CHAPTER – 2

REVIEW OF LITERATURE

2.0 Introduction

Review of related literature is an important step in research study, which helps in building a strong base for presenting the study. Published literature in the related area helps in avoiding duplication of the research and also confirms the steps carried out in research. It is an analysis of contributions made by others like - authors, researchers, and experts including technical specialists. It is also a presentation of growth and development of literature in particular field over a period of time which is useful for the development of the study, suggests ideas based on the concepts developed by others.

2.1. Collection Development

Collection Development is a great challenging part in the library profession. Collection development by definition involves number of activities related to the development of a library collection which involves broad range of activities of policies and procedures of selection, acquisition and evaluation of collection, assessing the users need, weeding out policy, storage of wide information resources, planning for resources sharing and networking.

The librarians are primarily responsible for the quality of collections, library users are encouraged to review library collections in their subject area and to make

recommendation for selection and de-selection of the material in the libraries. Collection evaluation by subject experts is the most effective means of ensuring adequacy of the library collection with the help of librarian because the librarians are in the best position to observe the overall use and development of the collection, they are ultimately responsible for the quality development and keep balance of the total collection. For the present study the researcher has consulted books, journals, articles, thesis related to the topic and found some related literatures which are given below:

Chandel and Rai (2015) described in their article *Revisiting contributions of Ranaganathan in collection development* and discussed the complexities involved in selection of reading and research material in libraries, evolution of book selection from the time of Dewey, Drury, Haines and ; Carter and Bonk. The main emphasis on the contribution of Ranganathan in evolving theory of book selection deduced from his Five Laws of Library Science. The present ICT environment and automation in libraries are in the forefront, not only to comply with the message of collection development but to the discipline of librarianship as a whole and his principles are as applicable today as were during 1950 -1960.

Lahkar (2015) describe that the collection development is the planned purchase of materials in various formats to match the instructional and research needs of the campus within the current fiscal environment and resource sharing opportunities. The heart of a library is its collections. The building house them, the library personnel acquire and manage them and teach users how best access and use them. The process of collection development include selection and de-selection reading materials; proper planning for regular purchase; storing for easy access as per needs, cost effective study how well and to what extent they serve user's needs.

Sarkar (2015) mentioned that libraries need to re-orient their collection, services and facilities to keep pace with these advancements. College libraries is firmly committed to a rational-based collection management programme which provides a frame work for accountability and establishes the priorities necessary in governing day to day selection, acquisition and processing decision.

Sinha (2015A) described that the due to rapid transformation of libraries and information centres from its traditional set up to computerised, automated/ digitised libraries, there is a need to develop policies and certain guidelines for building collection in academic, public, technical and special libraries located in North East India. Emergence of multimedia, e-publishing and Internet/www, there is exponential growth of printed as well as electronic resources throughout the world which results in generation of vast amount of digital information over internet.

Sinha (2015B) mentioned in his paper on status of library use pattern among undergraduate students of Assam University, Silchar that arrangement of collections was an important factor having use of libraries and proper use of the library collection, a regular catalogue need to be maintained.

Rath and Rath (2014) explained about collection development in libraries, various factors have to be taken into consideration while developing a qualitative collection for the benefit of the users. These factors include policies, principles, techniques and procedures, problems associated with collection / development and weeding out as well and it is also equally important to evaluate the collections to asses to its use and moreover the usefulness of collection development in electronic environment.

Tiwari, Tiwari and Singh (2014) studied the library collection of engineering colleges of Indore division which revealed that majority of libraries are running with

the minimum standards of the collection development. However development of print collection may be called more satisfactory than those of the development of electronic collection. The collection development policy and financial provisions are the major issue in developing library collection.

Gohel and Parmar (2013) mentioned in their paper Collection Development in the University Libraries of Gujarat State: An evaluative and comparative study highlighted the collection development must be decided based on the current financial availability and also highlighted only 25% of the book collections satisfy the user in university library among the available collections.

Sinha (2013) explained the brief account of the issues pertaining to collection management of printed as well as digital / e-resources, its format, subscription policies, IPR issues, collection development criteria, policies, guidelines, and consortia approach for accessing to printed and digital/ e-resources in any academic libraries of India.

Joshi, Konnur and Shinde (2012) studied acquisition and collection development policy of six university libraries of Karnataka and highlighted in their paper on concept of collection development policy and trace the need and benefits of collection development policy in academic libraries.

Biswas and Deb Roy (2011) suggested that a college library requires materials that related to the current curriculum of college/institutions and are changed with the primary responsibility of serving the informational, educational, culture and lifelong learning needs of its students and faculties. The planned development of institutions library collection requires the application of a stated collection development policy which will best serve the patrons and provide an organised and accessible collection

of resources needed to meet the educational and instructional needs of the institution and also provide a full compliment of services that will anticipate, meet and stimulate the informational, educational, cultural and lifelong learning needs of the college community.

Choudhury (2011) opines that collection development is a vital process in creating and building a library collection, be it in an institution, college, school or a public library. It is a well-planned activity for which a well-defined policy is essential. The development primarily includes acquisition, selection, evaluation, preservation and weeding out materials after assessing user's needs.

Johnson (2011) states that collection policies provide guidelines within which the library selects and manages its collection of information resources. These guidelines are a connection between the library and its community, supplying a framework within which complex decision are made with consistency and reasons.

Negahban and Venkatesha (2011) mentioned that collection development is concerned with the formulation of a systematic plan to build a library collection which will meet the needs of its users. Library collection can be understood as an assembly of information resources both available physically combined with those of virtual access.

Sinha (2011) described in his paper on collection development of college libraries of Barak Valley, Assam about the concept, definition, policies of collection development and also highlighted the status of collection development of knowledge resources in networked and digital environment.

