research

Methods to locate relevant information	**University**						**Total**	**Percentage**
	NEHU		**M U**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Browse print journals	44	80	50	81.9	34	64.1	128	75.8
Browse Electronic journals	46	83.6	39	63.9	48	90.5	133	78.7
Browse the library catalog	5	9	-	-	6	11.3	11	6.6
Browse the stack at the library	2	3.6	1	1.6	6	11.3	9	5.4
Browse relevant internet site	17	30.9	15	24.5	15	28.3	47	27.9
Search references of relevant articles	21	38.1	22	36	11	20.7	54	31.10

N.B. Multiple answers are permitted **Source:** Questionnaire Survey

***NEHU**: North Eastern Hill University ***MU:** Manipur University

***MZU:** Mizoram University

The table 4.24 indicates for the method to locate the relevant information for research, 50(81.9%) faculty member of MU browse print journals which is the highest as compare to NEHU and MZU. 48(90.5%) faculty members of MZU is the highest to browse electronic journals, 6(11.3%) faculty members of MZU is the highest to browse both the library catalog and to browse the stack at the library. For browsing the relevant internet site, 17(30.9%) faculty members of NEHU is the highest as compare to MU and MZU and for searching the references of relevant articles 21(38.1%) faculty members of NEHU is the highest as compare to MU and MZU.

4.2.4.16. Ways to obtain Journals Articles by the Faculty Members

Faculty members use several ways to obtain journal articles like printing the personal subscription, reading print journal at library, document delivery service, etc. The average 100(59.1%) faculty members read print journal, 65(38.4%) take personal print subscription, 57(33.8%) read library electronic copy, 44(26%) take photocopy of journal article at library, 6(3.6%) take the help from colleagues and 4(2.4%)use document delivery service to obtain journal articles.

Table 4.25: Ways to obtain Journals articles by the Faculty Members

Sl. No.	Methods to obtain journal articles	University						Total	Percentage
		NEHU		M U		MZU			
		No	%	No	%	No	%		
1.	Personal print subscription	16	29	26	42.6	23	43.3	65	38.4
2.	Read print journal at library	28	50.9	37	60.6	35	66	100	59.1
3.	Document Delivery Service	4	7.2	-	-	-	-	4	2.4
4.	Read Library's electronic copy	31	56.3	18	29.5	14	26.4	57	33.8
5.	Interlibrary loan	-	-	-	-	-	-	-	-
6.	Photocopy of journal article at library	18	32.7	14	22.9	12	22.6	44	26.04
7.	Colleagues	4	7.2	2	3.2	-	-	6	3.6

N.B. Multiple answers are permitted **Source:** Questionnaire Survey

***NEHU**: North Eastern Hill University ***MU:** Manipur University

***MZU:** Mizoram University

The table 4.25 depicts that in case of NEHU, 31(56.3%) faculty members read library's electronic copy to obtain journal articles, 28(50.9%) read print journal at library, 18(32.7%) take photocopy of journal article at library ,16(29%) personal print subscription and 4(7.2%) both use document delivery service and take the help of colleagues.

In case of MU,37(60.6 %) faculty members read print journal at library to obtain journal articles, 26(42.6 %) take personal print subscription, 18(29.5%) read library's electronic copy, 14(22.9%) take photocopy of journal article at library and 2(3.2%) ask colleague to obtain journal articles.

In case of MZU, 35(66%) faculty members read print journal at library , 23(43.3%) take personal print subscription, 14(26.4%) read library's electronic copy and 12(22.6%) faculty members take photocopy of journal articles at library to obtain journal articles.

The table further shows that 35(66%) faculty members of MZU is the highest to read print journal at library as compare to NEHU and MU.18(32.7%) faculty members of NEHU is the highest to take photocopy of journals articles at library as compare to MU and MZU.

4.2.4.17. Methods of Seeking Information by the Faculty Members

The faculty members use various methods for seeking information like asking librarian, attending conferences and meeting, reading conference and meeting papers, etc.

Table4.26: Methods of Seeking Information by the Faculty Members

University	Methods of seeking information											
	Asking librarian						Attending conferences and meetings					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	4	7.2	17	30.9	6	10.9	14	25.4	17	30.9	-	-
MU	1	1.6	13	21.3	22	36	26	42.6	11	18	11	18
MZU	3	5.6	22	41.5	4	7.5	17	32	12	22.6	2	3.7
Total	8	14.4	52	93.7	32	54.4	57	100	40	71.5	13	21.7

University	Methods of seeking information											
	Reading conference and meeting papers						reading professional journals in your field					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	14	25.4	16	29	-	-	33	60	4	7.2	-	-
MU	26	42.6	-	-	4	6.5	39	63.9	-	-	2	3.2
MZU	16	30.1	-	-	-	-	28	52.8	3	5.6	-	-
Total	56	98.1	16	29	4	6.5	100	176.7	7	12.8	2	3.2

