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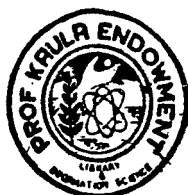
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- 5 PARASURAMAN A et al: "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria. (*Journal of Retailing*, 70 (Fall 1994) p 201-230).
- 6 ZEITHAML Valarie A et al: *Delivering Quality Service: Exceeding Customer Perceptions and Expectations*. (New York; Free Press, 1990, 16).
- 7 COOK Colleen and THOMPSON Bruce: LibQUAL+: One Instrument in the New Measures Toolbox, <http://www.arl.org/newsltr/212/libqual.html>
- 8 WALLER Consuella Askew and HIPPS Kaylyn: Using LibQUAL+™ and Developing a Culture of Assessment in Libraries, <http://www.arl.org/newsltr/221/libqarl.html>.
- 9 WALLER Consuella Askew, et al: LibQUAL+ Policies and Procedures Manual. Association of Research Libraries, Washington, DC, 2003, <http://www.libqual.org/documents/admin/procedures3.8.pdf>
- 10 <http://libraries.mit.edu/ordering/lib.html>
- 11 <http://www.lib.nus.edu.sg/help/service/docdel.html> and <http://www.lib.nus.edu.sg/guides/dds nus.htm>
- 12 BARRY Jeff: Automated System Marketplace 2001: Closing in on Content. (*Library Journal*, April 1, 2001).
- 13 ARORA Jagdish and AGRAWAL Pawan: Indian Digital Library in Engineering Science and Technology (INDEST) Consortium: Consortia-Based Subscription to Electronic Resources for Technical Education System in India: A Government of India Initiative. (International CALIBER 2003, Ahmedabad, 13-15 February 2003, Conference Volume -Mapping Technology on Libraries and People, Ahmedabad: INFLIBNET, 2003, p 271-290).
- 14 <http://www-4.ibm.com/software/developer/library/Personalization/>
- 15 <http://www.lib.nus.edu.sg/>
- 16 <http://library.caltech.edu/services/interlib.htm>

D [Article]

**APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN R & D INSTITUTIONS
A CASE STUDY OF THE LIBRARIES AND INFORMATION CENTERS OF DRDO AND CSIR LOCATED AT DELHI**

K P SINGH

[The present study is an outcome of a research project undertaken at the Master of Philosophy. The study with the application of the information and communication technology in the libraries and information centers of the DRDO and the CSIR located at Delhi. These libraries are the Defence Science Library of DESIDOC, Laser and Science Technology Centre (LESTEC) Library, Institute of System Studies and Analysis (ISSA) Library, Solid State Physics Laboratory (SSPL) Library, Institute of Nuclear Medicine & Allied Sciences (INMAS) Library, Defence Institute of Physiological and Allied Sciences (DIPAS) Library, Defence Institute of Psychological Research (DIPR) Library, National Science Library of National Institute of Science Communication and

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Information Resources (NISCAIR) formerly INSDOC, National Institute of Science, Technology and Development Studies (NISTADS) Library, The Central Road Research Institute (CRRRI) Library; and The Institute of Genomes and Integrated Biology (IGIB) Library formerly CRT. For the study data has been collected

through interview for further clarity and unambiguously of facts. The questionnaire sent to the librarians includes various aspects of the libraries under study with particular reference to ICT applications. The data has been presented in ten Tables with their interpretation and the findings and a conclusion has been drawn in the light of objectives of the study.]

0 Introduction

The present century is the age of digital nervous system, which aims at leveraging the two-core revolutions, PC and the Internet[1] and other advances in information processing, storage and communication technologies have revolutionized the role of the libraries and information centers all over the world. As a result, libraries are facing new challenges, new competitors, new demands, and variety of information services. To meet the new challenges and multifaceted information needs of users, libraries and information centres are re-consolidating, re-shaping, and re-designing their services and information products by incorporating new tools and technologies, upgrading information resources, training library and information professionals. Huge amount of information is being generated every moment in various forms and content such as printed materials (books, periodicals, conference proceedings, technical reports, standards and patents, etc.), offline (such as floppies, audio tapes, CD-Rom, etc.) and Online (such as Web). The information is a dynamic and unending resource that affects all disciplines and all walks of life hence, the information becomes an essential ingredient of our life and a basic input to education, research, planning, and development activities. The information and communication technology (ICT) is the science of information handling and processing, particularly by computers used to support communication of knowledge in scientific and technical, economical and social fields. ICT has a convergence of two fold of technologies namely, computers and communications tools. In other words it is a mosaic of technologies, products, tools & techniques have combined to provide new electronic dimension to information handling and management.