Padmanabhan (2009) stated that the collection development is the first and foremost of a library and information centre, which can make or mar the effectiveness of an institution. It refers to selection, acquisition, processing, arranging, maintaining and weeding out library material. Due to advancement in science and technology, there is a rapid growth of information in different formats. This has created problems for developing an effective collection in library.

Pradhan and Deshpandy (2009) who studied collection building, components of collection development, collection development policies, selection and evaluation criteria for printed as well as electronic resources, cooperative collection development, and role of Information Audit for developing a adequate collection for college and university libraries.

Juneja (2006) studied in M. Phil. Dissertation about library collection and services of various technical colleges imparting education in Chandigarh under the title "*A Study of Staff, Collection and Services of Technical College Libraries in Chandigarh*" observed that there were inadequate staffs, lack of support from administration and unavailability of collection development policies.

Mandal and Panda (2005) in their research paper titled *"Collection development in the Internet age and the need for a consortium in the engineering college libraries in West Bengal: A study"* have discussed different aspects of collection development. They examined the existing state of library collection and infrastructural facilities of 17 engineering college libraries in the state of West Bengal. Author suggested the staff training, provision of adequate staff and funds, appropriate infrastructure in IT and a need based collection.

Swamy (2005) has described about the usage of digital collection in academic libraries highlighting the types, benefits and advantages of digital library collection.

Sinha and Rao (2004) opines that the collection in university library system will have to cater to the needs of teaching and learning, research, generation of new ideas, new knowledge and publications. The reading materials, which are acquired by the university library, shall also require its proper organisation and management both in terms of their physical location and their representation in catalogue and indexes in order to provide quick retrieval and dissemination of information.

Varalakshmi (2004) has described that the current trends in electronic environment suggest a complete revolution in the status of collection development policy. As information technology advances, the emphasis of academic libraries has focused upon the intrinsic excellence of collection development suitable to electronic information resources. The developments in the ability to store and retrieve large prise of information have stimulated an interest in the new ways of exploiting information for the advantage of academic and research community.

Bali (1997) opines that libraries today face a challenging task of meeting unlimited information demands of their users with limited financial resources. The demands of users are justified because of information explosion in every area. Collection Development includes planning for the systematic and rational building of a collection. The term includes all such activities as assessing the user needs, evaluating the present collection, determining selection, and planning for resource sharing. Thus collection development is not a single activity but a group of activities. Acquisition is usually distinguished from collection development. Academic library are changing in

response to the changes in the learning and research environment and services while maintaining most of the old traditional resources and services.

Maheswarappa (1997) discussed the steps to be followed and the problems involved in collection development as a systematic method of building library's collection incorporating community analysis and user studies. Further, presented development of collection development policy, selection, acquisition and collection management aspects such as weeding, storage, preservation and evaluation of collections in addition to the problems with each of these processes among academic librarians in India.

Parameswaran (1997) describes about collection development includes planning for the systematic and rational building of a collection. The term includes all such activities as assessing the user needs, evaluating the present collection, determining selection policy, coordinative selection of items, re-evaluating and storing parts of the selection, and planning for resource sharing. Thus collection development is not a single activity but a group of activities. Acquisition is usually distinguished from collection development which refers to the process of verifying, ordering and making the payment for the required materials.

Chopra (1995) in his article *"College Libraries in Punjab: Some problems Re-Considered"* revealed the problems being faced by college libraries in Punjab. He grouped these problems into three categories; related to management of colleges, principals of colleges and library staff. It has been also discussed various facets like; shortage of staff, inadequate funds, physical facilities, circulation of books, stock verification and library hours.

Panda (1994) evaluated the collection of Sambalpur University Library and suggested that the collection should be developed in consonance with the teaching research activities of the university; secondly adequate staff should be recruited, thirdly regular weeding out of documents should be practices. Fourthly, more grants should be sanctioned at the right time for proper use and lastly, periodical evaluation should be conducted in each branch of knowledge and to have proper development of the collections.

Choudhury (1989) describes the guiding principles as to how the university library can build a balanced collection for its users. Explain the importance of collection development policy in university libraries for achieving the goal and objective of the library. Describe various factors to be considered for drafting a collection development policy.

Tripathy (1989) undertook a study on utilisation of resources in university libraries of Orissa and recommended that the collections should be developed comprehensively to match the user's needs satisfactorily and adequate grants should be allocated for smooth running of library.

Bavakutty (1985) surveyed the quality of book collection of Arts and Science colleges of India and collected data through questionnaire by sending to fifty one college libraries and to 123 teachers. The result of survey reflected that 63% of the students and 60% of the teachers reported that the book collections of their libraries are not adequate to meet their requirements. Further 57% of the librarian viewed that the book collections of the college libraries are totally inadequate to meet the requirement of teachers.

Wikipedia defines collection development as, *"Library collection development is a process of planning and acquiring a balanced collection of knowledge resources/ reading materials of many formats including books, periodicals, online resources and other media"*

Online dictionary for library and information science defines collection development as the process of planning and building a useful and balanced collection of library materials after carefully assessing the information needs of the users, analysis of the usage statistics and considering the budget constraints. The collection development includes formulation of selection criteria, planning for resource sharing and replacing the lost or mutilated items.

2.2. Library Automation, Networking and ICT Application

Sinha (2015C) suggested in his study status of information technology application in university libraries of North East Region of India and findings reveals the actual implementation of the library automation and networking programme undertaken by the university libraries and institutions located in North Eastern Region in particular. The results indicates that most of the libraries are taking computerisation of library activities seriously and motivated and encouraged their staffs by giving necessary computer skills through organising computer training and workshops for implementations of the computerisation of library activities.

Sinha, Singha & Sinha (2015) described that the use of internet has created a great impact upon users and rapid developments in information communication technology have facilitated the convergence of new electronic devices and formats. Information has been embedded in a variety of ways and forms in various kinds of electronic resources. In his study it was clear that the younger generation has accepted the

Internet as means for accessing to the relevant information for academic and research works, whereas the elderly people are still with traditional printed resources available in the library.