University	Methods of seeking information											
	Reading text books in your field						Searching bibliographic databases					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	43	78.1	2	3.6	-	-	29	52.7	15	27.2	-	-
MU	28	45.9	-	-	2	3.2	11	18	-	-	-	-
MZU	38	71.6	-	-	-	-	10	18.8	15	28.3	3	5.6
Total	109	195.6	2	3.6	2	3.2	50	89.5	30	55.5	3	5.6

University	Methods of seeking information											
	Talking to colleagues or experts in your own department						Using an internet search engine					
	1		2		3		1		2		3	
	No	%	No	%	No	%	No	%	No	%	No	%
NEHU	19	34.5	8	14.5	-	-	21	38.1	5	9	-	-
MU	11	18	15	24.5	2	3.2	27	44.2	-	-	-	-
MZU	17	32	-	-	3	5.6	26	49	-	-	-	-
Total	47	84.5	23	39	5	8.8	74	131.3	5	9	-	-

University	Methods of seeking information					
	Writing to a colleague or expert at another university					
	1		2		3	
	No	%	No	%	No	%
NEHU	2	3.6	31	56.3	-	-
MU	2	3.2	-	-	6	9.8
MZU	2	3.7	2	3.7	3	5.6
Total	6	10.5	33	60	9	15.4

N.B: Multiple answers are permitted **Source:** Questionnaire Survey

***NEHU:** North Eastern Hill University ***MU:** Manipur University

***MZU:** Mizoram University

The above table reveals that the average 109(195.6%) faculty members of NEHU, MU and MZU generally seek information by reading text book in their field and is followed by 100(176.7%) of reading professional journals in their field, 74(131.3%) of using an internet search engine, 57(100%) of attending conferences and meetings, 56(98.1%) of reading conferences and meeting papers, 50(89.5%) of searching bibliographic databases, 47(84.5%) of talking to colleagues or

experts in their field, 8(14.4%) of asking librarian and 6(10.5%) of writing to a colleague or expert at another university .

The table further shows that the average 52(93.7%) faculty members of NEHU, MU and MZU rarely ask the librarian for seeking information and is followed by 40(71.5%) of attending conferences and meeting, 33(60%) of writing to a colleague or expert in their field, 30(55.5%) of searching bibliographic databases, 23(39%) of talking to colleague or expert in their field, 16(29%) of reading conference and meeting papers, 5(9%) of using internet search engine and 2(3.6%) of reading text book in their field respectively.

The table also indicates that the average 32(54.4%) faculty members of NEHU, MU and MZU never ask the librarian for seeking the information and is followed by 13(21.7%) never attend conferences and meetings, 9(15.4%) never write to colleague or expert at another university, 5(8.8%) never talk to colleague or expert in their field for seeking information, 3(5.6%) never search bibliographic databases and 2(3.2%) never read text book for seeking information.

4.2.5. Problems and Suggestions

Many problems have encountered by the faculty members while accessing the UGC-INFONET Digital Library Consortium and the suggestions are given by them to overcome the problems.

4.2.5.1. Problems Encountered in accessing the consortium

The faculty members of NEHU, MU and MZU face different types of problems for accessing the consortium. Some of the problems are frequent failure of power, low speed of internet, lack of desired resources, etc. Data collected from them are tabulated and analyzed. The table 4.27 reflects that the average 112(66.2%) faculty members encountered the low speed of internet while accessing the consortium and is followed by 31(18.3%) of frequent failure of power, 14(8.3%) of lack of desired resources, 7(4.1%) of technical problems associated with consortium and 5(2.1%) of want of more computer/systems in the library respectively.

