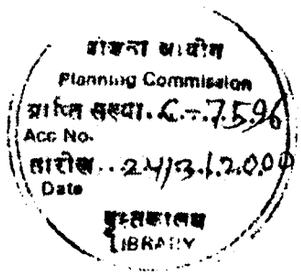
# Report of the Core Task Group on Sharing of Libraries and Information Resources Utilising the Advancements in Communication Technology




27th May, 1996

Planning Commission
Yojana Bhavan
New Delhi

## CONTENTS

## PREFACE

The Planning Commission set up a Core Task Group to consider all the issues related to sharing of the resources of libraries and information centres utilising the revolutionary advancements in computer and communication.technologies. The terms of reference for the Core Task Group were identified as follows:

- To study the issues related to sharing of library and information resources, utilising the recent revolutionary advancements in communication technology;
- To take an integrated view of the existing networks and centres to avoid duplication and to maximise their resource utilisation,
- To make an assessment of the requirements of library automation and networking,
- To explore the ways and means for interconnecting libraries and information centres for maximising utilisation of their facilities.

The Core Task Group set up four Sub-Task Groups namely, Resources Sub-Task Group Databases Sub-Task Group, Infrastructure Sub-Task Group and Human Resources Sub-Task Group. The four Sub-Task Groups carried out analysis of the future requirements and made some practical recommendations, the implementation of which can take the Library Information System in the country to greater heights by generating a momentum which can sustain for at least ten years. The Core Task Group has in turn carefully considered these recommendations and other related aspects and has brought out this report.

The main focus of the report is on the following points:

(i) There exists a huge wealth of information in the libraries and information centres in the country. Its use is however suboptimal mainly because its availability is not known to most of the people who need it, and due to inadequate information service facilities existing in many of these resource centres.

(ii) Easy and quick access to all the information available in the resource centres can be provided by building up databases of library holdings and networking them. For this database development efforts are to be augmented. Current information and communication technologies and facilities like online networks, e-mail, Internet, etc must be extensively used.

(iii) Adequate training programmes are to be organised for library staff and users of information in using the current information and communication technologies.

I am thankful to the members of the Core Task Group and of the four Sub-Task Groups for pooling their knowledge and experience for bringing out this report. I hope this report will provide useful inputs in the planning and implementation of library networks for resource sharing among libraries in the country.

**A.P.J. Abdul Kalam**
Chairman
Core Task Group

# Main Recommendations

## A. General

1. The Government should formulate a National Library Policy which should also cover document supply by libraries.

2. There exists a vast information resource in the country. However, its use has been rather low. Liberal and quick access to these resources must be provided to the desiring users through library automation and networking.

3. Budgetary allocations to libraries must be increased to keep them above the levels of price escalation/inflation. In case of Document Delivery Centres (libraries which already got good collections and are in a position to take up the responsibility of providing copies of documents on request), the budgetary increase must be atleast 10 per cent above the price escalation/ inflation levels, for atleast three years.

4. There is a need to recognise library management as a specialised task, and the library scientists should be exposed to the use of modern tools.

## B. Collection Development in Libraries

1. For effective utilisation and sharing of the resources, rationalisation of acquisition in libraries may be done at local level, i.e., at each city or location where library clusters exist.

2. Apart from document supply centres, the Delhi Public Library system, the Connemara Public Library, Madras and the Central Library, Bombay may also be strengthened to help them to play a dominant role in providing information.

3. As an incentive to publishers to comply with the Delivery of Books & Newspapers Act, the designated libraries must pay for the publications thus received.

4. A National Repository may be established under the aegis of Ministry of Human Resource Development to preserve atleast one copy of every significant document weeded out by libraries and passed on to it. This would help in better utilisation of space in libraries and providing comprehensive access to archival documents.

## C. Database Development

1. Libraries and information centres must be encouraged to develop databases of their holdings and also those of specialised information. Such databases would not only greatly help resource sharing among libraries but would also earn money if made available to private as well as foreign users. In the initial stages of development of these databases, concentration should be on a few selected libraries having rich collections, instead of spreading efforts and finances thinly over all institutions. Smaller libraries could selectively download records from the databases of such large libraries.

2. Every library participating in resource sharing should have computerised databases and facilitate Online Public Access Catalogue (OPAC). The holdings of libraries in government departments (where vast collections are available) are to be integrated through the development of combined databases of holdings (called union catalogues). Such efforts may be coordinated by NIC. Expertise in online union catalogue development available in institutions such as DRTC, INSDOC, DESIDOC, NIC, NISSAT, INFLIBNET, NASSDOC, NISIET, DELNET, etc., and IITs can be utilised for the development of national union catalogues.

3. In the retroconversion of catalogues (converting the holdings data into computerised databases), active collection or the library documents that are in frequent use/demand must be done first and others be gradually converted depending on the availability of resources. Standard input formats and bibliographic description should be followed.

4. Detailed standards for database development and maintenance (including bibliographic description of various data fields) and networking must be compiled by appropriate agencies and implemented by all the libraries and networks. These standards are to be regularly reviewed, updated and implemented.

## D. Resource Sharing

1. A document delivery system (document copies supplying system) which is a mix of both centralised and decentralised set-ups may be operated.

2. The document delivery centres (DDCs) may be encouraged to adopt the current information technologies like fax, e-mail, computer-communication networks, etc., for speedy document delivery and other information services. They are also to be encouraged to convert printed material into digital form to facilitate easier and faster delivery of documents over the networks. They may also procure electronic publications for this purpose. They may also be provided access to international networks like Internet for accessing world information and for providing access to their databases by others, internationally.

3. Since INFLIBNET is expected to play a major role in library resource sharing, formal linkages must be established between INFLIBNET and the DDCs.

4. In resource sharing, an essential requirement is the willingness of the libraries to share their resources with other libraries. To enable the users or libraries to borrow books, etc., from other libraries, a mechanism like the Universal Library Card system promoted by NISSAT (DSIR) may be followed.

5. Uniform tariff is to be followed by all the document supply centres i.e., all the libraries and documentation centres under the Government, supplying copies of documents should charge the same rates.

6. The enormous information resources created by non-library sections such as newspapers and other commercial and business establishments must be made available to the public as a public resource at market prices.

**E. Infrastructure & Networking**

1. Since eventually all libraries in India are to be interconnected, it is essential to promote utilisation of indigenously developed software for easy diffusion, better maintenance and updation, and affordability.

2. There is a need to adopt a few standard software packages to facilitate faster computerisation of libraries. Development of packages at every institution may not be needed.

3. Networking of libraries should be taken up at the earliest. Libraries may choose any one or more of the existing networks (NICNET, ERNET, etc.) that best suit their requirements. The general data networks on which the library networks are to piggyback, should interconnect among themselves.

4. City library networks (like CALIBNET, DELNET, BONET, etc.) need to be further networked interlinking all of them. For interconnecting various datatabases resident in computers at various places in the country, there must be high-speed backbone network operating at atleast 2MB/sec with 'spokes' operating at 64 KB/sec. The Planning Commission must provide the funds for such nation-wide network. Otherwise various organisations will be trying to raise funds for establishing their networks in a piecemeal fashion.

5. For the library networks and resource sharing among libraries to be successful, motivation in/cooperation among institutions is necessary. For this, the heads of institutions, library operators and end-users must be sensitized before launching a library network. In the same token, the libraries/ institutions participating in a network should be prepared to arrange for/ buy the hardware-software required to participate in the network. This will demonstrate their interest and commitment in the participation.

6. All libraries/information centres should have access to e-mail facilities, as this can greatly help in exchange of information and in providing wider and better services by libraries.

7. Along the same lines as interconnecting the various networks in the country, the libraries must also have access to overseas databases. At present the few (three or four) gateways that are operating, do it at a speed of 64 KB/sec. The next quantum level for these gateways is 2 MB/sec. We should have two distinct high-speed gateways (to provide for greater reliability in case of one gateway as 'down'). Again, these gateways should be 'common' gateways supporting remote logins, file transfer as well as database access. This should be a part of the national 'backbone' network.

8. Data broadcast technology can be effectively used for dissemination of information to universities and colleges in an economical way. It can also be used for distance learning. This approach by libraries and academic/training institutions be encouraged.

## F. Human Resource Development

1. Human resource development should form a prominent component of the National Library Policy, which needs to be formulated by the Government.

2. A few model libraries need to be developed immediately in different regions to motivate other libraries to get modernised. An institutional framework needs to be worked out under which the libraries get necessary technical support on a regular basis instead of through short-term courses. For this purpose, the model libraries could act as consulting organisations.

3. Mass education programme should be planned for the staff of libraries as well as users in the use of modern technology for accessing information and using libraries.

## G. R&D in Library & Information Science (LIS)

1. The Government should support R&D in the information storage, processing, retrieval and dissemination areas. Funding agencies like DSIR, DST, AR&DB (Min. of Defence), DRDO, FICCI, CII, etc., should be encouraged to support R&D in LIS field. NIC also should have a component of Grants-in-Aid for R&D in LIS.

2. If massive databases are to be created at various places in the country and interconnected through one or more computer networks, then some basic research projects in topics such as distributed database management, image and data compression, etc., are to be sponsored by the concerned agencies. Participation of academic institutions in such research efforts would be essential.

## Sharing of Library & Information Resources Utilising Revolutionary Advancements in Computer & Communication Technologies

### Introduction

A nation's development is largely dependent on its scientific and technological progress. Social sciences contribute to the understanding of the societal systems and practices and the humanities contribute to the preservation and development of art, culture and human values. Libraries constitute the treasure houses of information and knowledge on all these disciplines. In addition, libraries provide information on business, commerce, trade, economy of the country in its various sectors, and so on. Therefore, in any country, libraries are given a very important role. This tradition existed even in the days when clay tables and palm leaves were used for literature and other writings. However, over the centuries as new forms of media for recording knowledge have become available like the parchment paper, fine (smooth) paper, and photo films, the methods and techniques of organising (arranging) documents have also changed. Man always tried to utilise newer technologies and materials available for recording information and knowledge, preserve them and use the documents thus created as and when required.

To cope with the information explosion or literature explosion, newer methods for organising document collections, and retrieving them quickly for use have become necessary. Thus, the subject of library science, covering the science and art of organising document collection and making them available to the users developed using appropriate methods of acquisition, classification, cataloguing/indexing, circulation, etc. Different classification schemes like the Dewey Decimal Classification (DDC), Universal Decimal Classification (UDC), Library of Congress Classification (LC), etc. and cataloguing rules like those of Library Association (LA) and American Library Association and the Anglo-American Cataloguing Rules and the Classified Catalogue

Code (by Ranganathan) were developed. Similarly, for indexing documents, indexing tools like Subject Heading Lists, thesauri and pre-coordinated and post-coordinated indexing systems have been developed.

All these systems, methods and techniques were used manually for a long time. This situation has however drastically changed after the electronic age has set in. The tremendous and pathbreaking advances in computer and communication technologies have revolutionalised the way the documents are created, stored and information contained in them disseminated. These computer-communication advancements are based on the equally pathbreaking developments in other fields of science and technology like electronics, materials, metallurgy, mathematics, aerospace technology, management, and so on. The computer-communication revolution has made the production of documents (including their printing) much easier and faster. Such developments and the rapid increase in the number of researchers and other users of information in various subject disciplines have led to information explosion as also the literature explosion.

The libraries have tried to cope up with the information and literature explosion by acquiring and maintaining all the important documents in the concerned subject fields. But the pace of this explosion is so fast that libraries had to shift their attention from acquiring comprehensive collections to providing comprehensive access to information. This means, libraries were forced to get the core documents in the concerned fields within the constraints of funds and infrastructural facilities like space, staff, etc. and keep track of the information available in other libraries or databases held by other organisations and get information from such external sources as needed by their users. This has in turn led to resource sharing among libraries and library networking. The revolutionary advances taking place in computer and communication technologies have already started affecting libraries in the advanced countries quite drastically and this trend has also started in some libraries in India. This will soon be affecting more and more libraries in the country. Some of these trends are as follows:

1. Digital libraries will be more and more common. This means the library collections will be largely in digital (electronic) form like hard discs, CD-ROMs, etc. instead of print form.

2. Users of libraries will browse the library collections through remote longin through networks. They will be reading the texts from distant locations and downloading part or full texts for further use (complying with the copyright regulations).

3. The information retrieval systems will be more and more user-friendly and customised. So, the library users will increasingly be carrying out information searches online and on CD-ROM by themselves and ordering document copies through e-mail or other networks. Information intermediaries will be required only for specialised and complicated searches. These intermediaries will be using expert systems and hypertext methods also for carrying out such searches.

4. Library networks will develop more rapidly and will form subsets of major national networks.

5. Library suppliers will make stock information available online. Acquisition staff in libraries will therefore be able to know the availability of the titles required and place instant orders electronically.

6. Bookshops will offer more and more of non-paper and composite-media (a combination of paper, floppy, video, etc.) publications. Readers will increasingly use pocket computers, lap-top computers or other PCs, manipulate the texts and download for their notes.

7. Library professionals will be increasingly called upon to function in specialists roles as database producers, online information providers, information network managers, and so on. For functioning effectively in these roles, library professionals will need good training in information technology also in addition to the traditional subject areas of classification, cataloguing/indexing, etc.

8. Interactive educational programmes through cable TV will be quite common. Multimedia learning stations will proliferate. Some electronic universities wherein all the educational programmes are conducted through electronic media are likely to come up. The libraries should therefore gear up to handle acquisition and management of multimedia collections and also disseminate information in multimedia.

**Internet & Library Resource Sharing**

The worldwide computer-communication network called Internet has made global level interconnectivity of computers and computer networks possible. It presently connects about five million host computers spread around the world used by about 50 million users.

Internet provides almost seamless access to a variety of commercial and non-commercial information sources which include bibliographic/full-text databases, table of contents of journals, electronic journals and newsletters, e-mail discussions forums, directories, preprints, technical reports, library catalogues, etc. In fact the number of electronic journals available on Internet is increasing and some journals are available only on Internet. Internet also facilitates electronic document delivery, electronic publishing and publicity and marketing of products and services. Internet provides for navigating by the users among the various information sources available on it.

The Indian libraries should not miss or delay in developing capabilities to effectively access Internet sites and collect information required by their users. This practice will largely offset the problem of reduced acquisitions to libraries (because of literature explosion and price escalation of publications). The communication networks presently available in the country like NICNET , ERNET and I-Net should be effectively used by the Indian libraries to the extent possible. The Government must therefore make adequate provision in its Five Year Plans for providing the libraries in academic and R&D institutions access to Internet and other information networks for providing extensive information services to their users.

**Resource Sharing among Indian Libraries**

In view of the trends in technologies affecting the libraries, as stated above, the Indian libraries must also gear up themselves to use appropriate technologies for providing reasonably good services to the users. For this, libraries need the support of the Government through its policies and programmes. Realising this, the Planning Commission has been trying to incorporate library development programmes in its Five Year Plans. The Commission constituted a Working Group on Libraries and Informatics for each of its Five Year Plans for getting inputs to the Plan programmes. Apart form these Working Groups, the Commission has also constituted a Core Task Group to cover all the issues related to sharing of library information resources utilising the revolutionary advancements in computer, communication and other technologies. The composition of the Core Task Group is given at Annexure-A. For considering all the relevant technologies and their applications to the library resource sharing, the Task Group has constituted four Sub-Task Groups as follows:

(i) Resource Sub-Task Group — for assessing the library resources in the country and recommending ways and mean of their further development and optimum use.

| | | | |
|---|---|---|---|
| (ii) | Database Sub-Task Group | - | for assessing the bibliographic database development in the country and recommending measures to be taken for augmenting them and their optimum use. |
| (iii) | Infrastructure Sub-Task Group | - | for assessing the infrastructural facilities available to libraries and recommending measures to improve them further and for their optimum utilisation. |
| (iv) | Human Resource Development Sub-Task Group | - | for assessing the requirements of resource development in libraries and recommending suitable measures to be taken to fill the need. |

The composition of these four Sub-Task Groups is placed at Annexure-B.

The four Sub-Task Groups made detailed studies and submitted their reports which are placed at Annexures C, D, E & F. These reports have been considered by the Core Task Group and final consolidated recommendations are placed on page 1 to 4.

It is hoped these recommendations will provide adequate inputs to the plans and programmes of the Planning Commission for the overall development of libraries and library services in the country.

# ANNEXURES

**ANNEXURE-I**

No.P-11062/4/94-Edn.
Government of India
Planning Commission
Education Division

Yojana Bhavan
Parliament Street
New Delhi

Dt. the 17th Feb.1995

**ORDER**

Subject: Setting up of Core Task Group to cover all the issues related to Sharing of Library and Information Resources utilising the Revolutionary advancements in Communication Technology.

Sanction is hereby accorded of the Planning Commission to set up a Core Task Group on sharing of Library and information Reseources to prepare an Approach Paper for enhancing our inputs of Science & Technology and Communication Technology in dissemination of knowledge and information in the country, especially the potential available in various scientific organizations.

2. The Composition of the Core Task Group will be as given under:-

| | | |
|---|---|---|
| 1. | Dr.A.P.J.Abdul Kalam<br>Scientific Adviser to<br>Defence Minister, Department<br>of Defence Research and Dev. | Chairperson |
| 2. | Dr.S.Varadarajan, President<br>Indian National Academy of<br>Engineering | Member |
| 3. | Prof.Viswanathan<br>Director, I.N.S.D.O.C | Member |
| 4. | Shri P.M.Chacko<br>President,Institution of<br>Engineers(India) | Member |
| 5. | Shri Pramod Kumar<br>Director, INFLIBNET | Member |
| 6. | Dr.R.C.Maheswari<br>Additional Director General<br>Indian Council of Agriculture<br>Research(ICAR) | Member |
| 7. | Dr.N.Medappa<br>Deputy Director General<br>Indian Council of Medical<br>Research(ICMR) | Member |

| | | |
|---|---|---|
| 8. | Shri S.Ramakrishnan<br>Director & Project Director(ERNET) | Member |
| 9. | Dr.N.Seshagiri<br>D.G., National Informatics Centre | Member Convenor |

3. The Terms of reference for the Core Task Force are: to study the issues related to sharing of library and information resources, utilising the recent revolutionary advancements in communication technology, take an integrated view on the existing networks and centres to avoid duplication and to maximise their resource utilisation if necessary through wider networking, make an assessment of the library automation requirement which forms the base for successful networking, explore the ways and means for inter connecting libraries and information centres for maximising utilisation of their facilities.