Sinha (2013) suggested in his study of college libraries users of Barak Valley found that majority of users are not aware of N-LIST services but most of the users feel electronic documents are very useful and they find difficulties in reading them due to lack of ICT infrastructure.

Singh (2013) describes that in the ICT era to manage the library resources the North Eastern Region of India library are not up to desired level of ICT infrastructure due to inadequate budget, unskilled staffs and lack of suitable policy in all the libraries, excluding some of the Library and Information Centers funded by Central Government.

Chandel & Saikia (2012) described in their jointly written article *"Challenges and opportunities of e-resources"* that the advent of e-resources and their increased use have changed the library scenario from physical to virtual. Users' preferences are more for e-resources and virtual libraries with little attraction for physical libraries. In spite of innumerable advantages of e-resources, there are certain problems also relating to their acquisition, maintenance, management, etc. which need collaborative efforts of professionals and all other bodies associated with creation, distribution and use of these resources to establish the sound practices and the model.

Jena and Das (2012) described in their paper that Cloud computing is new IT technology and it is known as third revolution after personal computer and internet in IT. It was also highlighted that Cloud computing is one avenue for this move into the future and it can bring several benefits for libraries and give them a different future

and shape to academic library services to create more knowledge benefits in country with the help of Cloud computing.

Dhanavandan, Mohammed Esmail and Nagarajan (2011) studied about the aimed at analysing the use and availability of ICT infrastructure facilities in self-financing engineering college libraries in Tamil Nadu, which need rapid ICT infrastructure and adequate development of electronic resources. This study traced out the nature of electronic resources, library automation level, computerised library services, electronic access points, and type of digital libraries, network and topology of network, internet and intranet services, with reference to the selected institutions.

Jayadev, Kadli and Kumbar (2011) stated that changing technologies has brought a more sophisticated and higher speed of communication. Academic libraries were responding to this change in the learning and research environment and ICT changed the behaviour of library users.

Kumar, Roy and Satija (2011) described in their article *Database Searching in Central University Libraries in India* that training to library professionals a major issue in using databases. Database providers generally supply a slide show rather than hands-on training. INFLIBNET should provide periodic training for library staff and for optimum use of all resources and services of a library, user orientation programmes, especially of new users.

Murugesan and Balasubramani (2011) highlighted their study of the availability of ICT infrastructure with respect to status of automation, use of database management software, type of internet connection used and the availability of multilingual and antivirus software facilities in the R&D libraries of Tamil Nadu. They noted the new trend world over is to move towards digital collection. Two major resources required

for setting up and operating digital library collections are technology infrastructure and personnel. Technology infrastructure includes computer and other equipment like software and network connectivity. Personnel will be required for handling various tasks associated with the creation and maintenance of the ICT based services.

Satpathy, Kumar and Mahrana (2011) jointly wrote a paper on *the necessity and benefits of ICT skills of LIS professionals working in various Engineering Institutes of Orissa* to examine their exposure to ICT tools and services and their management skills. The paper focused on the ICT skills of LIS professionals with some constructive outcomes for effective generalisation.

Sinha (2011) described in his paper design and development of regional knowledge network for north eastern region to establish the regional library network for the implementation of computerisation of library operation services and all the north eastern states should join with the network for automation of public, academic, special libraries.

Bansal (2010) in his research paper which deals with emerging ICT to modernize college libraries, pointed out various applications of ICT in library services to meet users need in present scenario. Use of ICT is essential to modernize the libraries. He stated very clearly that ICT is beneficial for mechanization of traditional libraries and all their functions. ICT also helps in storing, preserving, retrieving and disseminating information in economical ways to the users. He concluded his paper suggesting applications of ICT in college and academic libraries is growing fast and ICT only helps in removing the barriers of information handling. Modernization of libraries is must and for this purpose ICT is the best tool.

Mishra and Gohain (2010) mentioned that application of technologies could create new possibilities to deal with the collections, organization and propagation of vast amount of information. In the library and information centre ICT is used as enabling technology for the acquisition, representation, storage, transmission, and use of resources in electronic form known as e-resources. Electronic resources are regarded as the mines of information that are explored through modern ICT devices, refined and redesigned and more often stored in the cyber space in the most concrete and compact form and can be accessed simultaneously from infinite points by a great number of audience.

Mishra and Mishra (2010) described that Information literacy in library services is required not only to optimize the use of library resources in teaching, learning and research but also train the users to make them aware about information sources and access authentic information from vast array of electronic information sources, etc. Librarians have to impart skills on web searching techniques, evaluation and establishing authenticity and reliability of information retrieved from internet domain to the users.

Mondal and Bandyopadhyay (2010) presented a paper in DESIDOC Journal of Library & Information Technology which examined the situation of IT application and related manpower problems in government-aided general degree college libraries of Burdwan Sadar (North and South), West Bengal.

Sampath and Biradar (2010) reported the examined use of ICT in 31 college libraries in Karnataka, India, by investigating the ICT infrastructure, current status of library automation, barriers to implementation of library automation and also librarians' attitudes towards the use of ICT.

Sinha (2010) also studied the status of ICT infrastructure in the 15 University Libraries of North East India mostly Central Universities except few state universities and discussed the problems faced by the LIS professionals of North East India for the implementation of the automation project despite full support from the UGC/INFLIBNET which has been regularly imparting training for LIS professionals of North East India, organising regularly PLANNER (the convention for Planning of Library Automation and Networking for North Eastern Region).

Kalita, Mazumdar & Deka (2010) mentioned in their paper on *re-engineering of library: a study of on scenario of library computerisation of academic libraries in Sikkim* and concluded their paper and suggested the computerisation is the need of hours for reengineering of library and information system and services, therefore the authority of the academic libraries of Sikkim give proper importance in library computerisation as well as recruitment and training of professional staff for their libraries.