Table 4.27: Problems Encountered in accessing the consortium

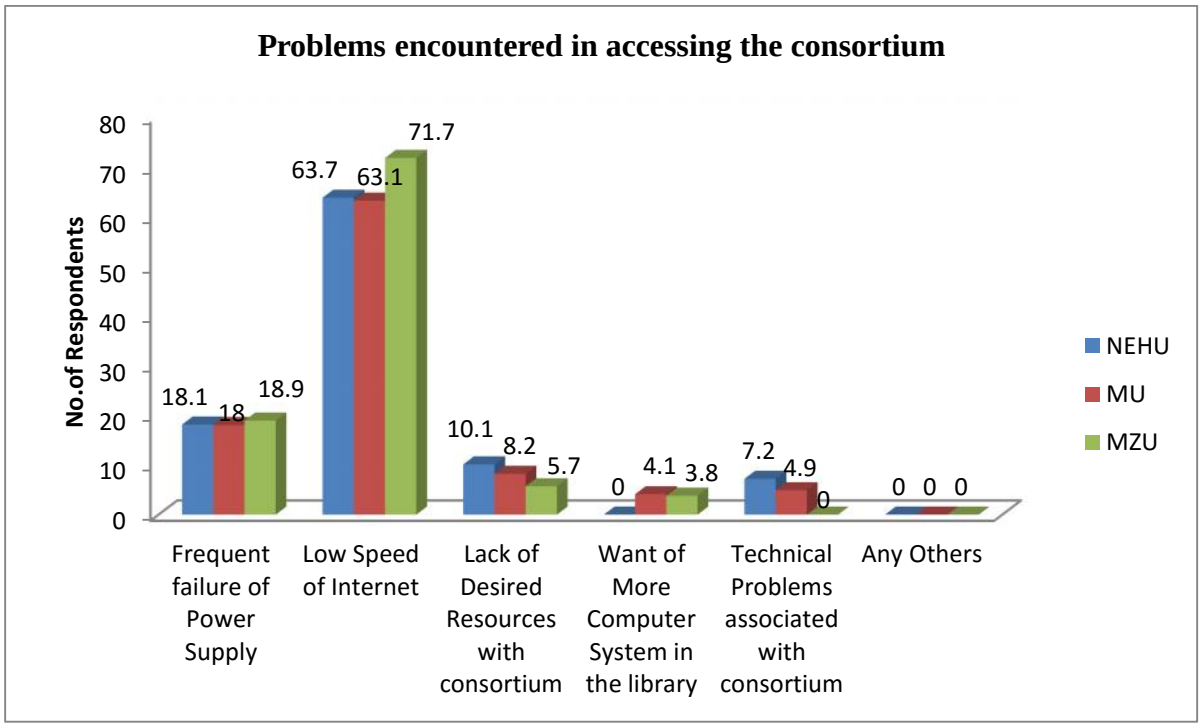
Types of Problems	University						Total	Percentage
	NEHU		MU		MZU			
	No	%	No	%	No	%		
Frequent failure of Power Supply	10	18.1	11	18	10	18.9	31	18.3
Low Speed of Internet	35	63.7	39	63.1	38	71.7	112	66.2
Lack of Desired Resources with consortium	6	10.1	5	8.2	3	5.7	14	8.3
Want of More Computer/ System in the library	-	-	3	4.1	2	3.8	5	2.1
Technical Problems associated with consortium	4	7.2	3	4.9	-	-	7	4.1
Any Others	-	-	-	-	-	-	-	-

N.B: Multiple answers are permitted **Source:** Questionnaire Survey

***NEHU:** North Eastern Hill University ***MU:** Manipur University

***MZU:** Mizoram University

Graph 4.25: Problems Encountered in accessing the consortium



As shown in the above table, 10(18.9%) faculty members of MZU encountered the problem of highest in frequent failure of power supply while accessing the consortium as compare to NEHU and MZU, 38(71.7%) faculty members of MZU is the highest to encountered the problem of low speed of internet, 6(10.1%) faculty members of NEHU is the highest to encountered the problem lack of desired resources with consortium, 3(4.1%) faculty members of MU is the highest to encountered the problem of want of more computer/system in the library and 4(7.2%) faculty members of NEHU encountered to problem with the technical problems associated with consortium as compare to MU and MZU.

4.2.5.2. Quality of e-journals provided through consortium

The faculty members are making use of e-resources and services provided through UGC-INFONET Digital Library Consortium. So they were asked about the quality of e-journals provided through consortium and their opinion shows that out of 169 faculty members of North Eastern Hill University, Manipur University and Mizoram University, the overall 107(63.3%) faculty members find e-journals provided through consortium with very good quality, 52(30.8%) find with very good and 10(5.9%) find with average quality .

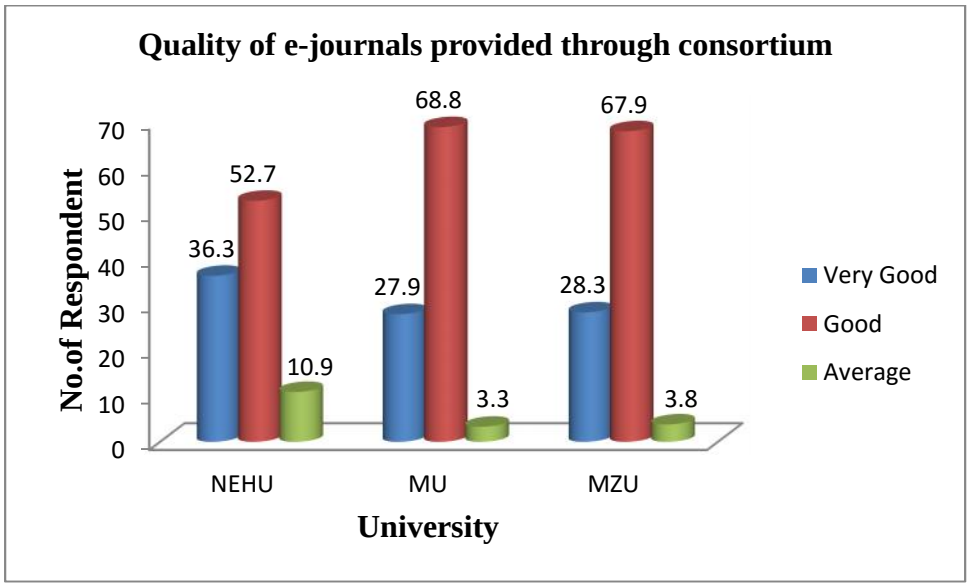
Table 4.28: Quality of e-journals provided through consortium