1 Tabulation and Interpretation

The Part-I of the Questionnaire was designed to obtain the basic information about the libraries and information centers of the DRDO and the CSIR located at Delhi. The information given in the questionnaire has been analyzed and presented in the Table 1, which includes five segments. This is revealed from the above table that the libraries and information centers of the DRDO generally has nomenclature for libraries and information centers *i e* Technical Information Resource, Centre/Technical Resource Centre except the DESIDOC Library. However, the libraries and information centers of the CSIR generally called library. In regards of the qualifications of the Head of the libraries and information centers of the DRDO and the CSIR. It was found that the librarians have bachelor degree in Sciences and Bachelor, Master and even Doctor of Philosophy degrees in library and information science. Nature of all the libraries and information centers of the DRDO and the CSIR is purely research as they are attached to a specific research oriented institute.

TABLE 1: LIBRARY PROFILE

S. No.	Name of Institution	Name of Library	Name of Librarian	Qualification	Nature of Library	Parent Organization
1	DSL, DESIDOC	Defence Science Library	Mr Ashok Kumar	M Sc, M L I Sc	Research	DRDO
2	LASTECC Library	Technical Resource Centre	Mr Annie Pappan	B Sc, B L I Sc	Research	DRDO
3	ISSA Library	Technical Resource Centre	Mrs Usha Puri	B A, B L I Sc	Research	DRDO
4	SSPL Library	Technical Information Resource Centre	Mr R K Sriavastava	M Sc, M L I Sc	Research	DRDO
5	INMAS Library	Technical Information Resource Centre	Dr (Mrs) R Chandra	B Sc, M L I Sc, Ph D	Research	DRDO
6	DIPAS Library	Technical Resource Centre	Mr S S Puri	M Sc, M L I Sc	Research	DRDO
7	DIPR Library	Technical Resource Centre	Position vacant	-	Research	DRDO
8	NISCAIR Library	National Science Library			Research	CSIR
9	NISTADS Library	NISTADS Library	Mr S M Joshi	M Sc, M L I Sc	Research	CSIR
10	CRRIL Library	Professor S R Mehta Library	Dr Ashok Kumar Sharma	M Sc, M L I Sc, Ph D	Research	CSIR
11	IGIB Library	IGIB Library	Mrs Ganju	B Sc, M L I Sc	Research	CSIR
12	NPL Library	NPL Library	Dr S M Dhawan	M Sc, M L I Sc, Ph D	Research	CSIR

TABLE 2: LIBRARY BUDGET

<i>Sr No.</i>	<i>Name of Library</i>	<i>Budget in Rs for 2003-</i>
1	DSL, DESIDOC	1.7 crore
2	LASTEC Library	10 lakh
3	ISSA Library	12 lakh
4	SSPL Library	50 lakh
5	INMAS Library	30 lakh
6	DIPAS Library	30 lakh
7	DIPR Library	15 lakh
8	NSL, NISCAIR	1 crore
9	NISTADS Library	40 lakh
10	CRR I Library	25 lakh
11	IGIB Library	30 lakh
12	NPL Library	90 lakh

The budget of the DRDO and the CSIR libraries and information centers are not uniform in terms of the budget allocation. This is due to the size, collection, and stature of the library. It is revealed from the Table 2 that the Defence Science Library of DESIDOC and the National Science Library of NISCAIR has the annual budget of more than Rs. 1 crore for purchasing of books, periodicals and other reading materials. The libraries and information centers of the DRDO and the CSIR spend 80% of the allocated budget only for subscribing the scientific and technical journals and subject related databases.

TABLE 3: LIBRARY STAFF

<i>Sr No.</i>	<i>Name of Library</i>	<i>Professionals</i>	<i>Semi-Professionals</i>	<i>Total</i>
1	DSL, DESIDOC	10	15	25
2	LASTEC Library	1	1	2
3	ISSA Library	2	1	3
4	SSPL Library	3	6	9
5	INMAS Library	2	4	6
6	DIPAS Library	2	1	3
7	DIPR Library	1	1	2
8	NSL, NISCAIR	5	14	19
9	NISTADS Library	4	3	7
10	CRR I Library	6	4	10
11	IGIB Library	2	2	4
12	NPL Library	8	3	11

Library staff is the key component in discharging the effective LIS

services and their management. The Table 3 shows that there is a big variation in the staffing of above libraries and information centers and this is due to the size and stature of the library. The DSL of DESIDOC have more than 25 library staff in the library, as the National Science Library is the central source of DRDO laboratories. This is also revealed in the Table 3 that the libraries and information centers of the CSIR have independent libraries which have an average of eight number of library staff.