Arora (2009) described in his article Information Communication Technology in Academic Libraries a brief description of ICT, components of terms, need and purposes, development of network technology, library automation, automatic identification and data collection technology, bar code technology, RFID, smart cards, internet technology and its services and facilities using the information communication technology in the libraries.

Sharma (2009) stated that IT played an essential role in academic libraries. The presence of quality IT resources affected the status of the library. The present study described the availability of IT infrastructure and online resources in Dental College

Libraries of Haryana State, India, and highlighted the causes, problems, and solutions in IT application.

Rahman Ebrahimi (2009) brought to give light the entrance of computers and IT systems into the field of librarianship have had a profound impact. Changes in practice call for a change in theory and teaching. LIS programs in Iran have not changed to account for IT and ICT.

Singh, Sharma, and Negi (2009) stated that the study was an outcome of a research project jointly undertaken by the authors to explores and evaluate the use and availability of ICTs in the Library and Information Centers of NOIDA. The study was based on 25 Library and Information Centers from the different sectors such as public government, corporate, public enterprises and private and founded that majority of the Library and Information Centers of NOIDA had the basic hardware facilities such as server, computers, printers, photocopier and Internet Connectivity.

Singh and Pinki (2009) discuses in their paper the skills required for LIS personnel's in technology driven environment. Academic libraries are facing challenges arising due to applications of ICT and digital revolution. In the paper authors discussed the impact of emerging changes in the academic libraries. It has been suggested that there is a need to acquire the skills required for the applications of technology. The author insists that there is a need to acquire new sets of skills to manage technological issues to survive in this technology based environment.

Dhanavandan, Mohammed, S. Esmail & Mani (2008) highlighted that the world was undergoing a transition from a paper to digital economy. Developing countries were being encouraged to invest in their national information infrastructure so that they can participate in knowledge-based development. Advances brought many

changes in libraries. ICT had provided libraries with new opportunities to improve their resources and services.

Sinha (2008) pointed out the scope of ICT applications and internet use for the better services for the users as well as in the library activities in his study. Importance of the ICT is gaining value in the LIS profession due to benefits and there is a need to automate the libraries.

Babu B. Ramesh and Gopalakrishnan (2007) highlighted the need to acquire knowledge and skills in ICT, especially in engineering, educational institutions in Tamil Nadu. The analysis of the data represented the extent and the level of ICT skills possessed by the librarians of the institutions.

Kaur and Satija (2007) in their article *"Collection development in digital environment: trends and problems"* discussed various trends in collection development in digital environment. The changes that have occurred in acquisition, retrieval and storage of information due to technological developments have been discussed. They also discussed limitations, restrictions, and problems being faced by librarians and readers due to the same. They concluded that the day is not so far off to visualize all Indian libraries with huge digital collections and latest technology to access the e-resources.

Krosky (2007) in his paper points out that the use of internet and web technology is more popular and these are very helpful in developing academic libraries. He says that the web has changed the face of libraries and even an ordinary user can use it for the global conversation and exchange of views instantly. The net which was used for browsing information, is now used for the sharing of resources also. With the help of new web tools users are exchanging knowledge and also able to create, collaborate, socialize,

and share data with any one at less cost. Social bookmarking is the need of present age to share the data by maintaining repositories on Wikis, building historical and cultural collections through media sharing applications. He is of the opinion that there is a need to develop academic libraries using modern tools and technology.

Kaliammal and Sarasvady (2007) mentioned that several recent initiatives and developments programmes offer due importance and focus on providing Information and Communication Technology (ICT) system as an enabler and access to information. From Information Management view point we can emphasis that providing information and enabling ICT systems, is a major effort in bridging the gap between knowledge have and knowledge have-not. This is because the ability to use information resides in capacity and capability to create knowledge from such information. The emergence and application of ICT has changed the nature of libraries; from Traditional Library system to automated libraries; from automated libraries to Digital Libraries; from digital libraries to virtual libraries and now the same will ultimately result into 'The Universal Library" in the future.

Mohamed Haneefa, K. (2007) discussed the use of ICT based resources and services in special libraries in Kerala. He presented results of an investigation which studied the contemporary use of ICT-based resources and services in special libraries in Kerala. The results of the study revealed that the ICT based resources used by the largest percentage of users was the e-mail. The next most widely used resource was worldwide web, which was being used by nearly per cent of the library users. Many users were not satisfied with the application of ICT in their libraries and indicated 'inadequate ICT infrastructure' as their reason for dissatisfaction. They proposed a

variety of measures of formal orientation and training in ICT based resources and services to become more effective users.

Nath, Bahl and Kumar (2007) reported a survey of librarians of Chandigarh to assess the ways in which librarians use ICTs, their level of knowledge and skills, problems faced in the use of ICTs and their training needs. The study also investigated the extent of adoption of ICT in Chandigarh libraries in as modern tools of providing library service to users. A questionnaire was used to survey the ICT skills and knowledge of librarians with nine sections on respondent's background, file management, word processing, spreadsheets, database, presentations, e-mail and internet. Survey of 21 academic and public libraries revealed a low level of ICT knowledge among librarians and a general lack of formal training among the academic librarians.

Singh, Kapila and Pateria (2007) stated that the concept of library is changing very fast due to impact of ICT. Now the libraries will not have only printed collections but also digital resources, which are not seen physically. The technology has forced the library to digitize information. Keeping in view of all this libraries will need redefining or reengineering as they may be named as Knowledge Management Centers, Cyberary, Ebrary, Virtual library, Digital Library. No doubt technology will play major role in changing the shape of libraries in the time to come yet basic material will remain the same. Whatever the technology may come and find use in the library for the benefit of users to access the information as a fast mode of communication and whatever nomenclature may be given to library, but it is a hardly matter that the print media will hold the vein of library for the society.