4. The Core Task Group will submit its report in two months time from the date of the Constitution of the Group/first meeting.

5. T.A./D.A will be born by the concerned Governmental Offices/Agencies.

(sd/-)
(GURJOT KAUR)
Deputy Secretary to the Government of India

All concerned

**Core Task Group to cover all the issues related to Sharing of Library and Information Resources utilising theRevolutionary advancements in Communication Technology**

**Terms of Reference:**

1. To study the issues related to sharing of library and information resources utilising the recent revolutionary advancements in communication technology.

2. To take an integrated view on the existing networks and centres to avoid duplication and to maximise their resource utilisation if necessary through wider networking.

3. To explore an assessment of the library automation requirements which forms the base of successful networking

4. To explore the ways and means for inter connecting libraries and information centres for maximising utilisation of their facilities

5. Issues related to sharing of library and information resources and utilisation of communication technology in promoting school education

**ANNEXURE-II**

No.1(5)/95-P&V
Government of India
Planning Commission
National Informatics Centre

A-Block, CGO Complex
Lodi Road, New Delhi

April 12,1995

Sub: Setting up of Sub Task Groups of the Core Task Group set up by the Planning Commission vider Order No.11062/4/94-Edn. dated 17th February 1995 'to cover all the issues related to Sharing of Library and Information Resources utilising the Revolutionary advancements in Communication Technology'.

The Core Task Group set up by the Planning Commission in its first meeting held on 10th April 1995 has decided to set up four Sub Task Groups with broadly the same terms of reference as that for the Core Task Group, but specialised to the following structural features of the area:

Resoueces
Databases
Human Resource Development and
Infrastrucutre

The Composition of the Sub Task Groups will be as given below:

**I.Resources Sub Task Group:**

1. Dr.S.S.Murthy, DESIDOC, New Delhi — Convenor
2. Shri H.K.Kaul, DELNET, New Delhi
3. Prof. M.K.R.Naidu, Consultant, INFLIBNET, Ahmedabad
4. Dr.T.B.Rajasekhar, National Centre for Science Information, Indian Institute of Science, Bangalore
5. Shri N.M.Malwad, IISc., Bangalore

**ILDATABASE SUB TASK GROUP:**

1. Prof.M.A.Gopinath — Convenor
2. Dr.A.Lahiri, DSIR
3. Shri O.P.Arora, Former Director of Central Secretariat Library, New Delhi
4. Shri Biswas, former Director of Central Secretariat library, New Delhi
5. Rep. bombay library Network

**III. Infrastructure Sub Task Group:**

1. Dr.N.Vijayaditya, DDG(NIC), New Delhi — Convenor
2. Prof.Balakrishnan, Chairman, Super

Computing Education & Research Centre
Indian Institute of Science, Bangalore
3. Shri S.M.Salgar, INFLIBNET, Ahmedabad
4. Prof.T.V.Prabhakar, Department of Computer Science, IIT, Kanpur
5. Chief Coordinator, CALIBNET, Calcutta

**IV Human Resource Development Sub Task Group:**

1. Dr.Y.K.Sharma — Convenor
Senior Technical Director, NIC, New Delhi
2. Rep. DRTC, Bangalore
3. Rep. INSDOC, New Delhi
4. Rep. NIIT, New Delhi
5. Shri Paul Pandian, INFLIBNET, Ahmedabad

The time schedule for the Sub Task Group has been broadly identified as given below:

| | | |
|---|---|---|
| 12th April | : | Notifying the constitution of the Sub Task Groups and sending letters to the Members |
| First meeting of the Sub Task Groups | : | Before 8th May 1995 |

Two or three meetings are expected to be held in a time span of six weeks or less from the date of issuance of the notification.

| | | |
|---|---|---|
| Before 7th June | : | Preparation of the draft report and presentation by the Chairmen of the Sub Task Groups |

A copy of the Planning Commission Order No.11062/4/94-Edn. dated 17th February 1995 regarding the setting up of the Core Task Group together with its terms of reference is enclosed.

TA/DA will be borne by the concerned Government Offices/Agencies. TA/DA for officials from non-governmental offices/agencies, will be borne by the National Informatics Centre.

(Sd/-)
(Kashi Nath)
Technical Director, NIC

All concerend

**ANNEXURE-III**

# REPORT

# OF

# THE INFRASTRUCTURE SUB TASK FORCE

# FOR

# SHARING LIBRARY AND INFORMATION RESOURCES

## Sub-Task Group

| | | |
|---|---|---|
| Dr.N.Vijayaditya | NIC, New Delhi | Convenor |
| Prof.Balakrishnan | SCERC, IISc., Bangalore | Member |
| Shri S.M.Salgar | INFLIBNET, Ahmedabad | Member |
| Prof.T.V.Prabhakar | IIT, Kanpur | Member |
| Shri A.C.Mitra | CALIBNET, Jadavpur Univ. Campus, Calcutta | Member |

## 1. INTRODUCTION

The Planning Commission has set up Core Task Group to cover all the issues related to Sharing of Library and Information Resources utilising the Revolutionary advancements in Communication Technology. The Core Task Group in its meeting held on 10th April, 1995 has constituted four Sub Task Groups with broadly the same term of reference as that of Core Task Group but specialised to resources, database, human resource development and infrastructure. The composition of the Infrastructure Sub Task Group is as follows:

(i) Dr.N.Vijayaditya, DDG, NIC, New Delhi.

(ii) Prof.Balakrishnan, Chairman, Super Computing Education & Research Centre, Indian Institute of Science, Bangalore.

(iii) Shri S.M.Salgar, INFLIBNET, Ahmedabad.

(iv) Prof.T.V.Prabhakar, Deptt. of Computer Science, IIT, Kanpur.

(v) Shri A.C.Mitra, Chief Coordinator, CALIBNET, Jadavpur University Campus, Calcutta.

Prof.Balakrishnan could not attend any one of the meetings. Mrs.Shikha M.Jalote, Deptt. of Computer Science, IIT, Kanpur had attended the Sub Task Group meetings in place of Prof.T.V.Prabhakar. The committee met thrice. The report is based on the deliberations of those meetings.

## 2. INFORMATION INFRASTRUCTURE

2.1 Information Technology plays a vital role in the economic development of the nation. Like raw materials and other resources, Information is a basic resource required for planning the socio economic development and optimum utilisation of the resource. This is recognised by the government and the industries of the developed countries.

2.2 The right information at the right time facilitates a good policy decision. The main basis for policy decision and the process of policy decision is the process to transform the information. Thus the ability to analyse relevant information is needed by every nation to keep pace with modern technology and to maintain its competitiveness.

2.3 The nation's capabilities for providing accessability information and its ability for putting knowledge to work are often referred to information infrastructure. The major components of this infrastructure are libraries and information centres. The libraries and information centres dessminate information to all categories of users. This dessemination can be done through communication media, oral or written, formal or informal. This dessmination service facilitates the users to keep abreast with the current developments in their respective areas of interest and also facilitate them to solve technical problems, evolve technical solutions to meet the

current requirements and also, forecast and develop tools and techniques to meet the future requirements.

2.4 Obviously to service the above requirement of information a vast infrastructure would be necessary. There has been several initiatives by the government to establish these information infrastructure to cater to the present and future requirements of the Indian scientists as well as normal users. These are evident in the form of libraries and information centres at govt. ministries and research and educational institutions.

2.5 In 1972 the government had initiated a project, National Information System for Science and Technology (NISSAT) to coordinate and integrate these information centres . In 1977 the Electronics Commission established National Informatics Centre (NIC) for providing online information to the government departments and organisations.

2.6 In addition to the above, several other organisations have evolved their own infrastructure, that would cater to certain specialised needs. INSDOC is one such institution which was established for providing information on science and technology. DESIDOC was established to cater to defence organisation requirements.

2.7 University Grants Commission had also initiated a proposal INFLIBNET to integrate the library community of the academic institutions with main objective of information resource sharing and optimise its collection.

2.8 In addition to all these, several initiatives have been taken to establish metropolitan area networks in cities like Bombay, Calcutta, Delhi, Madras, Pune, Ahmedabad and Mysore. Some of the details of these are given in the Annexure.

2.9 Though there exists a vast information infrastructure in the country its impact has been rather low. The services were not effective. The main reasons were that services reach only a limited circle of users namely scientists in elite institutions and secondly unfamiliarity with the information services availability. The main aim of modernisation of library information services should be to provide access to a comprehensive bibliographic information system and ability to locate material with minimum delay.

## 3. COMPUTER INFRASTRUCTURE

3.1 The use of Computer in the libraries, information centres can be grouped into two main categories namely house keeping functions and information service function. The house keeping functions include serial control, circulation control, academic acquisition etc. During the last few years much progress has been made in this area. Several packages for house keeping operation have been developed and marketed by several vendors. Some of the packages which have been used in the Indian environment are TECHLIB, LIBSYS,LIBRIS,MAITRAYEE and other customised packages. Some organisations like IIT had developed their own packages to cater to the libraries functions. DESIDOC had also developed a package, DELMS, to cater to its own in-house requirements. This package is also used by other organisations. The INFLIBNET had modified DELMS package for the university library requirements. This package is called ILMS.

3.2 The information service functions include reference service, current awareness service, information analysis and support services. Several information centres have been providing bibliographic information services in certain specialised areas. The National Informatics Centre (NIC) is providing medical information (MEDLARS) to the medical professionals. This service provides uptodate information on every aspect

of medical science. NIC also provides information on patents, covering a major countries. NISSAT had established several specialised information centers to cater to the specific requirements of the scientists and technologists. These include leather, chemical, drugs etc.

3.3 There are more than 200 universities/deemed universities in India. Most of these universities have a computer centre. However, very few university libraries have computer facility till recently. The University Grants Commission (UGC) had set up a Computer Development Committee to examine requests for funding the procurement of computer systems. UGC had also set up a programme INFLIBNET to promote computers in the university libraries. Through this INFLIBNET programme the University Grants Commission had specifically earmarked certain funds for procurement of computer for university libraries. In the year 1991-92 the Computer Development Committee of University Grants Commission had given a grant of 2 lakhs rupees each to 24 universitiesfor procurement of a computer system with suitable software.

3.4 In the year 1993-94, 11 universities were provided funds for computerisation of their libraries and 4 universities were identified for the same during 1994-95. In addition during the year 1994-95 funds have been provided to nine Central Universities, 17 pre-1947 universities, 21 universites established between 1947 and 1960. The total number of university libraries that have been funded under this programme is 54. The University Grants Commission has also granted certain funds (6.5 lakhs) towards non-recurring expenditure. The INFLIBNET had identified certain computer configration for the libraries. The suggested configuration is given in Annexure 2.1.

3.5 Forced by the technological changes and to meet the requirements of the users, and also to optimise their financial resources libraries in several cities have formed into groups to facilitate resource sharing and also sharing of the knowledge. Based on this cooperative venture several metropolitan networks are established. These include Bombay network (BONET) , Calcutta library net work (CALIBNET), Delhi network (DELNET), Madras library network (MALIBNET), Pune network (PUNENET), Ahmedabad network (ADINET), Mysore library network (MYLIBNET) and the proposed Hyderabad network (HYLIBNET). These networks mainly play a role in sharing the expertise, creating local union catalogue of the libraries and also providing certain specialised information services which may be costly for these university/institution libraries to provide it on their own. These projects are financially supported to some extent by NISSAT, NIC and other organisations. In this model each university/institution maintains its own system but shares information with others through the network. These have one central server to provide union catalogue and provide special information services.

3.6 The Department of Bio-technology has also recognised the importance of Computers in the development of bio-technology and information resource sharing. Accordingly it had setup a project called bio-technology information system (BTIS). It had funded the procurement and installation of the systems under this programme. Some of these centres are located in the universities and others in certain research organisations.

3.7 The Ministry of Agriculture has also recognised the need to use the information technology for development of agricultural technology and facilitate information exchange between agricultural scientists. It is funding the agricultural research institutions in establishing computer systems and creating the necessary infrastructure.

3.8 The emphasis of computerisation of libraries should be to make information transparent and available to research and student community at a very low cost. To

facilitate this the house keeping functions should be first computerised. After successful implementation of this particular function the university should take up information service function.

3.9 As regards the hardware is concerned the university libraries should opt for open technology. This would facilitate vertically as well as horizontally growth at a much lower cost. It will also help in keeping pace with the technological developments.

3.10 The system should be chosen so as to cater to all the house keeping functions through interactive terminals or through client systems. The library configuration may contain

* Atleast 90 MHz or higher speed
* 32 MB of main memory
* 2Ggabytes or higher disk space (depends on the collection
* 3 1/2 and 5 1/4 floppy drives
* CDROM
* UNIX operatingh system with TCP/IP and other relevant software.

3.11 The terminals from this system should be provided to every section of the library. The emphasis should be provision of interactive capability to all sections of the library.

3.12 There are a number of library management software packages. Some of these are priced and some are free. The universities should choose a product which has user friendly features to facilitate the library staff to use it without the assistance of the technical staff. The library should adopt one of these products rather than developing abinitio.

3.13 The library should have Email facility. This would facilitate in catering to a variety of user requests. Depending on the load volumes, the university has to assess and decide whether there should be a separate system to cater to this application or the same library system can be utilised.

3.14.Every major department in a university has separate collections on specialised topics. These collections are usually referred as departmental libraries. These systems should be computerised and connected to the Central library system. The system of these departments would very much depend upon the collections and the number of users that would be interacting with the system.

3.15 Separate system should be provided for information service functions. This system may be connected to the house keeping functions system through a LAN or suitable architecture. This could also serve as a gateway to the internet E-mail or other services. This configuration will facilitate to enhance the computer power along with the user requirements. It will also facilitate to keep pace with technology.

## 4. NETWORKING

4.1 Networking in the context of library/information services, consists of information resources, sources, programmes and projects with a link among them. It may be specific to a particular discipline or a mission or may cover a particular group of disciplines.

4.2 An important outcome of networking would be implementation of common standards and methods in information handling techniques, tools including communication hardware and software.

4.3 The network facilitates all users regardless of its geographical location, to search libraries/information sources located at far away places. One can view it as a extension of traditional form of library cooperation. It provides a formal integrated organisational structure for rendering services which are far more than its individual constituent. It gives a higher degree of independence in its services, better response time to the users and cooperation among the participants.

4.4 General communication gateways for Electronic Mail, File Transfer, Internet, Database Access and others were mainly being provided by the DOT and VSNL using their existing Telecom infrastructure. Several organisations have taken initiative to provide value added services at the national level either using the DOE infrastructure or setting up its own infrastructure. The major value added facilities at the national level are:

| | | |
|---|---|---|
| NISSAT | - | under the Deptt. of Scientific & Industrial Research (DSIR) |
| INSDOC | - | under the Council for Scientific & Industrial Research (CSIR) |
| ERNET | - | under the Deptt. of Electronics |
| INFLIBNET | - | under the University Grants Commission |
| NICNET | - | under the National Informatics Centre, Planning Commission. |

## 4.5NATIONAL INFORMATION SYSTEM FOR SCIENCE & TECHNOLOGY(NISSAT)

4.5.1 The National Information System for Science and Technology (NISSAT) Programme was set up under the Department of Science & Technology in 1977 which later came under the Department of Scientific & Industrial Research from 1982. This particular programme is a unique example of successful sectoral information promotion in the areas of Science & Technology. This promotion of sectoral informatics has made a major impact over the main library modernisation. NISSAT had assisted in the development of seven sectoral information centres technology, food technology, machine tools and production engineering, drugs pharmaceuticals, textiles & allied subject, chemicals and advanced ceramics.

4.5.2 NISSAT had also initiated for the development of intracity library network as explained previously. This support mainly concentrated over CALIBNET and BONET and marginally over DELNET, PUNENET, HYLIBNET for Hyderabad, ADNET for Ahmedabad, BANNET for Bangalore and MALIBNET at Madras. It has established E-mail facility mainly through ERNET of the sectoral centres and their large users though recently the centres themselves are increasingly making use of NICNET and its internet connectivity.

4.5.3 NISSAT in collaboration with the DESIDOC, New Delhi had developed a software for library automation using CDS/ISIS called SANJAY. This package can inter-link 2 or more databases for single application handling numerical calculations and carrying out several other library house-keeping activities.

4.5.4 The National Institute of Science, Technology and Development Studies(NISTADS) had also developed a package called TRISHNA using the CDS/ISIS package. This package supports devanagiri and several other Indian Scripts

using a GIST Card. NISSAT had assisted in the process of rationalisation of periodical acquisitions through local consultative committees in various cities. It also introduced NISSAT card so as to develop a universal library card system that would facilitate utilisation of external library with due safeguards for the protection of interests of the cooperating libraries.

## 4.6 INDIAN NATIONAL SCIENTIFIC DOCUMENTATION CENTRE (INSDOC)

4.6.1 The Indian National Scientific Documentation Centre(INSDOC) was established under the aegis of Council of Scientific and Industrial Research in 1952 as a cooperative efforts between Govt. of India and UNESCO. This particular centre has a headquarters at New Delhi and Regional Offices at Bangalore, Calcutta and Madras. The main services provided by INSDOC are document copy supply service,bibliography and information service, information retrieval service, information dissemination service and CAS/SDI services. Under the document copy supply service INSDOC supplies, on an average 24,000 documents a year, Under the computer based information retrieval services, INSDOC has brought out a union catalogue.

4.6.2 Utilising ERNET as a backbone, INSDOC has been setting up scientific and industrial network (SIRNET) to give computer- communication network services to all 40 CSIR libraries. At present, SIRNET has only one mail node and a number of user nodes. The CSIR heqdquarters estimated that the ERNET linkage to SIRNET were essentially based on inter-city leased lines/dial-up lines full inter-laboratory data communication cannot be established. For this reason, CSIR headquarters approached NICNET for the links.

## 4.7 EDUCATION AND RESEARCH IN NETWORKING (ERNET)

4.7.1 The Education Research in Networking(ERNET) was conceived and set up by Department of Electronics, Govt. of India to act as a R&D resource project drawing upon the R&D manpower and the infrastructure available in the Five IITs, IISc and National Centre for Software Technology (NCST). The project was initially This project developed know-how on various aspects of computer-communication network technology as well as trained a large number of specialists in the emerging areas of networking. To facilitate education as well as research in the above areas, the project has taken up setting up of a model network connecting participating institutions. Over the years, this model network was extended to the academic and research institutions for providing internet connectivity and other associated networks. The objectives of ERNET were

- to set up progressively a nation wide network for academic and research community starting with the eight participating institutions.