TABLE 4: LIBRARY COLLECTIONS /

Sr No.	Name of Library	Books	Current Journals	Online databases & E-journals	CD-ROM Databases
1	DSL, DESIDOC	71,256	380	7	38
2	LASTEC Library	1600	12	-	1
3	ISSA Library	5000	46	-	2
4	SSPL Library	10,000	54	15	12
5	INMAS Library	10,000	100	-	6
6	DIPAS Library	25,000	40	-	2
7	DIPR Library	20,000	20	-	1
8	NSL, NISCAIR	1,20,000	4000	120	74
9	NISTADS Library	70,000	120	10	10
10	CRRI Library	80,000	200	10	12
11	IGIB Library	25,000	35	5	4
12	NPL Library	44,000	163	12	10

The libraries and information centers of the DRDO and the CSIR have a rich collection in their respective subjects in printed as well as digital. The Table 4 indicates that there is a great impact of ICT in the creation, preservation and delivering the content of digital sources of information as the major libraries and information centers of the DRDO and the CSIR are subscribing the online journals as well as CD ROM databases. This is also indicated in the Table 4 that the National Science Library of NISCAIR has huge digital sources of information and also a substantial collection of printed sources of information. The libraries and information centers of CSIR have a comparatively rich collection than the libraries and information centers of the DRDO.

TABLE 5: LIBRARY AUTOMATION

Sr No.	Name of Library	Extent of Computerization	Library Software in Use
1	DSL, DESIDOC	Fully automated	SUCHIKA
2	LASTEC Library	No automation	-
3	ISSA Library	Almost automated	SUCHIKA
4	SSPL Library	Fully automated	SUCHIKA
5	INMAS Library	Fully automated	SUCHIKA

6	DIPAS Library	Almost automated	SUCHIKA
7	DIPR Library	Under automation	SUCHIKA
9	NISTADS Library	Almost automated	LIBSYS
10	CRRJ Library	Fully automated	LIBSYS
11	IGIB Library	Almost automated	LIBSYS
12	NPL Library	Fully automated	No specific name

The computerization of library holdings is the principal application of the ICT in the libraries and information centers. The libraries and information centers of the DRDO and the CSIR are the research oriented therefore, it is displayed in the Table 5 that except LASTEC library all the libraries of the DRDO are almost automated. This is also revealed from the Table 5 that the libraries and information center of the DRDO are using the SUCHIKA library software package developed by DESIDOC for the computerization of DRDO libraries in India. On the other side the major libraries and information centers of the CSIR are using commercially developed software i.e., LIBSYS. The NPL library of the CSIR is using an own developed library software package for automation of LIS activities.

TABLE 6: AVAILABILITY OF SOFTWARE INFRASTRUCTURE

Type of Software	Name of library and information Centre												
Library Software													
Suchika	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-	-	-	-
Libsys	-	-	-	-	-	-	-	-	Yes	Yes	Yes	-	-
Granthalaya	-	-	-	-	-	-	-	Yes	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	Yes
Operating System													
DOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WINDOWS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNIX	Yes	-	Yes	-	-	-	-	-	-	-	-	-	-
LINEX	-	-	-	-	-	-	-	-	-	-	-	-	Yes
Word Processing Software													
MS-Word	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Word Perfect	Yes	-	-	Yes	Yes	-	-	Yes	-	Yes	-	-	Yes
Ch Write	Yes	-	-	-	-	-	-	Yes	-	-	-	-	-
Others	Yes	-	Yes	-	-	-	-	Yes	-	Yes	-	-	Yes
Spread Sheet Software													
MS-Excel	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Lotus 1-23	Yes	-	-	Yes	Yes	-	-	Yes	-	Yes	-	Yes
DTP Software												
Adobe PageMaker	Yes	-	Yes	Yes	-	Yes	-	Yes	-	Yes	-	Yes
Vantura	Yes	-	-	Yes	-	-	-	Yes	-	-	-	Yes
Multimedia Software												
PhotoShop	Yes	-	Yes	Yes	-	Yes	-	Yes	Yes	Yes	-	Yes
Director	Yes	-	-	Yes	-	-	-	Yes	-	-	-	Yes
Networking Software												
Novell NetWare	Yes	-	-	Yes	-	-	-	Yes	-	-	-	-
Windows NT	Yes	-	Yes	Yes	Yes	-	Yes	Yes	-	Yes	-	Yes
Unix	Yes	-	-	Yes	-	-	-	Yes	-	-	-	Yes
Graphic Software												
PowerPoint	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Corel Draw	Yes	-	-	Yes	-	-	-	Yes	-	-	-	Yes
Harvard Graphic	Yes	-	-	Yes	-	-	-	Yes	-	-	-	Yes