Sinha (2007) represented the scenario of the libraries in the North Eastern India, in his survey which revealed that out of 15 libraries, only 26.7% libraries are fully computerised whereas 33.3% libraries are partially computerised and in 33.31% libraries computerisation has initiated and only 6.7% library is willing to start computerisation of library activities and services which indicates that the fully computerised housekeeping operations is still initial stage and in coming future most of the libraries located in North Easter Region would be fully computerised for day to day transactions.

Kawatra (2000) expressed the view that digital library is really a transitory phase towards the universal library–a vast distributed information and active advice repository accessible from anywhere with an increasing improved indexing, extraction and summarization techniques. It will be a library without walls or national boundaries.

Jange and Samy (2006) evaluated the use of the internet as an information source by libraries of National Institutes of Technology in India. Using the questionnaire method, data has collected from seventeen National Institutes of Technology spread across the country. The results indicated that, the libraries made use of internet mainly for identifying latest books and journals in acquisition and serials control activities of library. Search engines were the ultimate mode of searching information and colleagues assisted in getting the desired information. The results indicated that the libraries of NIT accepted the significance of Internet in library activities and services. The librarians had to reorient themselves, and adopt the new technology to generate services and resources where skills of structuring and organising resources were put to its best use.

Seetharama (2006) described that the proper exploitation of new technologies in library is no longer a matter of choice but a matter of survival in an era of rapidly changing technology and global knowledge society. Today the success of a modern library is increasing dependent on the most effective utilization and strategic management of new technologies in libraries. It is believed that the versatility and power of Information Technology which include accommodation of increase workload, achievement of greater efficiency in improving existing services, ability for generation of new services, facilitating cooperation and in providing for an integrated approach without regard to format, location or medium through which it is served, which can light heartedly be called "one-stop information shopping", can stand in good stead in the quest for quality and productivity in information services and products.

Singh (2006) studied on ICT in libraries and information centers of the Defence Research and Development Organization (DRDO) and Council of Scientific and Industrial Research (CSIR) in Delhi, India revealed that most of the libraries and information centers of the DRDO and the CSIR were using ICT in almost all areas of LIS activities.

Cholin (2005) described an overview of IT implementation in different university libraries in India that provides effective access to resources available within universities. The study was conducted among 66 university libraries which constituted approximately 25% of the total number of universities during the period of the study and the responses were received from 54 (81.8%) of the total libraries covered. The factors studied included manpower in the universities: user population, budget, IT infrastructure-hardware, software, network tools, database development, etc. The

author predicted that the universities across the country can overcome distance and time with the use of ICT tools in universities and UGC- Infonet to provide scholarly access to resources. The study revealed that the university libraries in India were at various stages of development in the application of IT tools in their day-to-day activities.

Suku and Pillai (2005) presented the results of a survey to assess the status of automation in the university libraries of Kerala. A structured questionnaire was used to collect data from the Librarian / Library in-charge of the Central libraries of six universities. The survey mainly cover various aspects of library automation such as information technology infrastructure, in-house activities, information services and their usage, manpower development, and budget. The study also dealt with the role of INFLIBNET Centre in supporting the automation activities of university libraries. It is seen that library automation has been rather slow in Kerala due to various reasons like absence of University Librarian in most of the libraries and lack of adequate qualified professional staff. 50% of university libraries in Kerala introduced comprehensive automation of housekeeping activities. LAN facility is available in all university libraries. All university libraries in Kerala are using computers for their services. All the libraries, without any exception, are using only personal computers for the entire range of automation activities. The survey also revealed that all university libraries have conducted sufficient number of training programs to its staff members before acquiring the new technology.

Wijayasundara, Nayana (2005) reported that libraries need to play a major role in satisfying informational, instructional and personal needs of their clientele. A drastic change can be seen in library systems throughout the world due to ICT.

Sinha (2004), Sinha and Sahay (2006) made a comprehensive study of the status of application of information technology in 256 university libraries of India pertaining to Library background, library automation, selection of library application software, hardware, database management, housekeeping operations, digital and electronic resources, manpower training and discussed the role of INFLIBNET for modernisation of University libraries of India. He also suggested taking retro-conversion work on priority basis and adequate fund should be made available from the UGC and HRD for modernisation of University libraries of India.

Sinha (2004, 2006, 2008) conducted a study on 254 university libraries of India to know the ground reality of ICT application of University Libraries of India which describes regarding the present status of development of Information Infrastructure pertaining to library automation and networking in university libraries of India for resource sharing in networked and digital library environment, which is based on the comprehensive survey of University libraries of Central Universities, State Universities, Deemed Universities, Agricultural Universities/Institutions, Medical Institutions or Universities, Technical Institutions like IITs, NIT (REC), etc. The survey findings mainly cover various aspects of Library Automation; Information Sharing in Network and Digital Environment; Internet Use Pattern and Services; Multimedia and On-line search of databases etc, status of digital library initiatives of university libraries, Manpower Development for IT Application, Implication of use of Information Technology for effective library services etc of the university libraries in India.

Gulati (2004) discussed the status of information and communication technologies in Indian 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 digitisation 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, CALIBNET, etc. It also details the challenges for library and information science professionals in the present IT environment.

Jeevan and Saji (2004) presented the results of a survey conducted among the premier libraries in Thiruvananthapuram, Kerala, to assess the ICT adoption in these libraries. Eighteen scientific, technical and research libraries both under Central and State Governments based in Thiruvananthapuram participated in the survey. In all the eighteen libraries, IT played a positive role in enhancing services, user satisfaction, meeting users' demands, and overall library image.

Maharana and Dutta (2004) discussed about the policies and practices of development and management of e-resources in the select R & D libraries of Kolkata city. They discussed about collection, policy statement and effective management and examined various criteria for selection and evaluation of collection.

Biradar, Sampath Kumar and Kumar M. Anil (2003) attempted to identify the usefulness of library collection and information use pattern by sericulture scientists. The study showed sericulture scientists not only depend upon their own institute library collection but also a large number of scientists depend upon agricultural libraries (42%) and other sericulture libraries (34%).