Quality of e-journals	**University**						**Total**	**Percentage**
	NEHU		**M U**		**MZU**			
	No	**%**	**No**	**%**	**No**	**%**		
Very Good	20	36.3	17	27.9	15	28.3	52	30.8
Good	29	52.7	42	68.8	36	67.9	107	63.3
Average	6	10.9	2	3.3	2	3.8	10	5.9
Total	55	100	61	100	53	100	169	100

Source: Questionnaire Survey

***NEHU:** North Eastern Hill University ***MU:** Manipur University ***MZU:** Mizoram University

Graph 4.26: Quality of e-journals provided through consortium



The above table and graph depicts that, 42(68.8%) faculty members of MU express the quality of e-journals provided through consortium with good is the highest response as compare to NEHU and MZU, 20(36.3%) faculty members of NEHU find the quality of e-journals provided through consortium with very good is the highest response as compare to MU and MZU and 6(10.9%) faculty members of NEHU express the quality of e-journal provided through consortium with average is the highest response as compare to MU and MZU.

University libraries are the most important place for getting required literature, information by the research scholars. Those libraries are collecting resources of different formats including online resources. The study has been conducted covering various aspects of use of online resources in different dimensions their availability, use and users and other areas. The situation is quite encouraging and satisfactory especially the university libraries are in position to provide required online resource information to the research scholars by involving themselves in networking environment and also becoming a member of the consortia group. These facilities help research scholars enormously and libraries are really playing a major role facilitating online resources access to the research scholars.

4.3. Findings

The universities selected were only three i.e. North Eastern Hill University (NEHU), Manipur University (MU) and Mizoram University (MZU) and it was restricted to the faculty members of School of Sciences, Social Sciences, Economics, Management and Information Science. The main idea for the study as revealed in the analysis was to find out the use of UGC-INFONET Digital Library Consortium to the faculty members by arranging the accession of information through consortium. Accordingly the following aspects were brought to the notice of the scholar as enumerated below:

- 148 (87.6%) faculty members are aware of UGC-INFONET Digital Library Consortium and only few 19 (11.3%) are not aware.
- The faculty members of NEHU, MU and MZU access the consortium from different places.130 (76.9%) faculty members' access from their department, 37 (21.9%) access from university library and only 2 (1.2%) accesses from any other points.
- 120 (71%) faculty members have given expressed their view as good for the resources and services available through consortium and 2 (1.1%) faculty members responded as not satisfied.
- Regarding the frequency of using the consortium it was found that the total 79 (46.7%) faculty members used the consortium 2-3 times in a week , 67(39.4%) used daily and very few 3 (1.7%) are not using at all.
- For the duration of using the consortium, 99 (58.5%) faculty members used for 0-5 hours in a day while only 7 (4.1%) used 11-15 hours in a day.
- The purpose of using the consortium are many like teaching, research, writing paper, writing book, writing report, etc. It has been found that 111 (199.6%) faculty members generally used the consortium for teaching purpose which is the maximum response as compare to others.
- The faculty members are accessing a number of e-resources through this consortium. Some of the commonly access e-resources are JSTOR, Taylor & Francis, Economic & Political Weekly, Cambridge journals, Nature, Emerald, J-Gate, etc.

- The consortium is benefited to the faculty members for their academic and research purposes. 150 (88.7%) faculty members benefited from consortium and some 19 (11.2%) of them are not benefited.
- For the satisfaction level of the consortium 97 (57.3%) faculty members are satisfied to some extent, 60 (35.5%) are satisfied to a great extent and only 12 (7.1%) of them are satisfied to a little extent.
- The majority 87 (51.4%) faculty members used JSTOR as compare to the use of other databases like Psych Info, Pro Quest, EBSCOHost, Lexis, etc.
- The faculty members access various types of information like books, journals, dissertations/theses, databases, newspapers, etc. 80 (47.3%) faculty members access journals and only 8(4.7%) access Govt. documents.
- 80(47.3%) faculty members prefer to use document in both electronic and print format some 38 (22.4%) of them prefer use document in electronic form.
- The faculty members access various types of information like books, journals, dissertations/theses, databases, newspapers, etc. 80 (47.3%) faculty members access journals and only 8(4.7%) access Govt. documents.
- 80(47.3%) faculty members prefer to use document in both electronic and print form and some 38 (22.4%) of them prefer use document in electronic form.
- 85(50.3%) faculty members use 0-5 journals on regular basis including print and electronic version.
- The average 133(78.7%) faculty members browse electronic journals to locate relevant information for research and only 9(5.4%) of the browse the stack of the library to locate the relevant information.
- To obtain journal articles, 100(59.1%) faculty members read print journals at library and very few 6(3.6%) of them ask to the colleague.
- The problems face by the resources while accessing the consortium are many like frequent failure of power supply, low speed of internet, lack of desire resources with the consortium ,etc. The majority 112(66.2%) encountered low speed of internet and only 5(2.1%) encountered problems of want of more computers/systems in the library.