Since the software packages are always considered as blood of the hardware system, which brings the equipments into real use and application that cannot be function without software packages. The table 6 intended to study about the various kinds of software available in the libraries and information centers of the DRDO and the CSIR. From the Table 6 it is summarised that the basic software such as DOS, Windows, Windows NT, MS -Word, MS-Excel, MS-PowerPoint, PhotoShop, Suchika, and Libsys are used in major libraries and information centers of the DRDO and the CSIR in operations of the LIS activities. This is also found from Table 6 that the DSL, DESIDOC, the NSL, NISCAIR, the SSPL, and the NPL Library are also using high-end software packages for networking of libraries and multimedia application in the operation of the LIS activities.

TABLE 7: AVAILABILITY OF HARDWARE INFRASTRUCTURE

Sr No.	Name of Library	Name of the hardware (Quantity in Number)							
		PC	Apple Mac	Main-frames	CD Drive	Scanner	Modem	Bar-code Reader	Photocopier
1	DSL, DESIDOC	25	22	7	22	4	20	-	3
2	LASTEC Library	2	-	-	2	-	1	-	1
3	ISSA Library	3	-	-	3	2	2	-	-
4	SSPL Library	8	2	2	10	2	5	-	2
5	INMAS Library	3	-	-	3	1	1	-	1
6	DIPAS Library	3	1	-	3	1	3	-	1
7	DIPR Library	2	-	-	2	1	1	-	1

8	NSL, NISCAIR Library	24	12	6	24	5	25	5	2
10	CRR I Library	12	-	-	10	2	4	2	2
11	IGIB Library	4	-	-	4	-	2	-	1
12	NPL Library	13	2	2	12	2	3	2	2

Since the hardware is the basic component of ICT which enables to integrate the software packages in operations of LIS activities. This is shown from Table 7 that the major libraries and information centers of the DRDO and the CSIR are using the basic hardware infrastructure for operation and managing the LIS activities. This is also revealed from Table 7 the DSL of DESIDOC, the NSL of NISCAIR, the NPL Library, and the SSPL library have a impressive quantity of hardware i.e. PCs, Apple Mac, Mainframe, Scanner, CD-Rom Drivers, Scanner, and Photocopier.

TABLE 8: AVAILABILITY OF NETWORKING FACILITIES

Sr No.	Name of Library	Type of Network				
		Intranet	Internet	ERNET	DELNET	INFLIBNET
1	DSL, DESIDOC	Yes	Yes	No	Yes	Yes
2	LASTE C Library	No	Yes	No	No	No
3	ISSA Library	Yes	Yes	No	No	No
4	SSPL Library	Yes	Yes	No	Yes	No
5	INMAS Library	Yes	Yes	No	Yes	No
6	DIPAS Library	Yes	Yes	No	No	No
7	DIPR Library	Yes	Yes	No	No	No
8	NSL, NISCAIR	Yes	Yes	Yes	Yes	Yes
9	NISTADS Library	Yes	Yes	Yes	No	No
10	CRR I Library	Yes	Yes	Yes	Yes	No
11	IGIB Library	No	Yes	No	No	No
12	NPL Library	Yes	Yes	Yes	Yes	Yes

The networks and networking technology is the beauty of ICT, which shrinks the physical boundaries, and makes World as Global Village. The offspring of network technologies i.e., Intranet, Internet, Delnet, Ernet, Inlibnet, are the resource sharing tools of libraries and information centers. The Table 8 indicates that all the libraries and information centers of the DRDO and the CSIR are using the Intranet and the Internet for LIS activities. This is also found from the Table 8 that the DSL of DESIDOC, the NSL of NISCAIR, and the NPL library are the member of DELNET, ERNET and INFLIBNET for meeting the information needs of their users.