- undertake design, development and advanced research in emerging concept of computer networking.

- provide continued education, training and consultancy to generate critical manpower needed in this field.

4.7.2 Satellite based wide area network, currently under implementation, under this project, will provide connectivity between the eight project sites with data rates of 64/124kbps and support multimedia conferencing capabilities. In parallel, a terrestrial based dedicated circuit has been established.

4.7.3 ERNET has been providing internet and E-mail facilities to the community of academic and educational institutions. The gateway for this network is located at Bombay.

## 4.8 INFORMATION AND LIBRARY NETWORK (INFLIBNET)

4.8.1 The Information and Library Network (INFLIBNET) is a programme of the University Grants Commission launched in March'94. The objective of this network was to link libraries and information centres in universities, colleges, deemed universities, UGC information centres, institutions of national importance and R&D institutions through out the country. It was set up to facilitate pooling, easier access and optimisation of scarce library resources and help modernisation of libraries and information centres through applications of information technology.

4.8.2 The national centre for this network is located in Gujarat University Campus at Ahmedabad. It identifies every year a number of university libraries for computerising their library collections and a budget provided for procurement of computer system, retroconversion and networking. In the first phase, since 1993, the following universities were identified for automation:

(i) Anna University, Madras

(ii) Ravishankar University, Raipur

(iii)University of Jammu, Jammu

(iv) Gulbarga University, Gulbarga

(v) Manipur University, Imphal

(vi) Jadavpur University, Calcutta

(vii)Osmania University, Hyderabad

(viii)Jawaharlal Nehru University, New Delhi

(ix) Jain Narain Vyas University, Jodhpur

(x) Banaras Hindu University, Varanasi

(xi) University of Bombay, Bombay.

## 4.9 NATIONAL INFORMATICS CENTRE NETWORK (NICNET)

4.9.1 National Informatics Centre is a premier organisation in the field of information technology in India. It provides state of the art solution for information management and support requirements of the centre, State government and Corporate sectors. It has established a Satellite based network connecting the national capital, state capital and district headquarters.

4.9.2 The IT services provided by NIC, range from conducting feasibility study for computerisation, designing, developing and implementing computer based information system, undertaking large turnkey projects, setting up of network and imparting training to user organisations. NIC has developed extensive expertise in integrating IT based system with the working of user organisations. The service provided by NIC include development of Application Software Package, System

Software, Database System, District Databases, Bibliographic Service, LAN-WAN Network, Electronic Mail, EDI, Access to International Databases, Computer Aided Design, Geographic Information System, Modelling Expert System, Telematics Software, Office Automation, Document Management System, Video Conferencing, Turnkey Projects and Training.

4.9.3 NICNET was designed and implemented by NIC using state of the art satellite based computer-communication technology. Keeping in view the wide geographic spread of the country, ranging from islands in the Indian Ocean to the Himalayan ranges, the design of NICNET, which is one of the largest VSAT networks of its kind in the world, ensures highly cost effective and reliable implementation.

4.9.4 NICNET services include File Transfer, Electronic Mail, Remote Database Access, Data Broadcast, EDI International connectivity.

4.9.5 Over the years, the academic and research community desired to share information on a global platform in a cost effective way. This was realised by NIC through RENNIC. It offers creation and usage of on-line databases in the country and facilitates more openness among academic and researchers, provide on-line access to vast expanse of international databases and ensures full-fledged library networking services.

4.9.6 NICNET has also incorporated a very powerful Ku-band based overlay network on the existing CDMA network. This overlay network will provide a very large band-width (in megabytes) to facilitate Video Conferencing and Multimedia service in a much larger scale. It offers X.400 as well as X.500 services to Government and Corporate Sectors.

4.9.7 On this particular network National Informatics Centre has also implemented a data broadcast technology which will greatly facilitate selective dessimination of information service. This particular system uses recieve only VSATs of less than 1 mt. in size. These can be freely deployed to receive at variety of information at very low cost in all educational institutions.

4.10 The Department of Telecommunication has established a network called I-NET to provide data communication facilities to Indian customers. The network is based on an existing telecommunication network of the Department of Telecommunication. It has installed packet switches and PADs in certain important cities and towns to provide access to the customers. It has also commissioned a VSAT based network called Remote Area Business Message Network (RABMN) to cater to the remote customers. It is planning a VSAT based high speed network called HVNET, to cater to high speed requirements.

4.11 There are several private companies who are establishing VSAT based network in the country to provide data communication services to certain class of customers.

4.12 In addition to these there are several networks which has been implemented using the existing Department of telecommunication systems and/or some of the existing networks. Some of these are BTIS, SIRNET, SAILNET, OILNET etc.

4.13 In the last few years, a number of city library networks have been established. Five networks as given below have been sponsored by NISSAT/DSIR/NIC.

I. Calcutta Library Network (CALIBNET)

II. Delhi Library Network (DELNET)

III. Bombay Library Network (BONET)

IV. Poona Library Network (POONENET)

V. Ahmedabad Library Network (ADINET)

## CALCUTTA LIBRARY NETWORK (CALIBNET)

The Calibnet at Calcutta was set up and initiated at National Information System for Science & Technology(NISSAT) of the Department of Scientific and Industrial Research, Government of India. The responsibility for implementation of this particular network was entrusted to CMC Ltd. As a part of this implementation, CMC Ltd. has developed an application software called MAITRAYEE. This particular software supports automation access, joint generation with training features, automated card generating with card formating, multi-user queing have yet defined reservation management, front-desk operation, inter-library zone, participating inter-zone, etc.

## DELHI LIBRARY NETWORK(DELNET)

DELNET was established as a society under the Societies Registration Act of 1992 with the main objective of promoting sharing of resources among the libraries at Delhi. It undertakes scientific research in information science, other technical guidance to its member-libraries, collection, compilation and dissemination of information, developed specialised databases and facilitatge document delivery. This particular project was supported by NISSAT and NIC. This network had made substantial progress in the last three years in achieving its objectives.

## BOMBAY LIBRARY NETWORK (BONET)

Bonet was set up in November, 1992 with the initial sponsorship of NISSAT. The main objective of this particular project was to promote cooperation between libraries in Bombay with focus on inter-library activities rather than on computerising individual libraries. It also offers training related to the library computerisation and also assist in computerisation of the libraries. It is expected to become self sufficient with the subscription from participating libraries.

## BANGALORE LIBRARY NETWORK (BANNET)

DRTC has taken initiative in initiating the Bangalore network linking all colleges of Bangalore University, research & development institutions and industries. This particular network is of significant importance as Bangalore has a large number of IT industries. There is a proposal for support of NIC and connectivity to NICNET.

4.14 Madras Library Network (MALIBNET) has been sponsored by INSDOC. Other city library networks in Bangalore and Hyderabad are in the offing.

4.15 The services being offered by these library networks are as below :

i) On-line/Ofdf-line informationm search by accessing Union Catalogue.

ii) Inter Library Loan

iii) Photo copying service

iv) Document Delivery Service

v) Current Awareness Service

vi) Information Service from specialised databases including databases abroad

v) E-mail service

vi) Bulletin Board Service

DELNET presently has about 48 members. BONET has 28 members. ADINET which was inaugurated in February, 1995 has 12 members. These networks also plan to effect saving in subscription to journals by avoiding duplication through cooperative ordering.

4.16 Computerisation Scenario in University Libraries

The University Grants Commission (UGC) has initiated a project INFLIBNET for connecting the University libraries. Under this project a union catalogue has been developed for sharing information. It has also come up with a library software package ILMS, which is being provided free of cost to all the participating institutions.

4.17 As has been noted in the previous section the computer systems in the university should be connected using a local area network. The architecture of the local area network would depend on the university layout, and proposed activities. The local network may be connected to WAN to facilitate inter university interaction and international access.

4.18 All central applications may be put on central servers. One of these servers could be the Central library system and the other could be Email gateway for the university. This local network may be provided internet access for international access.

4.19 Data broadcast technology can be used to provide selective dissemination information(SDI) service to the universities/ college in most economical way. The system consists of receive-only VSAT and a computer. The computer can directly receive the data from the VSAT. A database can be generated using the broadcast information. This can be used interactively by the university community. This system can be used for catering special information requirements of the research community. It will be the most economical and fastest solution to provide information service on a large scale to university and college communities.

## 5. INFRASTRUCTURE REQUIREMENTS FOR DISSEMINATION OF INFORMATION

5.1 An organisational structure for dissemination of information needs to be devised to facilitate sharing of library resources. In this structure, establishment or selection of several Resource Centres is proposed. These Resource Centres will offer various kinds of information services to other member libraries.

5.2 The Resource Centres will be those libraries which already have some infrastructure in place, and are providing information services to the local or external user community. Libraries having subject specialised collections may be designated as Resource Centres for their particular area of specialisation. Large libraries having rich collections, manpower trained in the area of information services and sufficient budgets should be marked as Resource Centres as these

libraries would be in a better position to share their resources. This sharing of resources would result in net savings as duplication of information could be avoided.

5.3 The Resource Centres would be responsible for maintaining and/or acquiring bibliographic databases in areas of their specialisation and offering services based on these databases to member libraries throughout the country. The collection of bibliographic databases at the Resource Centre would comprise of the following kinds of databases:

* commercial databases acquired from foreign sources on CD-ROMs or in other machine-readable forms;

* the databases may have been produced locally using information on local collections or information of collections of member libraries, and

* retrospective databases available through international information providers such as DIALOG, BRS and ESA accessible through communication networks.

5.4 Some of the services that a Resource Centre may provide are:

- Current Awareness Service (CAS)
- Selective Dissemination of Information (SDI)
- Retrospective Searches
- Document Delivery Services
- Bibliographic Services

5.5 Modalities for Dissemination of Information from Resource Centres to Member Libraries:

The services that a Resource Centre provides may be classified as follows:

* Periodic Services - those services in which information is sent to member libraries at regular, pre-defined intervals eg. Current Awareness Service, SDI.

* Request-based Services - where a member library sends a specific query to the Resource Centre as and when information is needed eg. Document Delivery Services, Retrospective Searches. Member libraries can obtain periodic services from the Resource Centres by sending in their subscription to the services that are of interest to them.

For request-based services, member libraries would send in their query to the Resource Centre as and when the query is generated. A member library could relay requests to the Resource Centre by any of the following means:

i) Ordinary Mail/Courier
ii) FAX
iii) Electronic Mail
iv) Online

5.6 The Resource Centre could respond to the request by any of the methods used for sending requests. However, for responding to queries, especially for services

such as document delivery, FAX is not a economical alternative due to high telecommunication costs involved.

Resource Centre could generate a response to the request received

* manually, or
* by a semi-automated system, or
* by a fully automated system.

5.7 The following table (Table-1) describes the various options that are possible for dissemination of information from the Resource Centre to the member libraries.

Table 1

| Request Sent (Member Library) | Response Generation (Resource Centre) | Response Sent (Resource Centre) |
|---|---|---|
| 1. Ordinary Mail/ Courier or FAX | Manual/Semi-automated | Ordinary Mail/ Courier |
| 2. Email | Manual/Semi-automated | E-mail Ordinary Mail/ Courier |
| 3. Online | Fully-automated | Databroadcast Online |

5.8 Some premier libraries in the country are already providing Resource Centre kind of services to local/external users and member organisations using option 1 of Table 1. Using the existing infrastructure, this option can be extended more widely.

Services using option 2 are possible to implement in libraries which already have email connection and can be provided to other libraries as and when they get connected to a country-wide communication network.

5.9 In Table 1 above, option 3 is the scenario that would be the ideal but would require the most resources and infrastructure both at the member library end and the Resource Centre end. The Resource Centre would be required to load and maintain all bibliographic databases on-line.

5.10 The following table (Table 2) describes the infrastructure requirements from the standpoint of Resource Centres and member libraries for each of the options listed in Table 1.

Table 2

| Infrastructural Requirements | Resource Centre | Member Library |
|---|---|---|
| Option 1 | | |
| FAX | Y | Optional |
| Bibliographic Databases | Y | - |
| CD-ROM stations | Y | |
| Personnel (Information Scientists) | Y | - |
| Photocopying Facilities | Y | Y |
| Option 2 | | |
| Email Connection | Y | Y |
| Bibliographic Databases | Y | - |
| CD-ROM stations | Y | - |
| Personnel (Information Scientists) | Y | - |
| Photocopying Facilities | Y | Y |
| Data broadcast facility | Two way facility | Receive only terminals |
| Option 3 | | |
| High-Speed Communication Network (telnet, ftp facilities) | Y | Y |
| Bibliographic Databases (On-line) | Y | - |
| CD-ROM network/jukebox | Y | - |
| Personnel (Computer Specialists) | Y | - |
| Personnel (Information Scientists) | Y | Y |
| Photocopying Facilities | Y | Y |

5.11 FAX machines can be made available at both the sender and the receiver's end for sending and receiving requests/queries. But due to the prohibitive cost of communication through FAX and poor quality of received documents, this mode is not recommended for Document Delivery Services.

5.12 Trained Personnel would be the crucial and most important factor in running a service of this successfully. Both information scientists who would formulate and understand queries of end-users, and computer personnel to the queries would be essential for providing information services.

5.13 Photocopying Facilities would be required by the member libraries for disseminating information received from the Resource Centre to its individual users. At the Resource Centre, these facilities would be used for services such as CAS and SDI where a large number of users/organisations are sent information of interest to them on a regular basis.

5.14 E-mail connection may be provided to each of the educational institutions. This would facilitate quick transfer of information. Several educational institutes are already connected to RENNIC, and ERNET.

5.15 Telnet, ftp Services would be required for on-line access to databases at the Resource Centres. For these network services, libraries need connection to a very reliable and high-bandwidth network.

5.16 Bibliographic Databases (On-line). For on-line access to databases, the entire database collection at the Resource Centre has to be kept on-line. For this purpose, a CD-ROM facility would be required. This kind of setup would be required for the option 3 scenario where the request and response is sent on-line over the network.

5.17 It is recommended that computer hardware should be acquired according to the implementation., as computer technology, hardware and software, is progressing very rapidly. This will ensure positioning of the libraries at the leading edge of technology.

## 6. SUPPORTING INFRASTRUCTURE

The Sub-group has noted that the libraries are usually the last to receive computers. the lowest to arrive in libraries. Further these systems are usually not located in the library but in a specialised departments. The Committee is of the view that a library system should be located in the central library and necessary information like power, air conditioning and adequate furniture should be provide at these places. These are to be operated by the library with assistance from technical experts. These systems should be run on a 24 hour basis.

## 7. RECOMMENDATIONS

7.1 There exists a vast information infrastructure in the country. However, its impact has been rather low. The objective of modernisation of library information should be to provide access to comprehensive bibliographic system.

7.2 The emphasis on computerisation should be to provide all users the ability to locate the desired information with minimum delay.

7.3 In pursuance of the above, the computerisation has to be promoted in the libraries and information centres at a much greater pace. Priority should be given to computerise library functions.

7.4 There are several packages for house-keeping functions as well as information service activities. There is a need to adopt a few standardised packages to facilitate faster computerisation of the library functions. Development of the package at every institution may not be needed.

7.5 Configuration of the hardware depends on the collections and the number of clientale. All library sections and users should have direct access to these facilities.

7.6 There is a need to recognise that library management is a specialised task and the library scientists should be exposed to use the modern tools.

7.7 The committee also recognised that a decentralised approach may have to be taken up while implementing at large university libraries/information centres.

7.8 All libraries/information centres should have access to the E-mail facilities. E-mail can be effectively used for inter-library loans and exchange of information. It will facilitate to provide a wider and better service to the user community.

7.9 Networking of the libraries/information centres is necessary and should be taken up at the earliest.

7.10 The libraries may choose any one of the existing networks (NICNET, ERNET, etc.).

7.11 City library networks play an important role in dissemination and specialised libraries/information centres in a city. They would facilitate greater economy. These city library networks need to be networked.

7.12 The efforts of INFLIBNET in promoting computerisation in the University libraries should be encouraged. INFLIBNET should play a greater role in converting the manual system into a machine readable formats. It should play an important role in propagating and ensuring the use of modern tools in the University libraries.

7.13 Databroadcast technology can be effectively used for selective dissemination of information to universities and colleges in cost economical way. With a very low cost it can be extended even to the smaller colleges. It can also be used for distance learning.

7.14 An organised structure for dissemination of information needs to be devised to facilitate sharing of library resources. Towards this, resource centres may be established.

7.15 Each resource centre will specialise in a specific bibliographic database and offer services to its members through out the country.

7.16 The infrastructure at the resource centre would depend upon the type of service that it may provide.

7.17 The computer systems should be located in the libraries itself and necessary infrastructure like power, air-conditioning should be provided to these places.

ANNEXURE-IV

# REPORT

# OF

# THE RESOURCES SUB-TASK GROUP

# FOR

# SHARING OF LIBRARY & INFORMATION RESOURCES

Sub-Task Group

| | |
|---|---|
| Dr. S. S Murthy, DESIDOC, Delhi | Convenor |
| Shri H.K Kaul, DELNET, New Delhi | Member |
| Shri N.M Malwad, IISC, Bangalore | Member |
| Prof. M.K.R Naidu, MS University, Baroda | Member |
| Dr. T.B Rajasekhar, NCSI, Bangalore | Member |

# REPORT OF THE RESOURCES SUB-TASK GROUP OF THE PLANNING COMMISSION CORE TASK GROUP FOR SHARING OF LIBRARY & INFORMATION RESOURCES

## 1. OBJECTIVES

In consonance with its terms of reference, the Resources Sub-Task Group has set for itself the following objectives:

(a) To identify the strengths of the existing library resources in the country and tile deficiencies in them;

(b) To suggest measures for maximising the use of library resources in the country through resource sharing, utilising current information technologies like those of computers, communication networks and optical digital technologies; and

(c) To suggest measures for providing sitigle-wiiidow-type document supply services to the users in the country.

## 2. SCENARIO OF THE LIBRARY RESOURCES AND RESOURCE SHARING

2.1 Report of the Working Group for the Seventh Plan The Sub-Task Group has taken an overview of the existing scenario of library collections in the country in various subject fields of science, technology, social sciences and humanities & arts. The Group also considered the acquisition and resource sharing policies and practices in the libraries and information centres in general. It also examined the Report of the Working Group of the Planning Commission on Modernisation of Library Services and Informatics (July 1 984) for the Seventh Five Year Plan. This Report examined various aspects of library resources sharing in the country including library automation, networking and necessity of a national policy for libraries. Some of its major recomniendations on library resources which are worth recapitulating here are as follows:

(a) Formulation of a National Policy for Library & Information Services, for the development of these services in a cohesive manner.