Mote (2003) presented a paper stressing on the importance of ICT at National Botanical Research Institute, Luknow, India, which is one of the Council of Scientific and Industrial Research (CSIR's) institutes. It explained how Lucknow Special Libraries Consortium (LUSLIC) used ICT to develop a union catalogue that caters to the needs of scientific communities and also highlighted the application and impact of ICTs on research work.

Kannappanavar and Vijayakumar (2001) surveyed the use of hardware and software facilities in University of Agricultural Science Libraries in Karnataka. The study evaluated the access of networks, information services and barriers in IT applications and approached funding agencies like INFL1BNET and ICAR for their library automation and to provide IT based information services to their clientele.

Sunil Kumar (2001) highlighted for the immediate need for the automation of academic libraries of India covering concept, need and purpose of library automation advantages and requirements of right hardware and software to initiate the library automation programme in an academic library.

Patkar (2000) focused on various impacts and strategies for internalisation of IT products by libraries. Libraries of the future will have to deal with both print and digital media. Intensive application of Information Technology (IT) for performing library functions and management is therefore imperative. Such technology driven operations would bring radical changes in library services. Technology adoption is, however, not a smooth process. For the successful implementation of IT in libraries, it is important to understand the peculiar features of technology development and propagation in real life.

Sharma, Sumati (1999) provided the changing IT in the library environment and gave the complete spectrum of impact of IT on Defence Science Library (DSL), a specialised central library of DRDO functioning at DESIDOC. It discusses in detail the various library activities and services where DSL is making effective use of IT to provide better and enhanced services to its user.

Krishan Kumar (1997) in his paper expressed the impact of Information technology in library profession. He pointed out that library schools and libraries should face the challenges of future together. He discussed the role of education in developing modern libraries. There is a need to modernize the libraries to provide better services to the users. ICT is a feasible tool for better collection development and providing library services. He describes the learning resources which includes Internet, used by everyone today. He has elaborated the likely trends in near future in the employment of library professionals and concluded by indicating that technology is a tool, which needs to be used wisely as a means to achieve the goals of modernizing libraries to face the challenges in the future.

Mujoo-Munshi (1997) explained the importance and applications of Information and Communication Technology (ICT) in LIC's today. She discusses the developments that are taking place in the libraries with the application of IT and indicates need of ICT and also training of ICT for Library and Information Science professionals. She highlights the changing information seeking patterns under the present (ICT) scenario and the need to meet such changes in academic, public and special libraries.

Sridhar (1989) in his study discussed the modernization of libraries using ICT which bridges the gap between traditional and modern libraries. He explains the meaning and scope of modernization of library services and benefits to library community like

increased performance, productivity, services, innovative concept developments etc. While modernizing libraries, librarians have to face the challenges like unclear goals, budget, management support, resource procurement, self sufficiency achievement, etc. He concluded by remarking that the libraries of today are able to use ICT for modernizing libraries, providing better and enhanced services and searching information using advance tools.

Srivastava (1997) reported the results of a questionnaire survey conducted in 22 Research Development Institutions in India to determine the extent of usage of IT components by library professionals and the coverage of IT in their graduate and post graduate library science programmes. IT components form an integral part of library operations and services. DOS/UNIX database, library applications software, CDROM database, word processing, bar coding, multimedia, etc. are important to library professionals.

Kaul (1992) mentioned in his book Library Networks- an Indian Experience that libraries of resource sharing and offers solutions with in-depth research results and gives a historical overview of resource sharing. It has been also described the role of library networks in promoting resources sharing, presents resources sharing tools and offers latest development in interlibrary loan and document delivery methodology

2.3 International Level – Literature Consulted

2.3.1. Collection Development

Adekanmbi and Boadi (2008) conducted a study under the title, *"Problems of Developing Library Collections: A Study of Colleges of Education Libraries in Botswana"* They ascertained the availability and use of collection development policy in the college of education libraries, in Botswana. The authors have gathered

information from using questionnaires and personal interviews of deputy principals of colleges, senior librarians and board of the associated institutions of the University of Botswana. Their study discovered that majority of the libraries did not have collection development policies. There is lack of constant training for librarians. Some of major problems observed were inadequate staff, lack of support from administration and unavailability of collection development policies. It was further established that majority of the libraries did not involve their users in formulation of policies and did not implement these for collection development. Study suggested the need of trained librarians on collection development.

Lenz (2004) argued that collection development librarians in law schools should assume an active role in library faculty service programmes. Explores how they can make valuable contributions to such programmers and examines the importance of interdepartmental collaboration to achieve faculty services goals. Among the activities that should be under taken are conversations with faculty to gain understanding of their interests monitoring current awareness services.

Bourgeois, et.al. (1998) noted that one of the major goals of higher institutions is to develop a balanced collection. The writers affirm that a balanced collection is one that reflects proportionately the various programmes, Instructions and research conducted in an institution at a given time and is not disproportionately skewed towards any one discipline. However, not all institutional libraries have been able to develop a balanced collection because of the challenges facing librarians in collection development.

Diva and Waldomiro (1996) undertook a study under the article titled *"collection development in academic libraries: a Brazilian library's experience"*. The article is

based on the collection development and practices of academic library of Brazil have briefly explained different models of collection development given by professionals.

Haider (1996) in his paper, *"acquisition and collection development in Pakistan"* analyzed the constraints faced by Pakistani libraries in the purchase of books from abroad. Due to lack of management, absence of competent personnel, non-existence of acquisition policy statements, non-existence of selection aids, ever shrinking library budgets, fluctuating rate of the rupee, inflation, import policy, trade embargoes against some countries, fiscal policy etc. were the major hurdles found.