- 107(63.3%) faculty members gave the view of the quality of e-journals through consortium as good, 52(30.8%) express the quality of e-journals as very good and only 10(5.9%) of them as average.

4.4. Testing of Hypotheses

Hypothesis is usually considered as one of the research techniques. Its main functions are to suggest tentative assumptions and testing the same through data analysis and findings. The hypothesis may not be absolutely true and may vary after research result. Based on the study the following hypotheses are tested as follows:

H 1: Awareness of UGC-INFONET Digital Library Consortium for faculty members increases use of e-resources.

Table 4.8 deals with the 'Awareness of UGC-INFONET Digital Library Consortium by faculty members' shows that majority of the faculty members of North Eastern Hill University, Manipur University and Mizoram University are aware of UGC-INFONET Digital Library Consortium which increases the use of e-resources available through consortium and hence the finding support the hypothesis1.

H2: Use of UGC-INFONET Digital Library Consortium by faculty members enhances academic and research output.

Table 4.20 relates to the' Top five library resources used for academic and research work by faculty members' indicates that faculty members used various library resources including UGC-INFONET Digital Library Consortium. Majority of the faculty members of NEHU, MU and MZU use electronic journals accessible through the consortium and thus the finding support the hypothesis 2.

H3: Internet connectivity and bandwidth are the main hindrance to provide fast access to UGC-INFONET Digital Consortium.

Table 4.27 which relates to the 'Problems encountered in accessing the consortium' reveals that faculty members face various problems while accessing the consortium. One of the major

problem frequently face by the faculty members of NEHU, MU and MZU is low speed of internet while accessing the consortium and therefore the finding clearly support the hypothesis3.

The outcomes of the present study thus enable us to understand the benefit of using the UGC - INFONET Digital Library Consortium by faculty members in their academic and research purpose. With their findings the researcher would be able to design a model through which the faculty members can access and get information as per their needs. The next final chapter is concerned with the conclusion and suggestions.

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5.1. Introduction:

Information and Communication Technology (ICT) is one of the important buzzwords of today's ICT world. It has changed the society into information society and our way of life. ICT is a product of information age and technology. It has been regarded as a vehicle for future development, opportunities, challenges and competition that enables information to be collected and used. It is the convergence of computers and communication technology which makes processing, storage, and retrieval very faster instant and effective.

Nowadays, information explosion, heavy demands of clientele, development of powerful microcomputers, shrinking library budget, remote location of libraries and rapid changes in telecommunication systems are forcing the modern libraries to establish and participate in information networks. To cope up with financial constraints, and to acquire /subscribe large number of literature published and available in various forms, resource sharing by way of coordination and cooperation seems to be the only way out to control this problem. Electronic information network is the basic necessity for resources sharing which provides effective communication and speedy services to remote users. Information and Communication Technology (ICT) has, emerged as an essential element to control this problems in today's knowledge world. Many nations of world are now considering ICT as one basic skill amongst other core subjects. Though there have been many new technologies being introduced over the years, Information Technology has far reaching an impact on education and other sphere of life. Now days, people require emphasizing technical knowhow for their success in every stage of their endeavour. Similarly, Information Technology is full of answers for many questions and tackles numerous inquiry, analysis and structure of new information. The process of learning can become significantly richer as users gain access to new information through consortia. Network can increase learner motivation as it links connectivity with nascent information. The open ended vistas of knowledge accessed through journals and books available in electronic form have made the user gain importance in competencies.

It has been observed in the study that since India is a land facing many problems like ever growing population, poverty, etc., it is obvious that paucity of funds and lack of space come out

as outstanding features in every field. The library is not an exception. In order to meet the challenges there has been an attempt by the government to establish a project called consortia which is nothing but a modified name for cooperation in the resource sharing among the libraries.

Considering the facts mentioned above, the University Grants Commission launched two ambitious programmes for the academic community in universities under its purview. The first initiative, namely "UGC-INFONET Connectivity Programme" provides for networking of university campuses with state-of-the-art campus wide networks and Internet bandwidth, the second initiative called the "UGC-INFONET Digital Library Consortium" provides access to selected scholarly electronic journals and databases in different disciplines. The INFLIBNET is responsible for execution and monitoring of both the initiatives.

5.2. Suggestions

From the opinion of the faculty members, the access of e-journals provided under UGC-INFONET Digital Library Consortium may be improved depends upon the followings:

- University Libraries should take a leading role to create awareness among the faculty members about UGC-INFONET Digital Library Consortium by conducting training programmes, workshops, audio-visual presentations, demonstrations, etc. on regular basis.