(b) Strengthening of the library systems in research and educational institutions,colleges and schools and also Of public libraries.

(c) Enactment of Public Library Law in all states on high priority.

(d) Establishment of a separate Department/Directorate, or alternatively a National Commission for Library & Information Services in the HRD Ministry.

(e) Establishment of an All India Library & Information Service (cadre).

(f) Estalilishment of the Central Reference Library at New Delhi which will also take over publication of the Indian National Bibliography.

(g) Establishment of a national centre for education and research in LIS.

(h) Establishment of a National Repository Library (Dormitory) for receiving publications/documents weeded Out by libraries and maintaining atleast one copy each of such documents.

(i) Allocation of 10% -1 5% of institutions' annual budget for libraries in academic and research institutions.

(j) Establishment of a National Information System for Social Sciences (NISSS) on similar lines to NISSAT.

(k) Establishment of national libraries in areas such as manuscripts and social sciences.

The Report gives the basis and justification for these recommendations. A study of the Report would convince that these recommendations deserved to be implemented. Of course, the Report also recommends good resources support for the libraries in academic, research and government sectors as well as the public libraries at national, state, district, block arid village levels. Since Such support as recommended by the Working Group would Cost several crores and would take away a large portion of the budget allocated for the education sector, the Government did not perhaps find it possible to implement them. However, most of the Working Group's recommendations out of those listed above, which did not have heavy financial implications, could have merited acceptance by the Planning Commission and could have been implemented by the Government.

## 2 2 International Developments in Resource Sharing

Revolutionary changes are takıng place globally in Computer communication and information access technologies. Today, global level inter-connectivity of computers and computer networks has been made possible by Internet. Also called variously as the Cyberspace, Information Superhighway, the Net, the Web, the Electronic Frontier, etc., Internet is a peer-to-peer network of close to five million host computers spread around the world, all speaking through a common set of communication protocols called TCP/IP, spanning 160 countries and providing connectivity to about 50 million users. It is an open (non-proprietary) computer communication infrastructure of the world. Many believe that access to the ınformation highway may determine. Our basic ability to function in a democratic society.

At this stage of its development, Internet provides almost seamless access to a variety of commercial and non-commercial information Sources which include: bibliographic/full-text databases, table of contents of journals, electronic journals and newsletters, e-mail discussion forums, directories, preprints, technical reports, database hosts, data archives (text, software and numeric data) library catalogues, campus-wise information systems, etc. Internet is also providing the test bed for electronic document delivery, electronic publishing, publicity and marketing of products and services, and integration of access to local and external information.

Technologies for accessing these sources on internet are changing rapidly. Starting with provision of basic tools like e-mail, and ftp, Internet has shifted to navigation agents like Wide Area Information Servers(WAIS) and Gopher, and more recently to the consumer oriented 'home pages' of the World Wide Web (WWW or simply theWeb) -a system of links that simplify the task of navigating among the myriad offerings on the Internet. Information sources around the world are getting inter-linked through Web pages residıng on Web servers spread around the world. Several projects have also been initiated which focus on developing 'digital libraries' to provide remote access over Internet to very large multimedia document collections, stored on dıstributed servers.

Major focus of the Resources Sub-Task Group is to suggest a plan to provide unproved access to document resources in the Country. In this context, the following specific developments on Internet are worth taking note of : Increase in publishing of electronic journals (e-journals) and other primary Sources of information like preprints and technical reports, and access to table of contents of 'journals followed by full document

delivery. Several journals are already available on the Net (some only on the Net), for example, journal of Universal Computer Science, Electronics Letters Online and Online journal of Current Clinical Trials. Major publishers like American Chemical Society and Elsevier are at an advanced stage of offering their 'jouriials on Internet and OCLC. There is a well-established system for distributing and Providing access to abstracts and full texts of preprints and technical reports in the areas of physics, mathematics and computer science in the academic community around tile world. Services like 'Uncover' by Blackwell and 'Contents First' by OCLC offer Internetaccess to table of contents of several thousand journals, followed by online ordering of papers. Institutions have begun to take such services into account while planning their acquisitions, particularly journal subscriptions.

These have two major implications in our country, as related to document supply. Firstly, we should ensure that all document resource centres suggested in this report have Internet connectivity and that they tune their acquisitions keeping in view what is accessible through international networks. Secondly, such a connectivity, once in place, could be used for developing and offering services, both for domestic arid international customers.

Since it will take a few more years before Internet and other Such global network access technologies become easily available to all participating resource centres (libraries) in the country, a conventional model for resource sharing has been suggested in this report. However, it is strongly suggested that the national/regional document delivery centres keep track of these developments and integrate these into their operations as early as possible.

### 2.3 The Indian Library Scenario

The present scenario of libraries in the country is not much different as compared to that observed by the Working Group, referred to above (Sec. 2.1 ), except that the budgets of libraries have continued to shrink in real terms resulting in reduced acquisitions of publications and the efforts of automation have significantly increased. Another important development is the coming up of metropolitan library networks like DELNET, CALIBNET, MALIBNET, etc.; the national bibliographic information networks like INFLIBNET, BTIS, MEDLINE/NICNET and the establishment of e-mail networks like ERNET, NICMAIL/RENNIC which are also used for transmission of bibliographic information.

The libraries and information centres in the country continue to face mainly the following problems:

(a) Price escalation : The average increase in prices of publications in the fields of science& technology is estimated at about 15% and it may be about 10% in other fields.

(b) Literature explosion : More and more publications are generated every year and the output seems to be doubling every five years.

(c) User explosion : More and more people are using information as a result of population growth and societies becoming more and more technology-orietited.

(d) Reduced library budgets : While the budget allocations on paper (in Current figures) may not decrease for many libraries (even this reduction happens to several libraries), the budgets in real terms keep coming down due to inflation.

(e) Lack of adequate facilities of space, furniture, equipment, etc.

(f) Lack of adequate training opportunities for L&I staff for updating their professional knowledge, particularly from the public libraries.

An important positive aspect of the situation however is that there are several libraries in the country with reasonably good collections and other resources like equipment, staff, accommodation, etc. Also, there are large number of users of libraries in the academic, research, government and the private sectors. A large portion of them are heavy and demanding users of information. The figures in Tables I and 2 give an idea of the number of users of libraries/information in the country and also the number of libraries.

It can be expected that there would be atleast one library in each high school, college, and institution of higher learning as well as in the R&D institutions. Also, there exists a considerable demand for library materials. Considering the strength of the collections, it can be generally said that the libraries of R&D institutions (in any subject field) would have more collections than other libraries. While majority of the university libraries have large collections (with an average of about 1.5 lak Volumes) the collections in the colleges and schools are much lower, say a few thousand volumes in each library, which comprise mostly text books and fiction.

The average size of the collection in a library in an S&T institution would be about 25,000 documents (of all types like books, standards, patents, etc) and it would be about 10,000 for the social sciences and humanities & arts institutions which Would have a larger proportion of Indian publications. The collection sizes in some of the well-known libraries among the R&D institutions are given Table 3.

**Table 1: Number of academic institutions and library users (1992-93)**

| | |
|---|---|
| No. of universities (including deemed universities) | 204 |
| No. of colleges | 7958 |
| No. of teaching staff in universities & Colleges(lakh) | 2.78 |
| No. of students entrolled(in universities and colleges at PG, grd, res, dipl/cert levels, in lakhs) | 48.05 |
| (Source UGC Annual Report 1992-93) | |
| No. of high/higher secondary schools | 84,086 |
| No. of middle/senior basic schools | 1,53,92 1 |
| No. of priniary/basic schools | 5,72,541 |

(Source: Manpower Profile India Yearbook 1 993-94. IAMR, New Delhi, 1994)

**Table 2 : Number of R&D institutions**

| | |
|---|---|
| No. of institutions in S&T<br>Source: Directory of R&D Institutions 1 994.<br>DST, New Delhi, 1994) | 2 749 |
| No. of institutions in social sciences<br>(Source: NASSDOC) | 360 |
| No. of institutions in humanities &arts | 550 |

(Source: Ruprail, N. Special libraries. In Year's Work in Indian Librarianship 1987, edited by T.S.Rajagopalan. ILA, Delhi,1988)

Public libraries

| | |
|---|---|
| No. of state central libraries | 23 |
| No. of district libraries | 400 |
| No. of Block libraries | 1800 |
| No. of villages libraries | 41,828 |
| No. of town libraries | 1,280 |

(Source: Working Group Report)

Apart from the libraries mentioned above, there are several other libraries having large collections in the fields of humanities & arts and social sciences. Prominent among them are the National Library, Calcutta; Khuda Baksh Oriental Library, Patna ; Tanjavur Saraswati Mahal Library ; Bombay Central Library, Delhi Public Library; and so on. In addition to these, a number of other organisations have been building up good collections in humanities & arts. These include Indian Council of Philosophical Research, Indira Gandhi National Centre for Culture and Arts, Sahitya Academy, Indian Council for Cultural Relations, Central Institute of English and Foreign Languages,, Indian Council of Historical Research, etc.

**Table 3 Size of collections in selected libraries***

| Name of the library | Collection size (lakhs) | No of current periodicals | Annual increase in collection |
|---|---|---|---|
| IARI (ICAR) | 3.0 | 5,000 | 8,000 |
| BARC(DAE) | 8.5 | 1,700 | 26,000 |
| DESIDOC (DRDO) | 2.0 | 450 | 8,800 |
| IAT (DRDO) | 1.0 | 300 | 1,600 |
| IIsc | 6.5 | 2,100 | 8,500 |
| DRDL (DRDO) | 1.0 | 200 | 1,450 |
| INSDOC | 1.5 | 3,500 | 6,000 |
| NCL (CSIR) | 1.2 | 900 | 7,000 |
| NAL (CSIR) | 3.0 | 400 | 9,400 |
| NML (CSIR) | 1.5 | 200 | 1,500 |
| NML | 3.0 | 2,100 | 1 5,000 |
| NASSDOC | 1.6 | 2,000 | 1,500 |
| IIT (M) | 2.5 | 1,400 | 3,500 |
| IIT (D) | 3.0 | 1,000 | 3,600 |
| IIT (K) | 3.5 | 1,400 | 4,500 |
| IIT (B) | 3.3 | 1,200 | 8,000 |
| Tata Instt of SST | 1.2 | 1,800 | 5,700 |
| CIEFL | 1.2 | 500 | 2,000 |
| ICHR | 0.4 | 130 | 1,200 |

Data collected from the libraries or their annual reports.

If we consider the growth of collections in Indian libraries, we can see that the growth in S&T libraries is much higher than in the social sciences and humanities & arts libraries. This is mainly because many S&T libraries regularly acquire micro documents like reports, standards and patents on standing order/annual subscription basis. The SRIM (Selected Research in Microfiche) Service of NTIS, and the RAND Corporation (USA) reports on available on membership subscription basis are some of such acquisitions which are received in large numbers annually. It can be seen that on an average, the annual growth in collections of large S&T libraries would be about 7,000

documents (including microdocuments), and in social sciences and humanities & arts would be 1600. If we consider the small and medium libraries also, the average annual growth rate may be around 1500 documents in S&T libraries and 1000 each in social sciences and humanities & arts libraries

It may be noted that most of the material acquired by libraries of research and higher academic institutions (except in humanities & arts and to a large extent in social sciences) is imported as publications of advanced level for academicians and researchers in these fields are not produced in the country in adequate numbers. It is estimated that India imports about Rs.150 crores worth of publications/documents annually involving foreign exchange. Even then, a new large library cannot normally meet even 50 per cent of its information demands from its collections and it is much less with smaller libraries. This, coupled with the problems of literature explosion,price escalation, inflation, lack of adequate facilities (see p. 4 of this report), has compelled librarians to follow the present world-wide practice of shifting their efforts from having comprehensive acquisitions to providing comprehensive access to information sources to their users through networks and databases. Such a shift would not however reduce the necessity of increased financial support to libraries to keep them in tune with the escalation in prices and the increasing defrauds. This is because libraries are getting less and les publications year after year is competed to the growth in production of literature/information the world over. The Sub-Task Group therefore strongly recommends increased budgetary allocation to libraries to keep them not below the levels of price escalation/inflation. Over and above this amount, the libraries engaged in document supply to the users should be provided a minimum of ten per cent additional budget for three years for collection enrichment. Even when such support is provided, resource sharing would be absolutely necessary for the reasons mentioned above.

## 3. LIBRARY RESOURCE SHARING

For effective resource sharing, the libraries/information centres must fulfil two important requirements: they should have good resource base and they should have an efficient mechanism to share the resources. Resource sharing implies that same resources will be shared by more than one user institution or library. This is possible only when an efficient mechanism and tools exist to locate the needed document quickly (like databases, union catalogues, etc), to acquire it (through inter-library loan, photocopying, electronic document transfer, etc), and provide to the user (document delivery). If the distance between a lending and a receiving library or a user is large, it would take more time for providing the document.

The two ways of resource sharing which are presently in Vogue and which can meet most of the requirements are: (1) providing access to information/documents (through networking), and (ii) providing documents required by users (document delivery). Another aspect of resource sharing is the rationalisation of acquisitions among libraries to avoid unnecessary duplication.

Towards effective utilisation of resources, rationalisation of acquisitions in libraries is suggested to be operated at local level, i.e., at each city or location where library clusters exist.

### 3.1 Database Development

Towards quickly locating information/documents available in the libraries in the country, the database development activity covering the holdings of libraries and specialised information in various fields must be taken up on top priority. Since the database creation activity is a highly time-consuming and skill- oriented task andrequires a large number of trained personnel, this activity needs urgent support from the government. The Sub-Task Group strongly recommends provision of adequate financial support to libraries for database creation and training of personnel for this

task. It may be noted that the databases, when well-developed, would not only greatly enhance the use of library collections, but also be a source of income if access to them is provided to other countries.

### 3.2 Document Delivery

The existing mechanism in the country for providing a document by a library or an information centre to a user is quite traditional in nature and does not use the current information technologies in most of the cases. Individual users approach libraries or information centres for information or documents required by them and if these centres/libraries have the information, they provide it. If they do not possess the information, the user gets a negative reply. Only a few libraries or information centres make efforts to procure the needed information from other centres and provide it to the user. This happens since many libraries do not feel it obligatory to get it from other sources and supply. If there is a national policy for the document supply by libraries and information centres, this problem as well as many related problems can be solved. The Sub-Task Group therefore recommends formulation by the Government, of a national library policy which should also include the document supply. Necessary financial support must be provided by the Government for operating document delivery service by libraries and information centres. A model resource sharing and document supply system based on the strength of the existing library collections in the country is presented in Sec. 4 for consideration by the appropriate authorities.

### 3.3 Role of Library Networks

While many libraries in the Country have started efforts to create databases of their holdings and also of information of interest to their users, networking of these databases is yet to take shape. The library networks in the country are expected to play an increasingly important role in pooling up such databases and providing access to them in a network node. Of these, DELNET and CALIBNET are the pioneers which are closely followed by INFLIBNET, MALIBNET, BOMNET, BALNET, etc. These networks provide technical support in database creation and in conducting training programmes in database creation, online searching, etc. and are also expected to assume the responsibility of document supply to the users. DELNET has presently about 50 libraries and CALIBNET has 38 libraries participating in the networking and resource sharing programme. INFLIBNET is a much larger venture and aims to cover about 350 universities and other major institutions apart from colleges.

## 4. A PROPOSED MODEL FOR RESOURCE SHARING IN INDIA

### 4.1 Centralised vs Decentralised System

While resource sharing is done among libraries, document supply is done by the resource sharing libraries as well as certain libraries like the British Library Document Supply Centre (BLDSC), Boston Spa, UK, which serve mainly as document supply centres. In the context of library resource sharing, document delivery plays a major role as the other important aspect of providing access to information is mostly taken care of by providing access to databases both indigenous and foreign. The document delivery service is normally based either on a centralised system or a decelitralised system.

The success of the BLDSC, UK, is generally cited to favour a centrillsed system for DDS. On the other hand, a larger country like USA has no centralised system for document delivery; many centralised, loosely connected centres with overlapping document collections supply the users with required information. Due to the latest techniques used for document Supply, the level and reach of the service is Such that centres like Library of Congress, OCLC, Engineering Information Inc., UMI, Chemical Abstracts Document Delivery Service, ERIC Document Reproduction

Service, etc in effect are serving as centralised international document delivery centres in their subject areas.

A centralised set up may be good if it is well-organised, has comprehensive collection and is managed efficiently. Otherwise it will lead to the breakdown of the service on a national level. A decentralised DDS, on the other hand, may serve better once the system gets well-established and publicised. Also, such a system can be built mostly over the existing libraries and information centres. However, the cost of providing infrastructural facilities in a decentralised system is high.

Keeping this in view, the Sub-Task Group recommends a document delivery system which is a mix of both centralised and decentralised set-ups.

## 4.2 **The Model**

The structure and various linkages between the components of the proposed model for library resource sharing in India have been shown in Figure I . The proposed document delivery model would comprise a three-tier system of document delivery centres - (i) at the national level which may be called the National Document Delivery Centre (NDDC), (ii) at the regional level called the Regional Document Delivery Centre (RDDC), and (iii) at institutional level called the Institutional Document Delivery Centre (IDDC). Their roles and services are described in the following sub-sections.

### 4.2.1 National Document Delivery Centre

These are to be selected from the existing national information or documentation centres having a large library base and with a commitment to information and document supply. One NDDC each may be identified for science & technology, social sciences and humanities & arts.

INSDOC may serve as a National Document Delivery Centre (NDDC) for all fields of science & technology, as per its charter of duties. Similarly, NASSDOC, New Delhi, is to be the NDDC for social sciences and the Indira Gandhi National Centre for the Arts(IGNCA), New Delhi, which is developing an excellent collection at a fast rate in humanities, arts and culture could be the NDDC in these fields.

Functions

(a) To operate the document Supply service at national level,

(b) To bring out national union catalogues covering the concerned subject fields, perodically update them and provide copies to other DDCS,

(c) To establish linkages with other DDCs and take such necessary steps to improve the efficiency of the document delivery system,

(d) To take up R&D in LIS, develop improved document storage and delivery mechanisms using optical scanning, digital storage, network access and delivery, etc,

(e) To maintain close relationship with international DDCs and handle the requests for documents not available from the indigenous sources,

(f) To develop strategies and plans to build up a core collection of journals in the concerned fields, in collaboration with other libraries, to satisfy at least 70 per cent of the user requirements from indigenous resources,

(g) To build up a core collection of other documents such as books, reference tools,technical reports, theses, conference proceedings, etc,

(h) To prepare various reference tools including institutional profiles, profiles of DDC institutions, directories of Subject experts, etc,

(i) To provide training to the persons involved in DDS and develop training tools, and to publicise widely, the docui-nent delivery services and conduct studies and surveys on user needs.