Evans (1995) defined collection development as a *"Process of meeting the information needs of people in a timely and economic manner using information resources locally as well as from other organisations".*

Johnson and Gabriel (1995) defined Collection development is a term representing the process of systematically building library collections to serve study, teaching, research, recreational and other needs of library users. The process includes selection and de-selection of current and retrospective materials, planning of coherent strategies for continuing acquisition and evaluation of collection to ascertain how well they serve user needs.

Harloe and Budd (1994) in their study titled *"collection development and scholarly communication in the era of electronic access"* examined the relationship among collection development, management and system of scholarly communication in academic library. They have discussed on ownership verses access to information and presented strategies for collection development in electronic networked system.

Shipman (1975) argued that development of collections is *"the sum total of library materials: books, pamphlets, manuscripts, punched cards, serials, government documents, microfiche, and computer tapes etc., which compose the areas of a particular library".* In other words is the systematic and planned development of existing collections.

Mosher (1972) expressed that the collections development is to build a library collection which will supply a continuously expanding store of useful information to support and enrich the programmes of the organization. In order to provide the best informational materials for the implementation of its functions, the library defines guidelines for the collections development. Policies are necessarily subject to revision, as necessary, form the framework for building the library's collection.

2.3.2. Library Automation and ICT Application

Alice M. Okore (2011) in his article attempted to determine the influence demographic / socio-economic attributes (rank, years of experience and gender) had on ICT's use for scholarly communication. The study adopted ex post facto research design and utilised a questionnaire to generate data.

Dorcas Ejemeh Krubu & Kingsley Efe Osawaru (2011) described that computing technology, communication technology, and mass storage technology were some of the areas of continuous development that reshape the way libraries access, retrieve, store, manipulate, and disseminate information to users. ICT had impacted every sphere of academic library activity especially in the form of the library collection development strategies, library building and consortia. ICT presented an opportunity to provide value-added information services and access to a wide variety of digital based information resources to their clients.

Husain Al-Ansari (2011) discussed the application of ICT in special libraries in Kuwait. The study was designed to explore the application of IT in various operations and services in special libraries in Kuwait. This study provided baseline data on the current status of the application of ICT. The majority of the libraries were partially automated. The library catalogue was found to be the most popular area for automation. More than one fourth of the libraries were still using manual systems in their library operations and services. Lack of adequate personnel, ICT training programmes, and low priority of libraries within their organisation were major obstacles for ICT application in special libraries. It also indicated the existing obstacles, difficulties, and provided suggestion and recommendations for further development. It was the first study of the status of ICT applications in special libraries in Kuwait.

Aderonke O. Adeyemi (2010) stated that ICT had fundamentally affected the operations of library and information services. The study was used to elicit information from respondents at two university libraries, the University of Lagos (Unilag) and Covenant University (CU). The study revealed tension, stress, headaches, and pain in wrist, forearm, elbow, neck or back. Good ergonomic assessment and remedial design could ensure library staff efficiency and increased productivity.

Rose B. Okiy (2010) focused on globalization with relation to library services in academic libraries and the factors militating against the implementation of ICT activities. Suggestions towards achieving a more effective ICT culture in Nigerian academic libraries were offered.

Matthew Pastula (2010) stated that ICT has become an integral tool in enhancing library services worldwide. The paper looked at ways of how technology was utilised at Massey University to bridge the gap between distance students and traditional library services. There were a variety of software providers, formats and implementation practices available when considering educational technology. This article focuses on basic Webpage technology, rich online audiovisual content, interactive tutorials and virtual communication tools. The popularity of distance education necessitates a review and alignment of library services to facilitate the success of distance students in higher education.

Gould, E. and Gomez, R. (2010) in their article entitled `*Landscape Study,'* the first of its kind to look across 25 developing countries compared how public access venues, including libraries, telecenters and cybercafes, were being used and looked at how public perceptions of libraries in these countries affected the way they were used as public access venues for information and communication technologies (ICT). When compared to other public access venues, public libraries were not perceived as important or useful places to get information, based on users' perceptions of access to current information and technology, and to associated technology training and support. Furthermore, libraries were not prioritized by government agencies for financial and policy support.

Adeyinka, T. (2009) pointed out that the explosion of ICT since the beginning of the 20th century has been rendering manual-based library system in academic, research, special and public libraries less relevant. The usage and implementation of ICT in the library depend largely on the librarian's attitude toward the current digital age. This

study examined the attitudinal correlates of some selected Nigerian Librarian towards the use and application of ICT in their various libraries.

Daniel Emojorho & Dr. K. I. N. Nwalo (2009) jointly investigated the availability and use of ICTs in collection management in university and special libraries in the Niger-Delta region, Nigeria. The study showed that there was a significant difference in the availability of ICTs, ICT facilities, application, and funding between university and special libraries.

Helen Komolafe-Opadej (2009) pointed out that the adoption of ICT's increase in the quantity of information passing through the library, and the librarians must be well-versed in knowledge management and dissemination. The study found that the training of participating library staff was inadequate although training in ICT would allow them to provide knowledge management service.

Sylvester O. Anie and Edwin I. Achugbue (2009) examined the current state of ICT policies in the provision and utilisation of library services and resources in their study. The population of the study consisted of all the Federal Universities of Nigeria. The results revealed that most Nigerian Universities had not adopted library ICT policies, and where the policies had been adopted and implemented, the libraries were faced with various constraints.

Shariful Islam and Nazmul Islam (2007) stated that although Bangladesh began to adopt ICT in 1964, the library automation was still in its infancy. The survey resulted in nine libraries and information centers in Bangladesh determining the extent of the use of ICT.

Anisur Rahman (2006) highlighted the present status of ICT in Bangladesh and represents the scenario of growth and development of ICT in relation to the evolution of the information explosion with the aim of providing better library and information services in Bangladesh. The documentary sources and direct observation were the major methods of this study. To achieve the millennium development goal and to face the information revolution, Bangladesh needed a special information infrastructure. There also an immediate need to make a dedicated decision to ensure an appropriate electronic-communication environment in the country to facilitate the use of ICT to disseminate information, building communication, marketing products and publications, and earn revenue through ecommerce.