- The university should support the libraries in every possible way and faculty members should cooperate in conducting the training programmes.

- The library should facilitate more internet services with high bandwidth, LAN & WAN to exploit the internet facilities by the faculty members.

- User education should be conducted for a small group of faculty members belonging to a single subject discipline such as mathematics, chemistry, physics, biology, economics,

sociology etc. at a time so that the resources accessible under the consortium in a particular subject can be made known to the concerned faculty members and is highly focused.

- There is a need to evaluate the UGC-INFONET Consortium and include more number of journals in the consortium.
- University library should increase the number of internet nodes exclusively for faculty members.
- The faculty members should be divided on the basis of their knowledge to use the ICT for imparting user education. Those who lack knowledge to use the ICT should be given special training on computer and Internet skills.
- MZU should communicate with UGC consortium and provide all the e-journals which are not provided to the users like project muse for social science.
- All the libraries should participate different national and international library network and consortium.
- UPS systems with sufficient capacity should be established in the university campus.
- Library should introduce feedback system (both online and offline) for observing the proper use of e-resources.
- The member universities should be encouraged to participate in the consortium programme like selection of publishers for subscription, etc.

5.3. Avenue for Further Research

The present study entitled "Use of UGC-INFONET Digital Library Consortium by faculty members of North Eastern Hill University, Manipur University and Mizoram University: A Comparative Study" has pondered a number of areas which can be pursued as research problem in future. Some of the areas of research on the topic are enumerated as below:-

a). The use and evaluation of e-resources by library consortia in India.

b). E-resources management: A challenge for library and information professionals.

c). Cost benefits analysis of e-resources in different library consortia.

d). Legal issues associated with procurement, licensing, negotiations of e-resources.

Since e-resources have become wider acceptability in the changing ICT environment, the students, teachers and research scholars are not only accessing the same but the library professionals are confronted with many challenges like technological up gradation, network and internet connectivity, restricting unauthorized and more importantly providing 24x7 access to these e-resources. Therefore the present research problem has enabled the scholar to explore other thrust areas which can be conducted by researchers in different institutions.

5.4. Conclusion

The initiative taken up by University Grants Commission to provide electronic access to scholarly journals and databases has started making a very good impact on the research and academic community. However there is great need to further improve the access in terms of network infrastructure within the universities and the bandwidth support will further enhance over the usage over the years. The result strongly indicate that in the consortia arena the levels of information use will rise through desktop electronic access, but it is not possible to predict now how high the rise will be. At this early stage the users have probably not yet fully absorbed what the E-Journals consortium can do for them, but INFLIBNET is on its mission to reach out to them and provide necessary guidance time to time in improving the access to scholarly publications.

The advent of e publishing has brought a revolution in journals publication, subscription as well as access to the scholarly literature. The age of library consortia is at the doorsteps to prove the

library cooperation locally, regionally, nationally and internationally. It is the one of the emerging tool kit for the maximum libraries to survive if the libraries have to provide information to their users.

The increasing cost of information resources, technological advancement that offer newer method of information processing, retrievals and dissemination are some of the factors which led to the information e-journal consortium. The development of the consortium is the outcome of the desire for resource sharing.UGC explored the possibilities of alliances with the publishers for adapting consortia based approach for e-subscription of journals and these journals are available over UGC-INFONET to all the universities. Majority of these journals are available in electronic form. UGC-INFONET Digital Library Consortium is the main source for accessing current information published by 25 publishers. The consortium facilitates the libraries to get the benefit of wider access to electronic resources at affordable cost. The motto of forming a consortium is that the libraries can accomplish more by working together than they can individually. A consortium, with the collective strength of resources of various Institutions available to it, is in a better position to address and resolve the problem of managing, organizing and archiving the electronic resources. New research publications are available on the net as free there by making quality information available to a wider scholar base spread across the country at an affordable cost.

A large portion of faculty members in the central universities are aware about the UGC-INFONET Digital Library Consortium, but they do not know all its techniques and applications.
A few faculty members have no knowledge about the UGC-INFONET Digital Library Consortium and related applications. For this purpose, there is need for effective user education, to develop awareness and knowledge of the UGC-INFONET Digital Library Consortium. Further, there is need to include more number of Journals in the Consortium. Users also expected other kinds of Services along with the UGC-INFONET Service. Majority of the users rated the Consortium services are good. But there is need to improve internet facility.

The study presents the state of Art report for the usefulness of electronic e-resources for the research and academic community in the present environment specially the faculty members in which the UGC-INFONET has to play very significant role to assist the academic community in the provision of this unique service to the academic and research community. To assist the academic community the authorities of the library should provide an active orientation programme to the research and academic community by presenting the existing library facilities and their utilities. The faculty members should be encourages to do research projects to make the maximum utilization of the existing electronic resources and the university library must also conduct the user awareness programs for the faculty members to them in the maximum utilization of these electronic resources more effectively and efficiently.