4.2.2 Regional Docunient Delivery Centres

The Regional Document Delivery Centres (RDDCS) would take the responsibility for document supply at regional level. For operational convenience of the RDDCS, the country may be divided into five regions viz. North, South, East, West and Centre. Two regional centres, one for science & technology and the other for social sciences, humanities & arts may be designated for each region out of the existing libraries. The following libraries are recommended as RDDCS.

| | |
|---|---|
| (a) North | NDDCs will also function as RDDCs |
| (b) South | Indian Institute of Science, Bangalore (S&T) |
| | Osmania University, Hyderabad (SS, Hum & Arts) |
| (d) West * | Tata Institute of Social Sciences (SS) |
| | Bhandarkar Oreintal Research Institute, Pune (Hum & Arts) |
| | Indian Institute of Technology, Bombay (S&T) |
| (f) East | Indian Association for Cultivation of Sciefice, Calcutta (S&T) |
| | Vishwabharati University, Santiniketan (Hum & Arts) |
| (g) | Central Banaras Hindu University, Varanasi (SS) |
| | Indian Institute of Tehnology Kanpur (S&T) |
| | Khuda Baksh Oriental Library (Hum & Arts) |

*Prof M.K.R Naidu, Member, strongly recommeded that resource-rich state universities like the Osmania University, Hyderabad and M.S.University, Baroda be considered for RDDCs apart from the Central-Govt-supported establishments

Functions

(a) To maintain liaison with IDDCs and NDDCs and to function as a single-window service for document requests received from users,

(b) To bring out regional union catalogues for the benefit of users in the region. These may become part of the national union catalogues to be brought out by the NDDCs

(c) To handle the document delivery service in coordination with the IDDCS,

(d) To have linkages with IDDCS, other RDDCs and NDDCs in case of non-availability of information sources with them, and establish local library consortia for providing efficient document delivery service, and

(e) To aid NDDCs in the preparation of profiles and directories of experts, institutions, etc and other reference tools.

4.2.3 Institutional Document Delivery Centres

At the third level, the Institutional Document Delivery Centres (IDDCS) are chosen on the strength of their collections in their respective fields and also the special types of collections like standards (BIS, New Dellil), patents (Patent Information Centre, Nagpur), etc. Some of these centres could be the Sectoral Centres of NISSAT, the UGC information centres, the city/metropolitan library networks and other specialised information centres under the Central Govt or State Govts or the private sector. The NISSAT Sectoral Centres which are already functioning as national information centres (like those at NAL, CFTRI, etc) may continue to serve in the same capacity in their respective subject fields. The city networks will coordinate the resource sharing activities of their participating libraries and therefore must be supported by the government for augmenting their facilities for carrying out these functions.

Functions

(a) To make conscious efforts to strengthen the collection in the concerned fields,

(b) To handle and Honour document supply requests received from users, if the source document is readily available with the centre,

(c) To direct the requester to an appropriate IDDC or RDDC, if the document is not available in their collection,

(d) To maintain one set of reference tools, national and regional union catalogues for Speedy handling of document supply requests, and

(e) To develop databases of the collection for providing access to users and for possible marketing through NDDCs.

The Sub-Task Group also recommends that apart from document delivery centres stated above, the Delhi Public Library System may also be strengthened in Phase I (phases explained in Sec. 8) to cater to the needs of the education sector in Delhi and the Northern region. Similarly, the Connemara Public Library, Madras and the Central Library, Bombay may be strengthened for meeting the needs of educational institutions.

4.3 **Document Supply Mechanism/Operational Aspects**

Priarily, it is the responsibility of NDDCs and RDDCs to supply the documents required by the users. In case they do not hold a particular document, they may contact any other holding library and arrange the documents or copies of them as a single-window service. However, the user slioulcl be free to approach ally of tile IDDCS, RDDCS, or NDDCs for documents or information. In case an IDDC cannot supply the material, it may refer the user to the RDDC of the region or tile relevant NDDC arid they should take the responsibility of supplying the same.

For operating speedy and efficient document delivery services, the NDDCs and RDDCs will have to develop international linkages with nia'or document SLI{)[)ly ceritres like British Library Document Supply Centre, UK; Library of Congress, USA; Australian National Library; Canadian Institute of Scientific and Technical Information; OCLC, USA; etc.

4.3.1 Networking of Libraries

Communication linkages like fax, e-mall, and network facilities including Internet access should be provided to all the DDCs for speedy transmission of information/documents. These facilities may be provided in phases if financial constraints exist. Thus, in Phase I only the NDDCS, RDDCs and IDDCs may be provided with network nodes. These facilities may be provided to other libraries and information centres in the Phase II . In addition, use of courier and postal services are suggested for delivery of documents, at places which are not connected by the network and for the documents which cannot be transferred through the network or through other modes like fax.

### 4.4 Reference tools

The NDDCS, besides the document supply, will have the additional responsibility of bringing out reference tools to facilitate information access and document delivery. These tools include compilations like union catalogues, institutional profiles, directories of databases and experts, profiles of document supply centres - national, regional and institutional - and others. In preparing these tools, the specifications formulated by Sub-Task Group on Databases should be followed

## 5. R&D IN LIS

The level of R&D in the Library & Information Science (LIS) field being carried out in the country is very low. The Govt should therefore support R&D in this field, particularly in information storage, processing, retrieval and dissemination areas. Funding agencies like DSIR, DST, AR&DB, DRDO, FICCI, CII, etc. should be encouraged to support R&D in this field. NIC also should have a component of Grants-in-Aid for R&D in LIS research.

## 6. RESOURCE SHARING POLICY AND RESOURCES DEVELOPMENT

### 6.1 Sharing of Resources

All the libraries and information centres should share their resources with others to the extent possible. They should participate in document supply and inter-library loan programmes. For the purpose of resource sharing and sharing the revenue generated through document supply, the IDDCs may enter into an MOU with the RDDCs which in turn may have MOU with the NDDCS.

The Sub-Task Group suggests the establishment of a National Repository under the aegis of Ministry of Human Resource Development to preserve atleast one copy of every significant document out of those weeded out by libraries in the Country. This would help in better utilisation of space in libraries and in providing comprehensive access to archival documents. In addition, libraries must be encouraged to convert printed material into digital form to facilitate easier and faster delivery of documents over the networks. Also, various centres should be encouraged to procure electronic publications.

All the Centres are to be encouraged to adopt the latest technologies for sharing resources and to participate in document delivery service including the use of electronic media, networks, etc.

## 6.2 **Resources Development**

Although the Press and Registration of books Act, and Delivery of Books and Newspapers Act are in force for a long time, these acts are not properly enforced by the authorised agencies. Also, many publishers do not comply with these acts. Therefore, the National Library, Delhi Public Library, and other libraries which are designated to receive the Indian publications under the Act cannot claim to have comprehensive corrections of Indian publications. In view of this, the Sub-Task Group recommends that as an incentive to publishers to comply with the Act, the desiginated libraries must pay for the publications thus receive. In addition, the Govt should support the NDDCS, RDDCs and IDDCs by way of grants for continuous augmentation of their corrections.

## 7. ALLOCATION OF FUNDS

The Sub-Task Group suggests ten per cent of the library budgets(of the DDCs) for reading materials like books, periodicals, standards, audio-visual media like CD-ROMs, multimedia, etc. should be additionally given to the libraries(in addition to regular bedgets), after providing for inflation/price escalation, as seed money for three years for collection/infrastructural development. Suitable committees may be constituted by the Govt, one for each sector of S&T, social sciences and humanities & arts which will examine the proposals from IDDCs and NDCCs for finalising the financial support and recommend appropriate additional budgetary allocations. The same committees will also review the utilisation of grants and performance of these DDCS. These committees may comprise library managers and scientists/users of eminence. The concerned NDDCs will provide the institutional/secretarial support to the committees. The RDDCs may present the cases of IDDCs and their own to the concerned committee. Since INFLIBNET is expected to play a major role in library resource sharing, formal linkages must be established between INFLIBNET, NDDCs and RDDCS. After three years, the net income accrued by the DDCs by way of extending the services shall be taken into account for providing matching grant by the Govt. This means, the centres earning more should get more matching support.

### 7.1 Costing of Services

Uniform tariff is to be by all the document delivery centres. The tariff may be decided by the NDI)Cs and RDDCS. The revenue earned out of the services may be ploughed back to the respective libraries/ionformation centres and their budgets may not be reduced to adjust these earnings and incentives is as suggested above be provided.

## 8. IMPLEMENTATION

The Document Delivery System recommended above may be made operational in two phases. In Phase I, which may be for five years, the Govt may support the document supply centres - the NDDCS, RDDCS, IDDCs (even if any of these centres happens to be functioning in the academic and industry sectors). School and rural level libraries may be considered for Govt support in Phase II. This arrangement, i.e., keeping the direction of library development from top to bottom, will help in the percolation of the culture of library use in the same direction as presently such culture exists mostly at higher levels. If, on the other hand, the direction is from bottom to top, there are good chances of under-utilisation (or even mis-utilisation) of the government support for library development at the lower levels. Similarly, in Phase 1, the library networks may cover NDDCS, RDDCS, and IDDCs and many other libraries having the necessary infrastructure and collection back-up for providing the document supply service. In Phase II, when the public data networks extend to small towns and villages, the libraries at these places may also be connected to the library network system to enable them to access the IDDCS, RDDCS, and NDDCS. Necessary minimum support to these rural and school libraries to gain access to the network may be considred by the

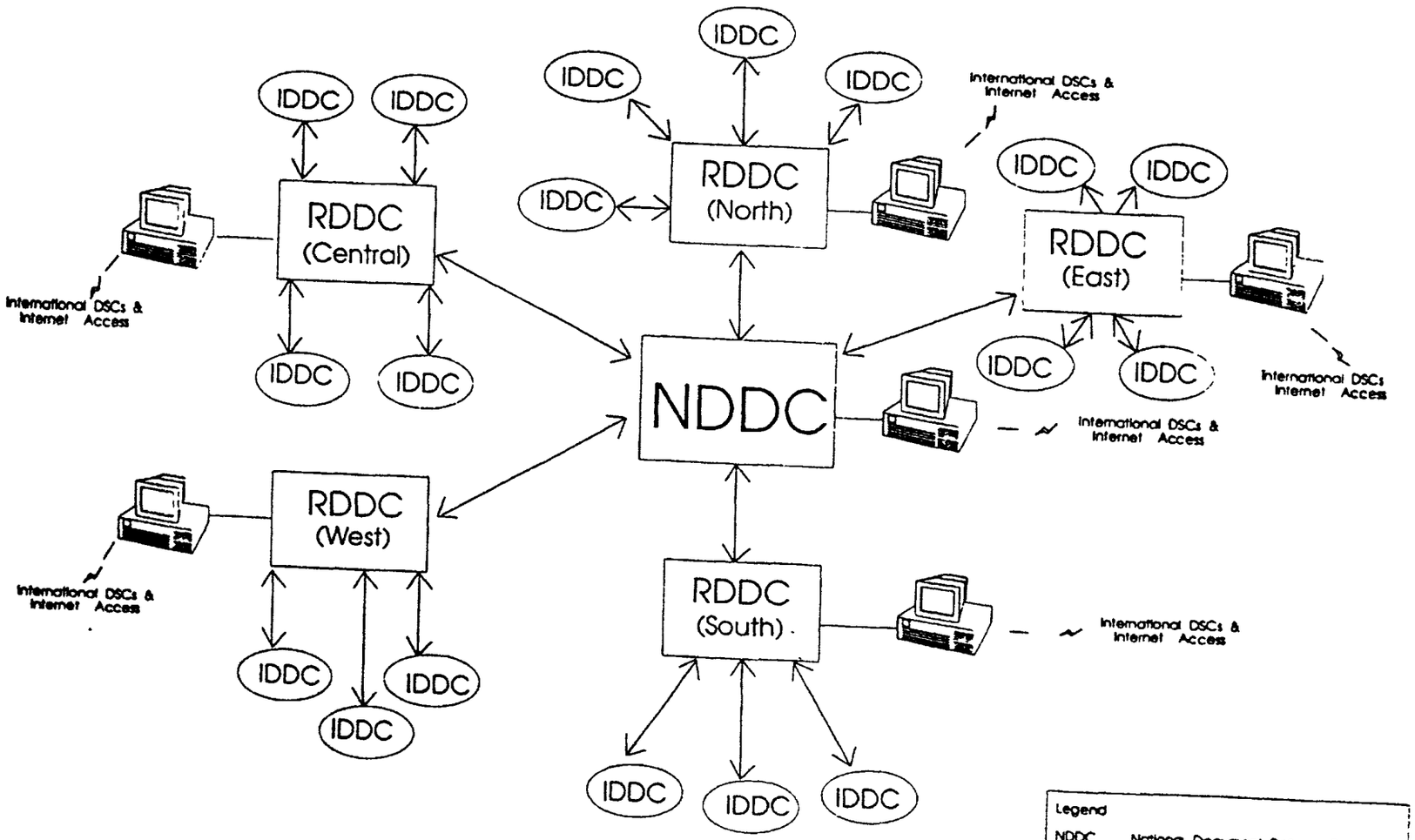
Govt in Phase II. However, if any school library or rural library or a non-IDDC library is in a position to join the network, having got the necessary infrastructure, it should be welcome to join the network. But the Government support (financial) for school and rural libraries for joining the resource sharing network may be provided only in Phase II.

Table 4. Implementation plan

| Activity | Implementing agency | Phase of implementation + |
|---|---|---|
| Increased budgetary allocation to libraries | Government | I (5 years) |
| Development of reference tools including union catalogues, institution profiles, etc. | RDDCs/NDDCs | I |
| Implementation of a national policy on resource sharing&documentsupply | Government | I |
| Training for database creation, DDS etc | NDDCs | I |
| Database creation | All DDCs | I |
| Resource development (core collection) | All DDCs | I (3 Years) |
| Providing financial support to- DDCs for document supply | Government | I |
| Identification of NDDCS, RDDCs & IDI)Cs | Government | I |
| Establishing linkages with DSCs abroad | RDDCs/IDDCs | I |
| Strengthening public libraries | Government | I |
| Networking of DDCs | All DDCs | I |
| Networking of libraries of school & village level | - | II |
| Promoting R&D in LIS | Government | I |
| MOU among DDCs for resource stiirirlg | All DDCs | I |
| Establishing a national repository for documents | Govt (MHRD) | I |
| Conversion of printed material to digital form | All DDCs & Libraries | II |
| Fund allocation and formation of review committee & Finance Committee | Government | I |
| Support to Schools & rural level libraries | Government | II |

+ All the actions of regular nature, even though implemented in Phase I, will continue thereafter.

FIGURE 1. PROPOSED MODEL FOR RESOURCE SHARING IN INDIA
(same model may be used for S&T as well as Social Sciences, Humanities and Arts)




Note This diagram does not show the communication linkages among the Centres Each Centre of any type will be free to contact any other Centre

Legend
NDDC National Document Delivery Centre
RDDC Regional Document Delivery Centre
IDDC Institutional Document Delivery Centre

## 9. SUMMARY OF RECOMMENDATIONS

### General

1. The Government should formulate a national library policy which should also include document Supply. (Sec. 3.2)

### Financial

2. Increase budgetary allocations must be made to libraries to keep them above the levels of price escalation/inflation. (Sec. 2.3)

In particular, the Document Delivery Centres (DDCS) must be provided with adequate funds, atleast 10 per cent additionally (over price escalation and inflation levels), for a minimum period of three years, for augmenting their collections and infrastructure for providing document supply service. Suitable committees may be constituted by the Government for assessing and recommending on such financial support and for reviewing the utilisation of the funds and the performance of the receipent libraries. (Sec. 7)

3. Noting the importance of the well-developed databases which would not only greatly enhance the use of library collections, but also be a source of income if access to them is provided to other countries, libraries and information centres must be encouraged to develop databases of their holdings and also those of specialised information. Since the database development is a time-consuming activity requiring professional skills, adequate financial support for this activity must be provided.(Sec. 3.1)

4. Uniform tariff is to be followed by all the document delivery centres. The tariff may be decided by the NDDCs and RDDCS. The revenue earned out of the services may be ploughed back to the respective libraries/information centres and their budgets may not be reduced to adjust these earnings as an incentive to efficient performance. (Sec. 7.1)

### Collection Development & Use

5. Towards effective utilisation of resources, rationalisation of acquisitions in libraries is suggested to be operated at local level, i.e., at each city or location where library clusters exist. (Sec. 3)

6. Apart from document delivery centres, the Delhi Public Library system may also be strengthened to cater to the needs of the educational sector in Delhi and the Northern region. Similarly, the Connemara Public Library, Madras and the Central Library, Bombay may also be strengthened for meeting the needs of educational institutions. (Sec. 4.2.3)

7. As an incentive to publishers to comply with the Delivery of Books and Newspapers Act, the designated libraries must pay for the publications thus received. (Sec. 6.2)

8. The establishment of a National Repository under the aegis of Ministry of Human Resource Development is suggested to preserve atleast one copy of every significant document weeded out by libraries and passed on to it. This would help in better utilisation of space in libraries and providing comprehensive access to archival documents. (Sec.6.1)

**Resource Sharing**

9. A document delivery system which is a mix of both centralised and decentralised set-ups is recommended. (Sec. 4.1)

10. The document delivery system recommended may be made operational in two phases. In Phase-1, which may be for five years, the Govt may provide special support the document supply centres (NDDCS, RDDCS, and IDDCS). Other libraries including the school and rural level libraries may be considered for such support in Phase-II. (Sec. 8)

11. The document delivery centres are to be encouraged to adopt the current information technologies like fax, e-mail, computer-communication networks, etc for speedy document delivery/information service (Sec. 6.1 ). They are also to be encouraged to convert printed material into digital form to facilitate easier and faster delivery of documents over the networks. They may also procure electronic publications for this purpose (Sec. 6.1 ). They may also be provided access to international networks like Internet for accessing world information and to provide access to their databases by others internationally. (Sec. 2.2 & 4.3.1 )

1 2. Since INFLIBNET is expected to play a major role in library 'resource sharing, formal linkages must be established between INFLIBNET, NDDCs and RDDCS. (Sec. 7)

**R&D in LIS**

13. The Govt should support R&D in the information storage, processing, retrieval and dissemination areas. Funding agencies like DSIR, DST, AR&DB, DRDO, FICCI, CII, etc., should be encouraged to support R&D in LIS field. NIC also should have a component of Grants-in-Aid for R&D in LIS research. (Sec. 5).