TABLE 9 APPLICATION OF ICT IN HOUSEKEEPING ACTIVITIES OF LIS

Sr No	Name of Library	Name of the House Keeping Activities			
		Acquisition	Cataloguing	Control	Management Activities
1	DSL, DESIDOC	Yes	Yes	Yes	Yes
2	LASTEC Library	No	Yes	Yes	No
3	ISSA Library	No	Yes	Yes	No
4	SSPL Library	Yes	Yes	Yes	Yes
5	INMAS Library	Yes	Yes	Yes	No
6	DIPAS Library	Yes	Yes	Yes	No
7	DIPR Library	No	Yes	Yes	No
8	NSL, NISCAIR	Yes	Yes	Yes	Yes
9	NISTADS Library	No	Yes	Yes	No
10	CRRILibrary	Yes	Yes	Yes	Yes
11	IGIB Library	No	Yes	Yes	No
12	NPL Library	Yes	Yes	Yes	Yes

The house keeping activities of any library and information centers are the preliminary computer based activities on which all the concept of ICT based LIS services are dependent. This is displayed from the Table 9 that the major library and information centers of the DRDO and the CSIR are using ICT in all housing keeping activities i e, ordering and procurement of documents, technical processing of documents, serial control, and budget control and stock verification, etc.

TABLE 10: APPLICATION OF ICT IN LIS SERVICES

Sr No.	Name of Library	Name of LIS Service							
		OPAC	Circulation	Article Indexing	CAS	SDI	CD-Rom Search	Online Search	Inter-net Search
1	DSL, DESIDOC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	LASTEC Library	No	No	No	Yes	Yes	Yes	No	Yes
3	ISSA Library	Yes	No	Yes	Yes	Yes	Yes	No	Yes
4	SSPL Library	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	INMAS Library	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	DIPAS Library	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	DIPR Library	Yes	No	No	Yes	No	Yes	No	Yes
8	NSL, NISCAIR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

9	NISTADS Library	Yes	Yes	Yes	Yes	No	Yes	No	Yes
11	IGIB Library	Yes	No	No	No	Yes	No	No	Yes
12	NPL Library	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

The ICT based LIS services are an efficient and effective mechanism of delivering the contents to its users pin pointedly and exhaustively. It is undisputed statement today that ICT based LIS services are the cost effective and user-friendly to users in meeting their information needs timely and comprehensively. The Table 10 revealed that major ICT based LIS services *i e*, OPAC, circulation, article indexing, CAS, SDI, CD-Rom search, online search, and Internet search are provided by the major libraries and information centres of the DRDO and the CSIR.

2 Findings and Conclusion

Information and communication technology (ICT) and its offshoot technologies *i e.*, Networks and Networking, Internet, Intranet, WWW, Web directories, Web portals etc., have been playing a significant role in acquisition, storage, preservation, and disseminating and delivering the information/contents. The present study has been conducted to find out the application of the ICT in the libraries and information centers of the DRDO and the CSIR located at Delhi. The findings of this study are:

2.1 OBJECTIVE ONE

The first objective of this study was to know the availability of information communication technology infrastructures in the libraries and information centers of the Defence Research and Development Organization (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi. For this librarians were asked to furnish the information related to the various ICT infrastructures available in their respective library and information centers. It was found that the availability of ICT infrastructure in the Defence Science Library of DESIDOC and the National Science Library of NISCAIR has large numbers of PC, Apple Mac, Mainframe computers, CD-ROM Drives, CD Writers, Scanner, Modem, Barcode Reader, and Photocopier for carrying out the LIS activities. The actual numbers of quantity of these ICT items are given at page no. 124 of the chapter no. 6. It was also found that each library and information center of the DRDO and the CSIR has at least one photocopier and photocopying services are free for the users of their respective library and information centers.

2.2 OBJECTIVE TWO AND THREE

The objective two and three of this study was to know about the hardware and software available and used in the libraries and information centres. Since the software packages are always considered as the blood of the hardware system, which brings the equipments into real use and application that cannot function without software packages and similarly the hardware are also the basic components of ICT which enable to integrate the software packages in operations of LIS activities. It was found that library and information centres of the DRDO and CSIR are using the various software packages for performing the different type of jobs.

For Library Automation: All libraries and information centres of the DRDO are using SUCHIKA (A library software package comprises of acquisition, circulation, OPAC, article indexing, serials control modules) developed by DESIDOC. Whereas the library and information centres of the CSIR namely, CRRI, NISTADS, and IGIB are using the Libsys (A commercially developed library software package by LIBSYS Corp, New Delhi.) and the National Science Library of NISCAIR is using GRANTHALAYA (A library software package developed by NISCAIR), the NPL library is also using an in-house developed library software package based on CDS/ISIS.