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Appendix-I

Number of Faculty Members in Three Universities (School & Department wise)

Name of the University	**Name of The School**	**Name of the Department**	**No. of Faculty Members**
1. North Eastern Hill University	1. School of Physical Sciences	1.Chemistry	20
		2. Mathematics	12
		3. Physics	9
		4. Statistics	6
	2. School of Life Sciences	1. Biochemistry	11
		2. Biotechnology & Bioinformatics	7
		3.Botany	14
		4. Zoology	14
	3. School of Social Sciences	1. History	10
		2. Political Sc.	11
		3. Sociology	7
		4. Law	8
		5. Cultural & Creative Studies	4
		6. History & Archaeology	3
	4. School of Economics, Management & Information Sciences	1. Commerce	7
		2. Economics	13
		3. Library & Information Sciences	6
		4. Management	8
		5. Journalism & Mass Com.	3
2. Manipur University	1. School of Social Sciences	1. Adult Education & Extension	4
		2. Commerce	6
		3. Economics	9
		4. Education	4
		5. History	12
		6. Library & Information	6
		7. Mass Communication	5
		8. Manipur Institute of Management	9
		9. Political Science	8
	2. School of Life Sciences	1. Biochemistry	7

		2. Biotechnology	4
		3. Life Sciences	22
	3. School of Mathematical and Physical Sciences	1. Chemistry	12
		2. Computer sciences	10
		3. Mathematics	8
		4. Physics	8
		5. Statistics	6
Mizoram University	1. School of Economics, Management and Information Science	1. Commerce	6
		2. Economics	6
		3. Library & Information Science	7
		4. Management	7
		5. Mass Communication	4
	2. School of Life Sciences	1. Biotechnology	4
		2. Botany	6
		3. Zoology	6
	3. School of Physical Sciences	1. Chemistry	6
		2. Mathematics & Computer Science	6
		3. Physics	8
	4. School of Social Sciences	1. History & Ethnography	5
		2. Political Science	5
		3. Psychology	5
		4.Public.Administration	6
		5. Social Work	6
	Total		406

Appendix-II

E-Resources Subscribed under UGC-INFONET Digital Library Consortium

Sl.No.	Electronic Resources	URL	No.of Journals
Full-Text Resources			
1.	American Chemical Society	http://www.pubs.acs.org/	37
2.	American Institute of Physics	http://journals.aip.org/	18
3.	American Physical society	http://publish.aps.org/browse.php	10
4.	Annual Reviews	http://arjournals.annualreviews.org/	33
5.	Blackwell-Wiley	http://www.3.interscience.wiley.com/	908
6.	Cambridge University press	http://journals.cambridge.org/	224
7.	Science Direct (10 Subject Collections)	http://www.sciencedirect.com	1036
8.	Economic & Political weekly	http://epw.in/	1
9.	Emerald	http://www.emeraldinsight.com/	29
10.	Institute of Physics	http://iopscience.iop.org/	46
11.	JSTOR	http://www.jstor.org/	2073
12.	Nature	http://www.nature.com/	1
13.	Oxford University Press	http://www.oxfordjournals.org	206
14.	Portland Press	http://www.portlandpress.com/pp/default.htm	8
15.	Project Euclid	http://projecteuclid.org/	35
16.	Project Muse	http://muse.jhu.edu/journals	493
17.	Royal Society of Chemistry	http://www.rsc.org/publishing/journals	29
18.	SIAM Journals	http://epubs.siam.org/	14
19.	Springer Link	http://link.springer.com/	1763
20.	Taylor & francis	http://www.tandfonline.com/	1173
Bibliographic Databases			
21.	JCCC	http://jgateplus.com/	
22.	MathSciNet	http://www.ams.org/mathscinet	
23.	ISID	http://isid.org.in/	
24.	SciFinder Scholar	http://www.cas.org/	
25.	RSC Databases(6)	http://www.rsc.org/	
26.	Web of Science	http://isikmowledge.com	
Legal Databases			
27.	HeinOnline	http://home.heinonline.org/	
28.	Manupatra	http://www.manupatra.com/	
29.	Westlaw India	http://www.westlawindia.com/	

Appendix-III

QUESTIONNAIRE

Note: -

(1) Please put a (✓) mark against the appropriate choice(s)

(2) Specify whenever applicable

(3) Strike out if not applicable.

A: Personal Data

1. Name… ……

2. Name of the University where you employed……

3. Department……

4. Designation...……

5. Qualification:……

6. Sex: Male…… Female…….. 7. Age:……

8. E-mail:……... 9.Contact No:……

10. Employment? Please tick appropriate.

a) Permanent b) Temporary c) Part time d) Visiting

11. Number of years employed at University …….Years

12. Where did you receive your highest degree: …….

13. What is your major area of teaching: ……

14. What is your field of research: …….

B: Knowledge about the Consortium

1. Are you aware of INFLIBNET: Yes/No
2. Are you aware of the UGC- Infonet Digital Library consortium: Yes/No
3. Name the services availed by you under the consortium:

a)……. b)……..

c)……. d)……..