APPENDIX

## ABBREVIATIONS USED IN THE REPORT

| | |
|---|---|
| AR&DB | Aeronautical Research & Development Board (Min of Defence) |
| BALNET | Bangalore Library Network |
| BIS | Bureau of Indian Standards |
| BLDSC | British Library Document Supply Centre, UK |
| BOMNET | Bombay Library Network |
| BTIS | Bio-technology Information System |
| CALIBNET | Calcutta Library Network |
| CFTRI | Central Food Technology Research Institute (CSIR) |
| CIEFL | Central Institute of English & Foriegn Languages, Hyderabad |
| CII | Confederation of Indian Industries |
| DDC | Document Delivery Centre |
| DDS | Document Delivery System |
| DELNET | Delhi Library Network |
| DESIDOC | Defence Scientific Information & Documentation Centre |
| DRDL | Defence Research & Development Laboratory, Hyderabad |
| ERIC | Educational Resources Information Centre, USA |
| ERNET | Education Research Network |
| FICCI | Federation of Indian Chambers of Commerce & Industry |
| ftp | File transfer protocol |
| Hum | Humanities |
| IARI | Indian Agricultural Research Institute (ICAR) |
| IAT | Institute of Armament Technology, Pune |
| ICHR | Indian Council of Historical Research |
| ICSSR | Indian Council of Social Science Research |

| | |
|---|---|
| IDDC | Institutional Document Delivery Centre |
| IGNCA | Indira Gandhi National Centre for the Arts |
| IISc. | Indian Institute of Science, Bangalore |
| ILA | Indian Library Association |
| INFLIBNET | Information & Library Network |
| L&I | Library & information |
| LIS | Library & Information Studies |
| MALIBNET | Madras Library Network |
| MEDLINE | MEDLARS Online (database) |
| NAL | National Aerospace Laboratories, Bangalore |
| NASSDOC | National Social Science Documentation Centre |
| NCL | National Chemical Laboratory, Pune |
| NDDC | National Document Delivery Centre |
| NICMAIL | Electronic mail service offered by NICNET |
| NICNET | NIC Network |
| NISSAT | National Information System for Science & Technology |
| NML | National Medical Library, New Delhi |
| NML (CSIR) | National Metallurgical Laboratory (CSIR) |
| NTIS | National Technical Information Service, USA |
| OCLC | Online Computer Library Centre, USA |
| RDDC | Regional Document Delivery Centre |
| SRIM | Selected Research in Microfiche |
| SS | Social Sciences |
| Tata Inst SS | Tata Institute of Social Sciences, Bombay |
| umi | University Microfilms International, USA |
| WAIS | Wide Area Information Server |
| WWW | World Wide Web |

**ANNEXURE-V**

# REPORT

# OF

# THE SUB-TASK GROUP ON DATABASES FACILITATION FOR RESOURCE SHARING

**Sub-Task Group**

| | |
|---|---|
| Dr. M.A. Gopinath | Convenor |
| Dr. A. Lahiri | Memver |
| Dr. O.P. Arora | Member |
| Mr. Subhash Biswas | member |

# DEVELOPMENT OF DATABASES FOR RESOURCE SHARING AMONG NETWORKS

Report by a Sub-Task Group to the Core Task Group to cover all the issues related to sharing of library and information resources utilizing the revolutionary advancements in communication technology.

## Preliminaries

The Sub Task Group on Databases for facilitation of Resource Sharing among Libraries consisted of the following persons:

Convener: 1. Prof. M.A. Gopinath
Head, Documentation Research and Training Centre,
Indian Statistical Institute
Bangalore

Member: 2. Dr. A. Lahiri
Jt. Advisor, DSIR
NISSAT
Govt. of India, New Delhi

Member: 3. Shri O.P. Arora
INFLIBNET
Ahmedabad

Member: 4. Shri Subash Biswas
Former Director of-Central Secretariat Library
New Delhi

The committee on 8 May 1995 and 29th May 1995.

Shri Paul Pandian K,.INFLIBNET attended the meeting on 8th May 1995 as an invitee.

The meeting discussed the various issues relating to Databases for facilitating Resource Sharing among Libraries. The frames provided by the Core Task Group was adopted for preparing the texts for the report. The databases sub Task Group - covered its presentation in four parts.

- Conversion to computer readable form/ Retroconversion
- Creation of Databases of Experts, Projects, Bibliography MIS, Union Catalogues.
- LIS-MIS and
- Standardisation

The report developed by this group is presented in four parts with fifth part as a recommendation. Further, the parts are presented in the uniform of structure

1 Preamble

2 Policy frame work

3 System Management

4 Funding and Costing

5 Interaction Management

6 Research, Development and innovation

7 LIS components

8 Optional strategy of transferring the status to what is next to have ten years from now. Identification of the growth potential between 1995 and 2005 which is responsive to future needs and technologies

9 Modalities of implementation

The next four parts presents details in this matrix

## 1. RECOMMENDATIONS FOR OPAC NETWORK FOR LIBRARY RESOURCES

1. It is necessary to ensure a spirit of competition among network service Organizations. ThisCompetition need not only be between public and private operators but also among various public sector agencies.

2. It is essential to translate sellers market into a buyers market so far as information services is concerned. The end-users should be free to choose one or more network services that best suit their requirements, even if this this means taking the services from private operators. Information Technology is necessary that the services should be available when demanded by the end users.

3. The general data networks on which the library networks are to piggyback, should interconnect themselves immediately.

4. In library networks, a spirit or motivation of/cooperation is essential. Necessary ground work to sensitive the heads of institutions, library operators and end-users may be done prior to launching of a network. In the same token, the beneficiaries should be prepared to arrange for/buy the hardware-software required to participate in a network. They should also be prepared to do hardwork of retro-conversion using their internal resources. Under no circumstances the network developers should give hardware-software system free-of-charge or give grant-in-aid support for retroconversion activities.

5. Since eventually all libraries in India are to be interconnected, it is essential to promote utilisation of indigenously developed software for easy diffision, better maintenance and updation and for affordability.

6. Development of OPAC in due course is a desirable scenario. However, it is not essential that all participating libraries in a network should convert/retroconvert their holdings in order to qualify as participant. There arc lot of ways the libraries could share resources, OPAC being one of the means only.

7. In the initial stage of OPAC development, concentration should initially be on few selected resource institutions instead of spreading efforts & fmances thinly over all institutions. This initial OPAC should sensitize smaller libraries to motivate them to participate in full OPAC development. In fact, smaller libraries could selectively download records from the OPAC created for resource institutions.

8. A library network may work better on neighbourhood cooperation principle. In view of this, the thrust given by NISSAT to develop city-wide networks may be maintained. Once, the city-nets become operational, and heads of institutions, libraries and end users adequately sensitized,a bigger network like INFLIBNET, apart from cultivating the academic network nurturing should interconnect various citynets and bring about a nation-wide resource sharing network.

9. In resource sharing, the essential requirement is the "willingness" to share resources. Therefore, in a network situation the participating libraries should be agreeing to serve also outside user clientele. In this context, the concept of a universal Library Card system being promoted by NISSAT should be vigorously pursued. The concept assumes more significance in view of the fact that ultimately the end-user will require the full-text or subset. The knowledge of what is available where can only serve a limited purpose.

10. The enormous information resources created by non-library sections such as Newspaper, Commercial, Industrial & business must be provided as a public resource at market price. Resources should be accessible through market.

11. International Standard proferma developed for Bibliographic Descriptors, Network Connectivity, and other facilities be adopted with local variance needed for special situation prevailing in database developments for research-sharing. INFLIBNET's data capturing programme can be adopted on a network basic.

## 2. CONVERSION TO COMPUTER READABLE FORM/RETRO-CONVERSION IN LIBRARIES AND LIBRARY NETWORKS

### 2.1. Preliminaries

In the context of resource sharing, bibliographic activities in India have been localized in approach and utility. Several islands of knowledge/expertise on Machine Readable Catalogue (MARC) and exchange of bibliographic information as a local mandate or participant responsibility /cooperation exist in the country. While it is desirable that these islands are brought into the main stream of efforts, there still remains one critical area which demands immediate attention. The provisionof machine-readable, bibliographic information for both library automation and networking has been on a low key.

Therefore, it is essential:

1. Every library should be ready to share their resources.

2. Creation of computer database (of only active and current collection)is desirable.

3. Facilitate Online Public Access Catalogue (OPAC) for resource sharing.

2. 2. **Policy Frame Work**: Every resource sharing library should have computerized databases and facilitate Online Public Access Catalogue (OPAC).

The selection of retroconversion depends on type of materials one has:

Serials, Publications, Conference Proceedings, CD-ROM products, Reports, Monographs, Dissertations/Thesis Patents, Standards, Audio, Video 3 Cassetees etc. Therefore, a library has a multimedia catalogue (like books catalogues, serials catalogue, manucripts catalogues etc ) and they are merged through Online Access.

In Science and Technology, serials ( periodicals) may be accorded a higher priority - among these, current subscriptions may be given more emphasis in the preparation of Union lists. In the Preparation of a Union Catalogue, only retrospective holding information may be undertaken as a part of the National Union Catalogue of Scientific Serials in India (NUSSI/INSDOC) and Union Catalogue of Social Science periodicals (NASSDOC/ICSSR) or as a part of Metropolitan Library Network efforts.

For conference proceedings, periodic ad-hoc efforts may be made for information compilation.mFor those which get accessioned as monographs, no extra efforts may be enquired. Development of a union catalouge of conference proceedings would require more efforts for those kinds of documents bordering on grey materials.

For Science and technology, special reports are extermely imporant. In many cases these get accessioned as monographs.

Even in such cases a catalogue of special reports would be an attractive propostion. For monographs, catalogue information on only active collection and current documents can be converted. The active collection may be defined as

Active collection = Items in circulation or a new item Getting into circulation after Reference date + all new items Accessioned on or after a reference Date.

Standard for current bibliographic descriptions should be followed for in-house database creation. Communication standards should be compatible standards. In this field, efforts have already been done by INSDOC, INFLIBNET, DELNET, CALIBNET, DESIDOC, DRTC(ISI) etc., and each library can adopt and choose their models and can examine them for various documents. On the basis of this selected model they can generate OPAC.

Reference date should be the current date and not a historic cutoff point. The practice of retro-conversion going back in time eg. last 5 years, last 10 years) is not logical because different subjects have different rates of obsolescence.

Audio cassettes or Video cassettes are also to be treated on census basis.

The CD ROM materials may be treated as a part of the Periodicals Database or the Monograph Database as applicable.

Manuscripts are also to be handled on census basis.

2.3. **System Management** - While converting library records, it is essential to adopt universally acceptable national or international standards. In retrospective conversion an institution may be free to choose either UNIMARC or CCF.

Catalogues in their entirety need not be converted. Individual libraries may have the choice to set up their own priorities. Recataloguing of the books would be essential. There are no short cuts to conversion. The data would be per AACR 11 second level description. Descriptors are essential for convertion. If required , for data capture and data entry, the libraries may use commercial agencies and vendors. Libraries may utilise only indigenously developed software to aid conversion. For example MAITRAYEE, SANJAY, LIBSYS, etc. There should not be any restriction in choice so long as the records are convertable to ISO 2709. Libraries without adequate exposure to computer application may start with CDS/ISIS. Most of the software available in the market would allow import of CDS/ISIS database. The minimun requirement for the conversion would be with the state of art PC with minimum of 640 KB RAM and a floppy drive. The average records would be of the size of 1KB+Indexes. Depending on the number of records and size of indexes the-disk size may be computed.

For descriptions of serial publications,.downloading from ISDS Database is desirable.

For monographs LC-MARC and BNB is recommended. NISSAT has the necessary software to aidthe conversion process. For MARC records, the NISSAT facilities being created in various Metropolitan Library Networks may be utlisied in and the local libraries are not required to buy more records separately. In this context, it may be mentioned that NISSAT concept of India MARC Database should be rigorously purused. Further, NISSAT may give a thrust to training in retrospective conversion in its programme.

2.4. **Funding and Costing**: It is essential that the each library should fund themselves for its own resource sharing and OPAC. No additional will be given by NISSAT, NIC, ERNET, etc..The three software packages available for library automation are as given below:

- small libraries : Rs. 15,000/- for example SANJAY from NISSAT/DSIR
- big libraries : Rs 100,000/- for example LIBSYS and MAITRAYEE, NOVELL)
- CDS/ISIS will cost Rs. 1,500/- only.

The minimum hardware required for automation of small libraries (collection = Appro. 10 thousand documents) would cost about Rs. 1,00,000/-, for a medium size library it would cost approxizztely 1.5 lakh.

The cost per record for capturing data entry would be approximately = Rs.15/- (Excluding overhead charges). This includes re-catalouging upto database creation. For example, for a small libary retroconversion of ten thousand records would cost Rs. 1,50,000 = Rs. 10,000 X 15 .

2.5. **Interaction Management:** Interaction Management deals with creation of OPAC like bibliographic details, Compatible standards, data capturing & inputing, software used and overall Coordination required towards creation of OPAC.

2.6. **For Research and Development and Innovation:**

1. Research on User Access interface studies can be periodically taken up in relation to OPAC.

2. Access points for end user may be provided as additional facility.

3. There is scope for standardization in OPAC and development of Cataloguing in publication (CIP)/source.

2.7.LISComponent: Bibliographic standards developed through various standardisation agencies have to be tested and adopted in each library situation, in relation library collection and connectivity.

### 2 .8. Optimal Strategy of Transforming the Current Status:

The best strategy is to complete the retro-conversation job on a turn key basis.

### 2.9. Identification of the Growth Potential

If the retrospective conversion activities are now taken up in right earnest, a small size library will be able to convert its active collection within a period two years at the most. Big libraries have bigger problems of various dimensions most of which are non-technical in nature and therefore time frame can not be specified in such cases.

### 2.10. Modalities of Implementation:

As implied at para one and para two above. Where data creation is de-nova, implementation manuals like(CCf B/1 and UNIMARC) manual (India Implementation) developed by INFLIBNET may form the basis.

## 3. CREATION OF DATABASE OF UNION CATAOLGUE, BIBLIOGRAPHY, EXPERTS, PROJECTS AND MIS

### 3.1 Preamble

India has vast and rich information resources available in the libraries and information centres attached to the universities, colleges, R & D instituting etc. Also, national and public libraries posssess very large information resources. The appropriate database creation of these library/information sources is essential for optimum utilisation of information available in the country.

The bibliographical data itself is voluminous and is stored on manually prepared card. There is uniformity in the contents of catalogue cards. Major part of catalogue card may be in English. Catalogue entries in 14 official languaes and other Indian and foreign language are also common. Classification schemes, cataloguing code and Subject Heading Systems followed by the universities and R&D institutions are different. Efforts are being made by various organisations in the creation of Union Catalogue databases. However there is no uniformity in the standards adopted.

3.2 Type of Databases Required to be Created for Resource Sharing

Databases of common nature are to be created. These can be cateogrised as follows:

1) Union Catalogue Databases;

2) Directory Databases;

3) Bibliographic Database;

4) Numerical databases

5) Full text database

## 3.3. Database Development Scenario

Several efforts are being made in the country towards developing Unions Catalogue for various databases. Some of these are given below. The list is not exhaustive:

INSDOC has created a National Union Catalogue of Scientific serials in India (NUCSSI) Data Base.

NISSAT/DSIR centres have created bibliographical databases of specialised subjects

INFLIBNET programme has finalised the standards which are being followed by the libraries in the programme. It has already created the union catalogue databases of serials holdings, these/dissertations and books available with more that 60 universities/institutions including special libraries, R&D institutions.

Union catalogue preparation by some of the city networks such as DELNET and ADINET is in progress

DRDO has developed a Union Catalogue of holdings of its Defence Research and Development laboratories/centres.

Some of the Public Sector Undertakings such as IOL and SAIL have developed a Unon Catalogue of its units.

## 3.4. Union Catalogue Development

3.4.1 Requirements

- Standardisation of data elements for different type of databases to be created in machine readable form

- Design of input format for capturing current-data and retrospective data

-Development of various interface softwares for union catalogue databases. Creation ineluding format conversion, updation (both online and offline), searching and output (display or print) generation from a centralised union catalogue of records for different document types.

Trained manpower for database creation

3.4.2 Policy frame-work especially the resource sharing policy

Union Catalogue Development

- Adoption of uniform standards in the development of union catalogue
- Union catalogue Database already developed may be converted to standard format and Pooled for resource sharing

- Each Organisation inputting the Union Catalogue should concentreate efforts in its respective collections

- Distributed databases concept is propsed in view of large voulme of records

- Declaration of all the libraries/information centres funded directly or indirectly by central/state Govt. public resurces and committed for sharing excluding secret, classified, etc. holdings.

3.4.3 The library and information centre should:

- Commit to computerise its information resources and provide necessary infrastructure including manpower support for computerised operation of its branch/department Libraries etc.

- Commit its information resources/databases to be shared and accessed by other members of the network.

3.4.4 System Management

Union Catalogue databases created by different organisations in respective disciplines will be located at various nodes. Huge database in a discipline may be distributed over more than one node. Each organization will manage its own system. All the nodes will be inter linked. The total system may be managed by a co-ordination Committee supported by a Technical Advisory Group. The members for the committee and Group should be drawn form all participating organisatins including communication facility provider at appropriate levels.

3.4.5 Funding and Costing

Union Catalogue database activity involves processing of input data and merging them for union catalogue. This is a continuing activity and databases keeps on growing. The Union Catalogue may have voluminous database requiring large storage capacity. The machine holding the Union Catalogue may be used for providing services. Depending upon the size of Union Catalogue databases intitial investment is required for the procurement of Mini Computer or Pentium etc along with associated systems and tools. It is proposed that funding for initial investment and continuing activity of database creation should be provided by the respective Organisation. The cost estimate for intitial investment is given below :

| | Rs. In lakh |
|---|---|
| Computer system (Mini computer with necessary operating system and application software, large storge capacity for development of Union Catalogue PC/AT-486 few PC/AT-386 system, printer etc.) | 5.00 |
| Various interface software | 0.50 |
| Consumables | 0.50 |

| | |
|---|---|
| CD-ROM Drives | 0.09 |
| or | |
| (CD-NET System provides better throughput ) | |
| E-mail connectivity | 0.05 |

Database Creation involves (a) preparation/processing of data and (b) merging the data with Union Catalogue. The cost expected is Rs. 15/- per record, maximum.