- **For Operating System:** the majority of the library and information centres of the DRDO and the CSIR are using the Windows. The DSL of DESIDOC and the NSL of NISCAIR in addition to Windows are also using the UNIX
- **For Word Processing:** It was a surprise to find that hundred percent of the library and information centres of the DRDO and the CSIR are using only MS-Word (A segment of the MS-Office developed by Microsoft Corp., USA)
- **For Tabulation Work:** (Spreadsheet software) all the libraries and information centres of the DRDO and the CSIR are using MS-Excel (A segment of the MS-Office developed by Microsoft Corp., USA). Few libraries and information centres are also using Lotus 1-2-3 software for the spreadsheet work.
- **For the DTP and Multimedia Work:** Only the DSL of DESIDOC, the NSL of NISCAIR are using Adobe PageMaker, Ventura, PhotoShop, and Director.

2.3 OBJECTIVE FOUR

The fourth objective of this study was to know the various areas of application of information communication technology in the libraries and information centers of the DRDO and the CSIR located at Delhi. It was found that the libraries and information centres are using ICT in various areas of LIS activities.

For Housing Keeping Jobs: The major library and information centers of the DRDO and the CSIR are using ICT in all house keeping activities i.e., acquisition, cataloguing, serial control, and management

For OPAC: All the library and information centres of the DRDO and the CSIR have developed ICT based information retrieval system i.e., Online Public Access Catalogue (OPAC).

For CAS and SDI service: except DIPR Library of the DRDO and IGIB library of the CSIR all the libraries and information centers are using computerized CAS and SDI

Online Searching: Majority of libraries and information centers of the DRDO and the CSIR are using ICT based online searching of information

CD-Rom Search: This was found that all the libraries and information centers of the DRDO and the CSIR are using CD-Rom search facility

Internet Search: It was found that hundred percent library and information centres of the DRDO and the CSIR are using Internet.

2.4 OBJECTIVE FIVE

The fifth objective of this study was to know the opinion of the

librarians about the application of information communication technology in libraries and information centres of the Defence Research and Development Organisation (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi. It was found that:

- All the librarians of the library and information centres of the DRDO and the CSIR were of the opinion that ICT based content should be introduced in the course curricula of LIS training schools and also have the provision of practical exposure of the computerized LIS activities.
- The majority of the librarians also are of the opinion that paucity of funds, and unskilled hands are the major issues in the management of LIS services and maintenance of library and information centres effectively and efficiently.

3 Conclusion

After analyzing the data collected for this study, it seems that the most of the libraries and information centres of the DRDO and the CSIR like Defence Science Library of DESIDOC and National Science Library of NISCAIR are using the ICT in almost all areas of LIS activities. Further it is to add that these two libraries are the central point of designing and developing the ICT based products and services, application software, creation of bibliographic databases, and establishing the *Wide Intranet* for resource sharing. The NPL Library of CSIR and the SSPL Library of the DRDO are using ICT largely in LIS activities and both the libraries have an excellent ICT infrastructure. However, a few library and information centres particularly of the DRDO such as LASTEC Library, DIPR Library, and ISSA Library are in the preliminary stage in the application of ICT in LIS activities as the basic information needs of the scientists of these institutions are met from the Defence Science Library of DESIDOC.

E [Article]

NEED AND DEVELOPMENT OF LIBRARIES IN RURAL INDIA

P N KAULA

[Refers to the projection of the greatness of Indian Culture and movement for the development of public library activities through the efforts of Iyyanki Venkata Rammanayya followed by the work of Dr S R Ranganathan involving rural India. Mentions the launching of the National Adult Education Programme and the follow up programme for the establishment of village libraries in several states through various agencies and the National policy and assistance of Raja Rammohun Roy Library Foundation. Points out the enforcement of library legislation in some states and the thrust on setting up of rural libraries as community resource centres. Makes a survey of the need of users by setting up information centres to educate the rural people particularly women and children and skilled workers, farmers and physically handicapped persons. Stresses the need for providing good books for children and women and also embarking on providing some vital issues pertaining to the development of public and rural libraries enforced by the adoption of the Right to Information Act by the Government.]

Prof P N Kaula, *President, Ranganathan Society for Book Culture, Library and Informatics Studies; President, Indian Public Library Association; Regional President, World Council for Vocational Education; former Member, National Book Trust, India, C-239, Indiranagar, Lucknow-226016.*