Ikoja-Odongo, Robert (2006) studied the application of ICT in health information access and dissemination in Uganda. The project focuses on information obtainable through libraries for research, teaching, learning practice, and on ICT applications concerned with the administration and planning of health services in Uganda. The current state of ICT applications, the extent of applications, and the roles played and problems faced were highlighted by a thematic analysis.

Samuel Olu Adeyoyin (2006) ascertained in his paper the ICT literacy level among the anglophone (English-speaking) university libraries staff and their counterparts in francophone (French-speaking) university libraries in West Africa.

Adeyoyin (2005) surveyed the levels of ICT literacy among library staff in Nigerian libraries. The questionnaire method was used for this study. The data, collected on a self-assessment basis, covered 18 Nigerian university libraries. It showed that Nigerian university libraries, which form the basis of knowledge for the country, do not have professional librarians whose skill-set was adequate to meet the ICT

applications which were indispensable for the acquisition, organization, provision and dissemination of knowledge. Library management, for its part, should acknowledge the wide-ranging benefits of both ICT and raise levels of ICT literacy for university libraries and their mother institutions.

Obioha (2005) identified the role of ICT in information seeking and use amongst research officers in Research Institutes in Nigeria. The study examined awareness, use, exposure to ICT; role of ICT and improvements on ICT tools. It showed that ICT played significant role in information sourcing, generation, processing, storage, retrieval, dissemination and also entertainment. It also proved that for ICT to be used maximally there was need to have regular power supply, stable infrastructure and provision of more ICT tools and centres.

Okiy, R.B. (2005) reviewed the LIS literature on university libraries and ICT application in Nigeria (to expose the state-of-the-art facilities) problems which be set the university libraries in Nigeria as regards ICT application he also identified obstacles militating against effective application of ICT in university libraries to include inadequate funding, inadequate electricity supply, shortage of competent manpower for operation and maintenance of ICT facilities, lukewarm attitude of the Nigerian government towards the provision of ICT facilities and low level of computer literacy among Nigerians.

Brindley, Lynne (2002) focused on the potentials of electronic ICTs for scholarly use. Application of ICT to humanities: Collaboration and partnership for response to user information requirements, emphasis on international agreement in developing distributed international electronic resource.

Elisam Magara, (2002) had analysed applications offered by different organisations in Uganda and presented way forward for the use of digital libraries. A qualitative approach with a purposive sampling strategy was adopted. The study was limited to practical experiences on the services and applications that made the basis of analysis. The results indicated that the majority of organisations apply IT in bridging access across networks and sharing of information between different organisations. It was observed that the current ICT systems in Uganda do not enable it to reach the majority of the community. The author recommended that the library services need to be integrated into the organisations strategic objectives coupled with knowledge and skills.

Henry L. Mambo (2000) in his article highlights the efforts taken in for the development of ICT infrastructure in libraries and for other information services since the 1980s. It noted the progress made in this area and related it to the liberalisation policies adopted by the country in 1986 and formulation of the 1985 Science and Technology policy of Tanzania. Other efforts included the formation of Tanzania Commission for Science and Technology (COSTECH). It was argued, however, that there was a need for a comprehensive national information policy which is non-existent at the moment.

Colin Darch and Peter G. Underwood (1999) attempted to outline ICT development in South African libraries which cannot be understood outside the context of the post-apartheid period. Higher education and other libraries attempt to straddle this divide. Government policy emphasise the importance of connectivity in redressing inequality.

Roberts, D., Hywel, E. and Everitt, Jean (1999) worked on a project aimed at ascertaining current and anticipated use of ICTs in museums in Wales by 2000 and

beyond, a project commissioned in March 1998 by the Council of Museums in Wales (CMW) with the support from the Museums and Galleries Commission. This project traced the primary ICT trends in the museum community worldwide, and lists relevant contemporary policy and project initiatives and funding sources in the U.K. Outlines the main findings: applications, resource and other issues, barriers to development, the perceived value of ICTs in museum work, and main project outcomes.

Muirhead (1993) reported the results of a survey, funded by the British Library, Research and Development Department, of systems librarian posts in UK libraries. Survey includes 503 UK public, academic and other libraries to determine the activities of systems librarians and the nature of the employing organisations. The survey findings concerned about what systems librarians follow, the kinds of stress they were exposed to, and the rewards of the job. As IT penetrates further into LIS the extent to which the applications of IT fell within the systems librarian purview was an objective of the survey. Majority said that they were involved in IT developments in addition to managing their library housekeeping system. Standard office automation, CD-ROM, PC-based applications, and network management were among the most frequently mentioned areas.

Shiao-Feng (1993) reported the results of a questionnaire survey done to determine the attitudes of professional academic library staff in Taiwan towards computerized library systems. Responses were collected from university libraries known to have installed computerized library systems and follow up telephone interviews were conducted. Results on comparison with those of an earlier study in the USA which related to professional academic library staff in 13 academic libraries in the Midwest

showed very little difference between the attitudes of librarians in the two countries. One of the hypotheses guiding the study was that no significant differences existed between the attitudes of librarians in Taiwan and the USA.

2.4 Conclusion

Review of related literature studies help to bring clarity and broaden the knowledge base in the subject area. The review shows that many studies were conducted in India and abroad to examine the different aspects of academic libraries. The reviews of these studies have been made under different headings such as Collection Development, Library Automation, and ICT Application in library. From the literature review, it is found that though many studies have been carried out regarding the collection development and ICT Application of Indian context, but in Sikkim, till now no such comprehensive studies have been made. Therefore the present study has been attempted to know the ground reality pertaining to the Collection Development and ICT Application in the Libraries of Higher Educational Institutions of Sikkim.