### 3.5 **Interaction Management for Union Catalogue**

Each of the node will maintain a Directory. All participant libraries have nodes with information regrading the Union Catalogue of database available at various nodes in the total system. All the nodes are inter linked. The system software and the communication facilities will route the query to the desired node.

#### 3.5.1 Research, development and innovation

The areas are:

Information technology for database creation

Efficient reference tools to minimise efforts and time in database creation

Strategies to economise database creation

Development of software interface

Development of various tools to make information on the network easier to locate and use.

#### 3.5.2 LIS Components

- Standardisation in library and information practice
- Library Management Software
- Interface software packages
- Reference tools for authentication

3.5.3 Optimal strategy of information the current status to what is best to have ten years from now (taking not of projected global status)

Use of latest information technololgy and appropriate professionals to minimise efforts and time

Effective funding by the respective agencies to its Organisation for creation of Union catalogue

Co-operation between resource institutions and network system

HRD development by providing training facilities

Users education

Rationalisation of resources for Optional utilisation i.e collection development

Elimination of catalogue card system in phases in the libraries to save cost and efforts

Utilisation of available expertise in the country such as DRTC, INSDOC, NIC, NISSAT, and INFLIBNET.

3.5.4 Identification of growth potential between 1995-2005, which is responsive to future needs and technologies

(a) Status as in 1988 vide UGC report of the Inter Agency Working Group, December, 1988.

- Growth in the number of University libraries (38 libraries between 1988 and 1995)
- Growth Colleges (2000 colleges between 1988 and 1995)
- Number of records

129 university libraries - 25 million records

- periodical collection

Average growth of book - 4000-6000 records Per year in university Library with holdings Above 1 lakh

R&D institutes An average stock of 30,000 to 40,000 books as in 1988, with growth rate of 400-500 Volumes per year

- 28 R&D institutions periodical holdings is 77,241

(b) Expected Growth 1995-2005

As a conservative estimate the growth potential during 1995-2005 may be

University libraries : 6per year as an average

Colleges : 150 per year as an average

The expected growth is the records based on the data of 5 large libraries and 6 medium libraries is university libraries

(a) books : 5000 per year as an average

(b) journals : 500 per year

### 3.6 **Modalities of implementation**

3.6.1 it is practically impossible for a single Organisation to carry out the activities of database creation for such a huge volumes of activities. Database creation is continuous activity taking into consideration the following points

(a) Adopt unifrom standards for database creation

(b) Avoid duplication of efforts

The implementation mechanism based on respective sectors could be

- INFLIBNET Programme: academic, special and R&D libraries
- INSDOC : Scientific and Industrial libraries
- Database of institutions, experts and projects may also be divided among these organizations for the respective institutions.
- Major efforts are required for the creation of database in some of the following libraries and libraries where no infrastructure exists.
  - Libraries , Ministers and Developments of central and state Government
  - Public Libraries

Expertise is available in the country such as DRTC, INSDOC, DESIDOC, NIC, NISSAT, INFLIBNET and other organisations may be utilised in the database creation of various libraries

### 3.7 **Priorities in Database Creation**

Priorities for creation of resource sharing tools be developed for documents which are costly and relative spread of use in different libraries. The types of documents to be covered in the union catalogue are prioritised as

1. Serials includes learned periodical publications
2. Dissertations

3. Reports
4. Non-print material
5. Books

## CONCLUSION

Union catalogue of serials provides scope for networking and rationalisation of periodical holdings and to build balanced collection for networking . Therefore resource sharing facilitation is cognitively promoted by a well developed online public Access catalogue of serials for networking (union catalogue of serials).

## 4. DESIGN OF A LIS DATABASE MANAGEMENT INFORMATION SYSTEM (MIS)

### 4.1. Preamble

An information system is an arrangement of inter-dependent human and machine components that intereract to support the operational, managerial and decision - making information needs of any Organisation including Library/information centre. The function of an information system is to fulfill the information needs of its end users (The composition of this group needs to be elaborated); these could be interpreted as Data and information, Transaction processing, Management Reporting and Decision Support Systems. MIS in its original was conceived as a single large scale integrated system to support all levels of management. However, it soon developed into a Management Reporting System, as identification of all information needs was quite impossible.

Management information has increasingly become an important requirement in the efficient and effective running of library and information services, which can no longer afford to simply react to user demand. MIS in this sector is dual in nature: MIS for Administration Services, involving the physical stocking, storage and circulation of material and that of information services for dissemination of information.

Libraries and information centres have to operate within a budget and they all keep some statistical information/data on their loans, records of users, etc. How much effort is put into the recording of these, will depend on the time allotted, expertise available and the types and amount of information required.

Most of the computer based library management systems that are currently in use in Europe and North America are integrated packages which include modules for the various sub-systems, such as cataloguing, OPAC , acquisitions, circulations, serials control and inter-library lending, finance, preservation etc.

MIS Role in Library Management Includes:

Reviewing, monitoring and decision making in Management.

Control and planning which would cover factors related to cost effectiveness; job rationalization; cost efficiency. In terms of planning, its role is to identify and meet the goals and objectives

## 4. 2. **Policy Frame-work**

Primary objective of designing a national LIS is (i) to share resources; (ii) make it cost efficient, and (iii) improve an information services.

Under the present condition it would perhaps be better initially to establish ways of inter -linking individual systems dealing with various sub-systems, so that information from these can be viewed and analysed from open central terminal/workstation.

Ultimately it should be integrated so that various modules of sub-systems and their functions are all brought together.

## 4.3 System Management

4 3.1 Analysis of users

- their levels /categories/sectorial requirements;

4.3.2 Assessment of existing MIS data collection process and existing databases in each sectorial LIS (viz. academic, special, national);

4.3.3 Identification of gaps in existing information/databases;

4.3.4 Uniformity and formalization of the data collection process in each sector/category of LIS.

Amount of statistical information maintained by LIS will vary - depending upon size, the statistical data needed, how the LIS manager can handle the data. The three known statistical softwares: true statistical program, business statistics software and spreadsheets - could all be effective, depending upon the needs of the management. Spreadsheet in addition, can play a useful role in handling and administering LIS budget.

## 4.4 LIS Components

Since the early 1960s, when computers were first used to assist library procedures, the catalogue of a library has been the prime area for conversion to a computer-based system. The reasons for these are various: (i) to provide access to the complete and up-to-date catalogue from many service points; (ii) to provide more and improved access points and search capabilities; (iii) to produce union catalogues; (iv) to reduce the cost of producing and maintaining card catalogues; and (v) to deal with internal and external influences and pressure for change.

[However, this note on LIS - MIS will not deal with cataloguing as it will be separately taken up under DATABASE (3. 1) and (3.2)]

This chapter will look at management aspects relating to acquisition, circulation control, inter-library lending and serials controls of LIS. Under the present condition it would perhaps be better initially to establish ways of inter-linking individual systems dealing with various sub-systems, so that information from these can be viewed and analysed from open central terminal/workstation.

Ultimately it should be integrated so that various modules of sub-systems and their functions are all brought together.

4.4.1 Acquisition System

Purchasing material for a library collocation accounts for a large part of any library's budget and it involves in collection development and sound management of funds.

4.4. 1. 1 Computer based integrated acquisition system is yet to be a common practice in India due to various practical hurdles. However,this is very much in the minds of India LIS management. It is expected, that by 2001, Indian LIS will have computerised acquisition systems.

4.4.1.2 The basic functions of an acquisitions system are similar for most types of libraries. Standardised modular approach could be designed for adoption for Indian LIS.

4.4.1.3 Bibliographic record supply: For academic and research libraries - 1 Large number of bibliographic data records could be accessed direct from various international databases through some nodal centres. For Indian publications - ideally INB could have been automated and revived. Comprehensive coverage of Indian publications - situation is very depressing. No immediate solution [INB/LB's accession list/various publisher's catalogues, etc. - none is adequate]

4.4.1.4 Links with publishers and Book-sellers.

4.4.1.5 Annual number of titles published in India and abroad?

4.4.2 Circulation Control

In majority of the libraries in India circulation is based on manual systems and every library maintains only statistical data of their circulation system in some form or the other. This practice does not allow much detailed information of the loan and to whom it is loaned. One of the basic features of a computer based charging/circulation system is the recording of details about the items on loan.

Development of library management began with computer based systems oriented to one function only, circulation control.- Most LIS modular packages reach the usual goals of automated support for circulation control and Provide facilities to generate useful management information (statistics, loan status, or loan period, pattern of reservation, analysis of staff time, heavy and low used collection, pattern of borrowers, monitoring the usage of all categories of material.

4.4.3 Inter-library Loan

Most libraries maintain data on inter-library loans -borrowed/loaned. Due to several physical constraints and environmental factors, growth rate of ILL in India is limited.

Document supply system [photocopies of articles, etc.] is having considerable growth.

The main functions in an ILL module - under an automated LIS are:

- requesting
- transmission of requests
- request handling
- dealing with unstatisfied requests

- inquires

Several ILL management systems are available - as part of general library packages. In addition, there are a few stand-alone systems developed in UK.

4.4.4 Serial Control

Some believe that it is one of the most difficult library management operations to perform by computer because of unpredicatable nature of serials.

4.4.4.1 Special and academic libraries would be the predominant users of serials modules as in these libraries the amount of money and efforts spent on acquiring and controlling serials represent a sizable proportion of the library's budget.

4. 3.4.2 Majority of LIS are yet to use computer for their house-keeping operations.

4.4.4.3 MIS guidelines by NISSAT on serials control-development could be adopted as a standard for developing serials modules.

4.4.4.4 Basic requirements of a serials module may include;selection of titles for purchase (including usage analysis); generating purchase order (new/renewal); financial control' files of suppliers users rate of subscription; receiving the issues claiming missing issues -, current holdings; circulation of current holdings; binding; etc.

4.4.4.5 Serials subscription Agencies.

4.4.5 Preservation and Maintenance of Information Resources

4.4.5.1 Binding of serials - local/regional/ national

4.4.5.2 Cooperative effort in reformatting for preservation of monographs and serials published in India and on India - national approach.

4.4.5.3 Manuscript preservation.

## 4.5. Recommendations

4.5.1(The process of introducing MIS in LIS be done in a phased manner) starting form individual large libraries in various sectors/specialisations to regional/prime centres to a central coordinating node, (in a time bound schedule.)

4.5.2 Standard package be developed for implementation preferably by Government agency with specifications/parameters drawn up by Library Information Specialists.

4.5.3 MIS central body with mandatory powers and regional/sectorial implementing nodes to be set up.

4.5.4 Training of Library/Information specialists and end users.

4.5.5 Identify end users needs and helpfulness user friends End-User satisfaction

## 5. STANDARDIZATION FOR RESOURCE SHARING DATABASE

### 5. 1. Policy Frame

It is helpful and essential to adopt standards for bibliographic information, project description and institutional information which are shareable for access to information resources available within the country.

Such resource sharing facility can have inter compatible standard with comprehensive details.

Inter compatibility facilities among resource sharing databases as communication formats are developed to facilitate network relations.

### 5.2 System Management

Standardisation is not static and one time process. It is subject to change happening at end-user needs and mode of access to information resources, variation in information source generation, presentation, storage and usage,variation in information technologies that can provide physical and remote access to database. Standards of bibliographic description, project description and institutional description vary from time to time. Networking technology standards and the document description standards are to be managed to provide reliable relevant and rapid access to information to end users.

In system management, the adaptable standards used for developing resource sharing facilitation database (RDFD) is in addition to create specialised database for Networking purposes.

The international standards such as ISO-2709, MARC and CCF facilities may be used for developing data capturing techniques.

The sector-wise approach adopted by NISSAT, the region-wise approach promoted by NISSAT and other agencies, the institution- wise approach promoted by INSDOC, DESIDOC and INFLIBNET can be gathered for further application. There is need to have standardisation among these sectors. Institutional standards, regional standards, National standards and international standards have to be examined for compatibility in adoption.

### 5.3 Funding and Costing

Standardisation needs continuous consultation, revision and regularisation.

While funding for standards should be shared by all the participants for resource sharing databases, it is reasonable to bring in all national bodies in forming the resource sharing standard for effective formulation and implementation. The institution such as NISSAT, INSDOC, DESIDOC, DRTC, BSI and NIC have work together the effective standardisation in RSFD.

Standards should be supported by national organisations.

### 5.4 Interaction Management

The governing bodies should have annual meeting for exchanging standards data and discuss problems in the implementation. Besides, these network combination such as CALIBNET, DELNET, MALIBNET, BONET, BALNET should meet to provide

practical problems and solution interfacing. These should newsletter and other to provicommunication media on resource sharing facility databases (RSFD).

### 5.5 Research and Development

The factors affecting standards for RSFD are many. The primary changes are in the rapid changes in information and communication technologies, the rapid social and economic changes happening in national developments, the end-user needs, behaviors, expectations in formation resources, access and usage, the ability of information, storage and retrieval systems, the ability of information professionals to handle these factors, emergence of new information institutions. information economics in general call for modification of earlier standards and emergence of new standards. R & D policy and management programmes for RSFD should be promoted with different Organizations to promote research and information for standards in the subject.

### 5.6 LIS Component

Standardisation of elements and systems for resource sharing facilitator databases involves research in information seeking behaviours, information resources packaging, modes of communication, method of sharing, citing retrieval and display of information. The variation and moderation due to diversity in customer needs call for development of methodologies in library and information science and services. The library associations, departments of library and information science, INSDOC and DRTC and the libraries namely public, academic, research and special libraries have to work together to provide compatible standards for modular and integrated access to information resource as a whole.

### 5.7 Optimal Strategy

The strategy of voluntary cooperation with monetary incentive and provision of inter compatibility standard adopted so far provides good scope for implemented strategy for resource sharing in LIS. But the pace has to be accelerated to utilise network systems available in India. For these purpose:

The data communication standards may be widely disseminated

Adaptation of data communication such as E-mail may be pro-promoted in library, having adopted Library automation

Voice and other multimedia facilities should be made a public access communication with a reasonable cost- recovery plan

Library and information professionals should be made familiar with network technology standards costs, and management

Institutions should provide telecommunication access through a mandatory process at the base-level to libraries.

Identification of growth potential from 1995, fast adaptation to standards for network and bibliographicand other description standards is to be promoted.

Edúcation on a continuing bases should be given to promote for standardization in information sector.

Expertise and financial provision for developing, adapting and assessing the standard (RSFD) is to be encouraged.

5.8 Modalities of Implementation

1 Standards for special bibliographic databases are to be promoted

2. Exchange formats should be developed for this purpose

3. Incentive to standards adoption should be given by network promoters for resource sharing.

4. Standards for resource-sharing system.

5.9 ISO Standards for Information Handling

ISO 2709-1973 Format for bibliographic information interchange.

ISO 2711-1973 Information processing interchange : Representation of ordinal dates.

ISO 2788-1974 Guidelines for the establishment and development of monolingual thesauri. 13p.

ISO 2789-1974 International library statistics. 4p.

ISO 2955-1974 Information processing: Representation of SI and other units for use in systems with limited character sets. 4p.

ISO 3275-1974 Information processing: Implementation of the 7-bit code character set and its 7-bit and extensions on 3, 81 mm magnetic tape cassette for data interchange. lp.

ISO 3297-1975 International standard serials numbering (ISSN). 4p.

ISO 3307-1975 Information interchange : Representations of time of the day. 2p.

ISO 3388-1977 Patent documents: Bibliographic references : Essential and complementary elements. 8p.

ISO 3407-1976 Information processing : 3,81 mm (0,150 in) magnetic tape cassette for infori-nation interchanging, 32bpmm (800bpi),phase encoded. 23p.

ISO 3413-1976 Information processing : Recorded magnetic tapes for interchange instrumentation applications : Standard tapes speeds tape speeds and track configurations. 44p.

ISO 3461-1976 Graphic symbols : General principles for presentation. 7p.

ISO 3534 -1977 Statistics : Vocabulary and symbols. 44 p.

ISO 3561-1976 information processing : Interchangeable magnetic six-disk pack : Track format. Wp.

ISO 3562-1976 Information processing : Interchangeable magnetic single disk cartridge (top loaded) : Physical and magnetic characteristics. 24p.

ISO 4337-1977 INformation processing : Interchangeable magnetic twelve-disks pack (100 Mbytes). 40p.

ISO/DIS 5127/1-1977 Information and Documentation : Vocabulary.Section 1. Basic concepts. V, 42p.

ISO/DIS 5127/2 78 Information and documentation : Vocabulary. Chapter 2. Documents.

ISO/DIS 5127/3-1977 Information and documentation : Vocabulary. Section 3. Identification, acquisition, processing of documents and data. 73p.

ISO/DP 5954-1978 Guidelines for the establishment and development of multilingual thesauri.

ISO/DP5965 International standard record number (ISRN).

ISO/DP 66156 Magnetic tape exchange format terminological/lexicographical records (MNTER).

## 6. QUALITY ASSURANCE IN LIBRARIES

Libraries have been the repository on information sources and services. They care for making these accessible to potential users. They want to see that the content analysis of the documents possessed by the library material could be easily seen by the user. We need to provide the content analysis of the document possessed by the library on a relevant means. This is the quality assurance we expect to get from librarianship. It attempts to provide qualitative access to contents of the documents available in any libraries and information center. It creates facilities such as the following

1. To develop an inventory of all the documents that get into a library.
2. To develop a database which includes records for all types of material held in a library
3. To facilitate through a variety of tools that can provide access to universal publications-a world wide library
4. To create surrogates of documents contents for browsing, chaining, focussing, selecting, absorbing, and assimilation of information by end user
5. To provide a variety of access tools in improving relevance to the expressed information needs to available resources.
6. To evaluate periodically the information retrieval process and access facilities towards their efficiency and helpfullness to ultimate user
7. To help current and improve the skills of end users to profitable interact with information systems and services.
8. To integrate and network all the library resources into serviceable resources to users. It helps maximal utilisation of library serveces.