4. How do you access this consortium?

a) From University Library b) From Department

c) From University computer centre d) Any other access points

5. How do you find the resources and services available through consortium?

a) Good

b) Average

c) General

d) Not Sufficient

6. How do you access the consortium?

a) Self b) taking the support of the library staff

c) With the help of others d) any other

C: Use of the consortium

1. When did you start using the consortium service?.....(mention the year)
2. Frequency of using the consortium?

a) Daily b) 2-3 times in a week

c) Rarely d) Not at all

3. How many hours per week do you spend searching UGC-INFONET for research purposes?

a) 0-5 b) 6-10 c) 11-15 d) 16-20

4. Purpose of using the consortium

	Generaly	Rarely	Never
a) Teaching			
b) Research			
c) Writing Paper			
d) Writig Book			
e) Writing Report			
f) Dissertation/ Thesis			
g) Presenting paper in seminar			
h) Guiding research			

5. Most accessed e-journals under the consortium in your subject

(First five such journals in order of preference)

a)…… b)……

c)…… d)……

e)……....

6. Weather the consortium is beneficial to meet your information needs: Yes/No

7. Level of satisfaction on the use of the consortium:

a) To a great extent b) To some extent

c) To a little extent d) Not at all.

8. What are the various formal sources of information used by you?

	Generally Rarely Never
1	Monographs
2	Journal Articles
3	Theses/Dissertations
4	Abstracts/Indexes
5	Research Reports
6	Bibliographies

9. Which electronic database are you aware of? Please tick all that apply.

a) Psych Info b) ProQuest c) EBSCOHost d) Lexis e) ERIC
f) LISA g) JSTOR h) SCOPUS i) J-gate
j) Dissertation abstract

10. Which electronic database do you generally use? Please tick appropriate

a) Psych Info b) ProQuest c) EBSCOHost d) Lexis e) ERIC
f) LISA g) JSTOR h) SCOPUS i) Dissertation abstract

11. What types of information resources do you generally need to access?

Please tick appropriate

a) Books b) Journals c) Dissertation and thesis
d) Databases e) Newspapers f) Conference proceedings
g) Government documents

12.Please indicate the most five library resources you currently used for your academic and research work

a) Text- books b) Reference books

c) Print journals d) Electronic journals

e) Electronic databases f) Newspapers (online or print)

g) Interlibrary loan or document retrieval

13. If you are given the choice to make use of the documents in print form or electronic form, which one would you prefer?

a) Print b) Electronic c) Both

14. How many journals do you use on a regular basis (including print and electronic version).

a) 0-5 b) 6-10 c) 11-15 d) None

15. Which of the bibliographical sources do you use.

	Generally	Rarely	Never
a) Abstracting Journals			
b) Documentation list received from outside			
c) Indexing Journals			
d) Subject Bibliographies			

16. What methods do you use to locate relevant information for research? Please tick appropriate

a) Browse print journals b) Browse electronic journals

c) Browse the library catalog d) Browse the stacks at the library

e) Browse relevant internet site f) Search references of relevant articles

17. How do you obtain journal articles? Please tick appropriate

a) Personal print subscription b) Read print journal at library

c) Document delivery service d) Read library's electronic copy

e) Interlibrary loan f) Photocopy of journal articles at library

g) Colleagues

18. After locating relevant electronic journal articles, what do you do? Please tick appropriate

a) E-mail a copy to yourself b) Print a copy

c) Save a copy to the Pen drive or CD etc. d) Read article on the screen

19. Please tick the following methods of seeking information in your field you prefer to follow. (please read the methods listed below).

	Methods of seeking information	Generally Rarely Never
1	Asking librarians	
2	Attending conferences and meetings	
3	Reading conference and meeting papers	
4	Reading professional journals in your field	
5	Reading textbooks in your field	
6	Searching bibliographic databases	
7	Talking to colleagues or Experts in your own department	
8	Using an Internet search engine	
9	Writing to a colleague or expert at another university	

20. When you find a relevant website what you usually do? Please tick appropriate

a) E-mail the webpage link to yourself b) Print the webpage

c) Save the webpage to a Pen drive or CD etc

d) Write the information needed down on paper or in a different computer document

D: Problems and suggestions

1. Any problems encountered in accessing the consortium

a) Frequent failure of power supply b) Low speed of internet

c) Lack of desired resources in the consortium d) Want of more computer/system in the library

e) Technical problems associated with consortium f) Any other

2. How do you find the quality of the e-journals provided through consortium?

a.) Very good b) Good c) Average

3. Suggestions to improve upon the consortium

a)…… b)……

c)…… d)……

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