Performance measures are to indicate the quality of these services. Some of these quality measures could be

a) Time taken to respond to the question

b) predictability of access to information presentation to information through mediated services

c) correlation network to information presentation to information services

Quality assurance can be improved through library automation. It is phenomenon through which computer based information processing is used in day to day operation of library systems and services. A library works like a service industry. Library automation , Particularly micro computer operation releases of library professional to the human aspects of librarianship

Current rubicon of a library automation system is an Online Public Access Catalouge. It is designed to do the following

1. To provide access to literature available in the library

2. To provide multi point and multi person access

3. To tell about what books have been lent and what are in the stock of the library

One of the important aspects of the OPAC is to have public access spread out to work stations of scholars, researchers, teachers, managers, decision makers and others. Access terminal can be located adjacent to stack and office to dormitories and homes even. printer can be provided to enable the users to make hard copies of their search results.

Some of the strategies for quality assurance in library service are to

1. Create a matrix organisal structure for information service

2. Tap creative talents on the job from infomation professional

3. Always keep the achivements of people alive through recognition and appreciation

4. Encourage quality-consciousness in every endeavour of the profession

5. Keep the services tuned to socioeconomic d3namic of growth of nations and the world.

## CONCLUSION

Library and Information network databases help resource sharing among the participant libraries. They work with the principle of small units with homogeneous networking facilities.

**ANNEXURE-VI**

# REPORT

# OF

# THE HUMAN RESOURCE DEVELOPMENT SUB-TASK GROUP

# FOR

# SHARING OF LIBRARY AND INFORMATION RESOURCES

## Sub-Task Group

| | | |
|---|---|---|
| Dr. Y.K. Sharma, | NIC, Delhi | Convenor |
| Dr. I.K. Ravichandra Rao | ISI, Bangalore | Member |
| Mr. V.K. Gupta, | INSDOC, Delhi | Member |
| Dr. Parimal Mandke, | NIIT, Delhi | Member |
| Mr. M. Paul Pandian, | INFLIBNET, Ahmedabad | Member |

## I. INTRODUCTION

The rapid developments in the area of Information Technology (IT) represented chiefly by the Computer and Communication Technologies have resulted in the emergence of a new concept, called Information Society. In the last three decades, the IT Industry has emerged from a virtual non-existence to become the most dominant factor in socio-economic development all over the world. At the heart of evolution of the Information Society is the need to organise, disseminate and share information in various sectors. The major resource for this task exists in the form of large number of libraries providing valuable information in terms of books, journals, periodicals and other reference and text material. The amount of information available in libraries in India is fairly large. However, information regarding such resources in the libraries in India is very scarces which results in non-availability of information to the users inspite of the fact that the required information may be available in some libraries within the country itself. In many cases, this situation results in avoidable expenditure in the form of acquisition of such resources at multiple libraries.

Information Technology (IT) provides vast opportunities for Librarians and Information Scientists to integrate scattered resources in the libraries across the country in such a manner as to make information available to perspective users in-time and in a convenient way. This will also facilitate widening the scope of activities of librarians and information scientists to increase their significance within the organisation itself. The success of application of IT in the field of Library and Information Services, however, depends largely on developing skilled human resources. The libarary and information personnel need to be equipped with adequate skills to handle modern systems of organising Library Information. They should also have sufficient skilled in relation to conversion of manual records into computerised information, on-line access to databases, electronic mail etc. It is true that at present we do not have adequate facilities in various institutions in India to develop this essential base of skilled manpower in the field of Library and Information Sciences and Services. However, sufficient capabilities exist within the country separately in the areas of Library and Information Sciences on one hand and IT on the other hand. We need to bring specialists in these areas together to build an HRD base to provide State-of-the-Art Library and Information Services in India.

In this report an attempt has been made to discuss:

(a) Overview of present scenario - Education on Computerised Library and Information handling including the availability of infrastructural facilities to train the manpower at different levels in various library schools.

(b) A proposal for manpower development programme including policy issues in the area of Library and Information Sciences and Services.

## II. OBJECTIVES

The objectives of the Human Resource Development Sub-Task Group are as follows:

(a) To create an adequate HRD base in the country to implement library modernisation programme and create user awareness and capability to use this facility.

(b) To support academic institutions to introduce programmes to train manpower in this area at all levels with a minimum knowledge of computerisation activities to design, develop and operate computerised Library Information Systems in network environment,

(c) To impart advance knowledge of computerisation activities wherever considered necessary.

(d) To provide mass education to the information users using appropriate computer communication technology.

(e) To develop a sustainable system to constantly monitor and keep pace with new advancements and needs.

## III. PRESENT SCENARIO

In India, there are about 7500 colleges in about 210 Universities enrolling around 4 million students for graduate , post-graduate and research degrees and 300,000 teaching and research faculty. Each one of these colleges/ universities have small to medium to large libraries supporting their educational and research system. In addition, there are around 800 to 1000 specialised information centres / libraries, attached to R&D institutions and other industrial undertakings. Vast information resourcces are also available in public libraries, libraries promoted by other international agencies such as British Council, USIS, etc. In these libraries, we have information assets worth atleast Rs.2,000 crores and they add information assets worth atleast Rs.100 crores every year. However, access to these information resources is mostly limited to the users of the concerned organisation. As a result, not only there is large amount of duplication of the similar information in many libraries, but also most of the time information required by the user is not accessable to him inspite of the fact that it may be available in many libraries in the country. The major reasons for such a situation are as follows:

1. There is no coordinated efforted in the country to share information regarding various resources available in the libraries across the country,

2. The application of Information Technology in the field of libraries has been very small, and

3. The modernisation of library education itself in terms of introducing modern technological tools to Library Information Centres has been moving at a very slow pace. The efforts made by some leading institutions in the country such as DRTC, INSDOC, NCSI, ILA and Library Science Departments of Universities through short term courses, referesher courses, workshops and seminars have been highly inadequate to cope up with the requirements of developing skilled manpower in this area.

The development in the field of Information Technology in India over the last one decade have opened up new areas of opportunities to initiate coordinated efforts to link library resources across the country in a single information resource at the same time retaining the decentralised nature of these resources. Networking of libraries as a part of developing network of all academic institutions in the country is an important requirement to share this vast amount of information resource available in the libraries across the country. The process of networking, however, is not limited to the establishment of a physical network but also requires automation within the libraries atleast with respect to index of literature available in these libraries so that this information could be available to users across the country through network. Once user is able to locate the reference material in a particular library, the same may be made

available to him in various forms either through conventional form of exchanging documents or through computer network depending on the information available in a particular library from where the document is to be shared. It may, however, be noted that the task of developing library network for linking such a large number of libraries in the country is a very huge job. One of the essential requirements for such a programme to take up in a meaningful manner besides financial resources available for procurement of hardware and software and establishment of network is development of human resources in the library system who would bring the information atleast with respect to indexing of journals, books etc in the respective library on the network. The staff in these libraries should also be fully trainned to provide services to the user community by navigating and searching information over the network.

Realising the importance of development of skilled manpower in this area, the CONPOLIS Committee headed by Professor D.P.Chattopadhyaya in 1985-86 had suggested the following guidelines for Library and Information System Education :

- In view of the rapidly expanding library and information services and the fast changing character of library and information science, the development of manpower in a planned manner becomes essential. The Indian librarian and infomration scientist in particular will face the difficult task of carrying the literacy drive on the one hand and dealing with the technological revolution on the other.

- The library and information science courses run by the universities and comparable institutions at the post graduate level should continue to maintain the high standards that have been reached and impove their quality, in particular by the incorporation of advanced information technology.

- Para-professional training courses may be undertaken by other appropriate agencies, but care must be taken to ensure uniformity and quality of such training all over the country.

- In view of the challenging and dynamic situation in the profession, the Indian library and information professional must be given every facility to refresh his / her expertise, so as to keep abreast of advancing knowledge by a planned development of continuing education programmes in the field.

- Considering the fact that library and information science courses tend to proliferate, introducing on occasions a dilution of standards, there should be an accredition agency to ensure the standard and the quality of the training imparted.

- The national need of furthering higher education and research in library and information science may be undertaken by a National Centre to be established for the purpose.

- Library and Information Science Professionals should be given the status and pay scales as well as academic facilities commensurate with their responsibilities with due regard to the fact that every library is an academic/ research centre and has to function as such.

- The Government of India should recognize the need for the creation of an All India Library Service and implement the plan when feasible. The creation of such a service will strengthen the national network of library and information system.

In recent years, there were several programmes to train such manpower and most of these programmes were conducted with an objective to impart the knowledge in the area of computer applications. However, one of the major handicap in these programmes has been the fact that the people who have undergone such programmes hardly had opportunities to implement the know-how acquired by them in these training programmes. Some of the reasons for this are as follows:

- Lack of availability of computer system in their respective organisations.
- Adequate priority not being given by the concerned organisation in automation of library system.
- Lack of any institutional arrangement to provide support to the efforts of new libraries to automate their systems on a constant basis.

It is also noticed that the number of institutions who organise training programmes in this area have themselves not automated their libraries. They also do not have sufficient computing facilities to offer courses in this area. As a result, the courses do not motivate the participants sufficiently enough to undertake similar exercise in their respective organisations. Coupled with this, lack of priority within the organisation to automate the libraries results in the status quo to continue in most of the places.

## IV. METHODOLOGY

The training of manpower to implement library modernisation programme should be undertaken at two levels (see Diagram 1).

(i) In-service training of the existing staff of the libraries, and

(ii) Academic Programmes those seeking careers in libraries.

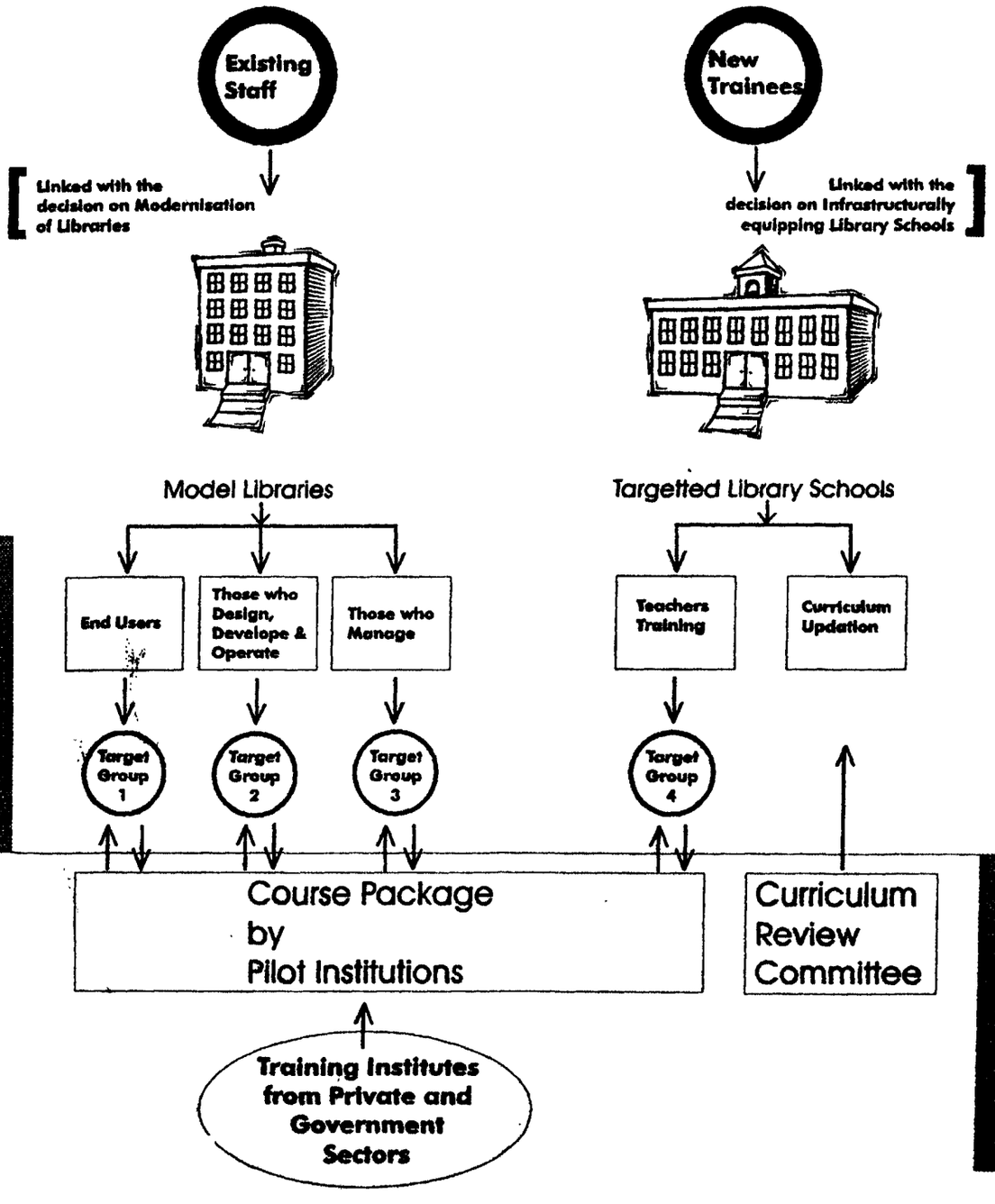
In recent years, several programmes were conducted by agencies like INFLIBNET, University libraries, etc. with an objective of imparting the knowledge in the area of computer applications. However, the experience showed that those who underwent such programmes, hardly had opportunities to implement the systems for the want of hardware and software. It is, therefore, suggested that the manpower training be integrated with the overall plan for modernisation of libraries.

In specific terms, it is proposed that target institutions may be identified under categories ( i) and (ii) above. Target institutions under category (i) will be the libraries which are proposed to be developed as 'model libraries'. A model library will have the minimum hardware and software to operate computerised information storage and retrieval system in network environment and automated systems for various library functioning. The staff of these proposed 'model libraries' should be institutionally sponsored for the training programmes. The training of this staff may be done by training institutions under the private and government sectors which have a capability to conduct training on the latest application of IT to library and information services. A few institutions may be selected as 'pilot institutions' to deliver the training for targetted population on a time-bound basis. In this way, demand and supply ends can be neatly tied with proper accountability on both sides.

Target institutions under category (ii) are from those which are offering curricula in library and information services for the fresh graduates (library school). There are two tasks involved here:

# METHODOLOGY FOR TRAINING OF LIBRARY MANPOWER

**To remove the deficiency** < OBJECTIVES > **To prevent the deficiency**



(i) Curriculum upgradation to include the computer applications in library and information services, and

(ii) Training the teachers of the library schools to teach new curriculum. Pilot institutions should cater to the later task. The former task may be parallely undertaken by a separate committee.

At present, a very few library schools have some computing facilities to offer courses on computer applications. It is, therefore, imperative that the choice of library schools would be linked with the decision on equipping them with necessary infrastructure.

It is suggested that 25 model libraries across the country and 20 library schools may be targetted in the first phase.

## V. TARGET GROUPS

Target groups will be delivered by target institutions. The training requirement is visualised in terms of three phases as given in the matrix below:

| Target Groups (Four categories) | P H A S E S (3-phases) Phase I within 1 yr. | Phase II next 2 yrs | Phase III next 2 yrs |
|---|---|---|---|
| Those who are entrusted with the responsibility of spearheading and managing library modernisation programme (Group 1) | Restricted to Model Libraries | Expanded number | Cover all Universities and special libraries |
| Those who are involved in design, development and operations of the computerised information systems (Group 2) | Restricted to Model Libraries | Expanded number | Cover all universities and special libraries |
| Teachers of the library schools (Group 3) | Restricted to targetted Library schools | Expanded number | Cover all library schools |
| End-users Teaching staff, students and research scholars (Group 4) | Restricted to Model Libraries | Expanded number | Cover all university and special libraries |

## VI. PROPOSED PLAN

As mentioned under sections IV and V above , the HRD plan suggested in this report is integrated with the overall plan for modernisation of library and information services. The two important links are:

(i) Identification of libraries from the existing ones, proposed to be developed into model libraries.

(ii) Identification of library schools proposed to be augmented with requisite infrastructure.

One year intensive programmes on computerisation of library activities and several short-term courses are prposed to meet the needs of four target groups. Details proposed are as follows :

**Group-1** :

Those who are entrused with the responsibility of spearheading library modernisation may be trained to manage the computersied library systems more effectively and efficiently. They may have a broad exposure to the technologies involved and various possibilities offered by these technologies.

The course content must cover managerial aspects of automation - planning of automation, managing networks, cost effectiveness and cost benefit, personnel management in the context of automation, knowledge of appropriate software and hardware for library applications.

The course duration my be one or two weeks.

**Group-2** :

Those who are involved m design, development and operations of computerised information systems require a longer duration training. One year programme is proposed for this group. The objective is to impart the skill and knowledge to design, implement and operate automated systems and also to give training on well-proven and tested, internationally known library software packages. The programme will consist of two semesters. The course content in the first semester will cover several aspects of automation, including programming - planning of automation, networks, design and development of databases, use and implementation of library software packages, including their evaluation. The second semester will be entirely devoted to hands-on experience on computerising the library in which the candidate is already working.

It is proposed that the course content of the first semester may also be offered through distance learning mode.

**Group-3** :

The objective is to impart the skill and knowledge to design and development of automated systems; and to give training on well-proven and tested library software packages.

The course contents must cover detailed aspects of automation, including programming-planning of automation, networks, design and development of databases, use and implementation of library software packages, including their evaluation etc.

Course duration may be six to eight weeks.

**Group-4 :**

A few courses (called "Orientation Courses) may be conducted for end-users in order to disseminate information on how to use the networks ( both at the local and international levels). These courses, may be conducted at the libraries where automated systems are implemented. The duration of such courses may be a day or two.

## VII. RECOMMENDATIONS

1. Human Resource Development should form a prominent component of the National Library Policy which needs to be formulated by the Government.

2. In-Service Training of Library Staff should be an integral part of Library Automation Programme.

3. The people who are trained should be allocated appropriate task of computerisation and networking in order to meet the objective of the training courses.

4. In order to attract talented people and promote computerisation, considerations may be given for granting some incentives to the trained persons in the form of additional increment for consideration for promotion.

5. A few model libraries need to be immediately developed in different regions of the country to motivate other libraries in the respective regions to take such exercise. An institutional framework need to be worked under which the libraries desirous of introducing automation should be provided necessary technical support on a regular basis instead of short term referesher courses. For this purpose the model libraries could act as consulting organisations.

6. Mass education programmes should be planned for the staff of libraries as well as users in the use of modern technology in this area.

7. Computer based tools should be developed and disseminated in large numbers to facilitate self-learning by the staff and users in the use of modern tools.

8. The progress of computerisation and networking in the libraries should be regularly monitored and some form of incentives must be evolved to encourage the libraries who have been able to introduce automation.