NETAJI SUBHAS OPEN UNIVERSITY

STUDY MATERIAL

MLIS

Papers - 04 & 05 (Eng.)

- Information Institutions, Products and Services
- Management of Library and Information Centres

Library and Information Science

PREFACE

In the curricular structure introduced by this University for students of Post-Graduate degree programme, the opportunity to pursue Post-Graduate course in any Subject introduced by this University is equally available to all learners. Instead of being guided by any presumption about ability level, it would perhaps stand to reason if receptivity of a learner is judged in the course of the learning process. That would be entirely in keeping with the objectives of open education which does not believe in artificial differentiation.

Keeping this in view, study materials of the Post-Graduate level in different subjects are being prepared on the basis of a well laid-out syllabus. The course structure combines the best elements in the approved syllabi of Central and State Universities in respective subjects. It has been so designed as to be upgradable with the addition of new information as well as results of fresh thinking and analysis.

The accepted methodology of distance education has been followed in the preparation of these study materials. Cooperation in every form of experienced scholars is indispensable for a work of this kind. We, therefore, owe an enormous debt of gratitude to everyone whose tireless efforts went into the writing, editing and devising of a proper lay-out of the materials. Practically speaking, their role amounts to an involvement in 'invisible teaching'. For, whoever makes use of these study materials would virtually derive the benefit of learning under their collective care without each being seen by the other.

The more a learner would seriously pursue these study materials, the easier it will be for him or her to reach out to larger horizons of a subject. Care has also been taken to make the language lucid and presentation attractive so that they may be rated as quality self-learning materials. If anything remains still obscure or difficult to follow, arrangements are there to come to terms with them through the counselling sessions regularly available at the network of study centres set up by the University.

Needless to add, a great deal of these efforts is still experimental—in fact, pioneering in certain areas. Naturally, there is every possibility of some lapse or deficiency here and there. However, these do admit of rectification and further improvement in due course. On the whole, therefore, these study materials are expected to evoke wider appreciation the more they receive serious attention of all concerned.

Professor (Dr.) Subha Sankar Sarkar
Vice-Chancellor

Post-Graduate : Library and Information Science [MLIS]

MLIS : 04 & 05

Paper -IV
Information Institutions, Products and Services
Modules 1 - 4

Course Writing

Prof. Bhubaneswar Chakrabarti
Dr. Swapan Banerjee
(Units 6, 7, 8)

Editing

Prof. Piyush Kanti Mahapatra

Paper - V
Management of Library and Information Centres
Modules 1 - 4

Course Writing

Prof. Piyush Kanti Mahapatra

Editing

Prof. Dipak Kumar Barua

Notification

Mohan Kumar Chattopadhyay
Registrar

Netaji Subhas Open University

MLIS - 04 & 05
Information Institutions,
Products and Services &
Management of Library and
Information Centres

Paper – 4

Module : I
Information Institutions

Module : II
Information Services

Module : III
Information Products

Module : IV
Database Support Services

Paper - 5

Management of Library and Information Centres

Module : I

Module : II

Module : III

Module : IV

Paper – 5

Management of Library and Information Centres

Module : I

Module : II

Module : III

Module : IV

UNIT 1 □ INFORMATION INSTITUTIONS: GROWTH AND DEVELOPMENT

Structure

1.0 OBJECTIVES

Modern libraries are information centres above all. Since the industrial revolution the nature and scope of library services have been profusely changed and extended the growth of information centres and libraries in special subject fields. Whether one calls this change revolutionary or evolutionary hardly matters; what counts is the degree to which such change will affect the library's role as an institution in society. This unit presents you the nature of information institutions and depict their growth pattern. This unit will enable you to identify the different types of information institutions and their specific role in the dissemination of information to individuals, groups as well as institutions who might require information in different forms and formats. You will also have a scenario of the future in the changing context of information.

1.1 INTRODUCTION

It is an accepted biological fact that a growing organism alone will survive. Ranganathan's Fifth Law of Library Science—Library is a growing 'organism'

implies a system concept, 'growing' connotes a living system ever capable of forming new components with an automatic and self-adapting mechanism in a continuously changing environment and the 'Library' can be interpreted as part of the whole, or whole for the part. Indeed the statement envisions a dynamic institutional structure capable of meeting the challenges of modern information demands, caused by a self-propelling, multidimensional growth of information and knowledge. Interestingly, Ranganathan stresses on institutional infrastructure for information as later writers emphasise and confirm. Peter Drucker, for instance, acclaims "during the last fifty years, society in every developed country has become a society of institutions. Every major task, whether economic performance or health care, education or protection of environment, pursuit of new knowledge or defence, is today being entrusted to big organisations, designed for purpetuity and managed by their own managements. On the performance of these institutions, the performance of modern society—if not survival of each individual—increasingly depends". These two views imply the role of institutions in modern society. The role is of great significance as the modern society has entered the information age. here the majority of people are engaged in creating, gathering, storage, processing or distribution of information. Thus the modern society has become a society of institutions, entering into the information age. Institutions building assumes special importance and building has, in fact been receiving attention as a subject of study and research in its own right. With this major promise this unit attempts to :

(a) describe minutely the growth pattern of institutions for knowledge and information;

(b) sketch in some detail the present situation;

(c) draw attention on the planned institution building with special reference to third world countries;

(d) present a scenario of the future in the changing context of information.

1.2   KNOWLEDGE AND INFORMATION

There is difficulty in defining information. Information theory gives us some useful insights into the effects of information; one of the most useful of these is the concept of uncertainty. Uncertainty is almost a source of stress and every little reduction of this uncertainty is always preferable. If you have ever been at a social function of any kind you will note how the occasion starts with maximum uncertainty; the attends are unsure of what to say to each other then as they exchange information the uncertainty and tension gradually relax. At times it is difficult to differentiate knowledge from information. In general usage there would seem to be an ascending staircase from the elementary percept to an observed fact to its expression in a proposition giving information on the observed state of affairs. The observed fact

of the cat sitting on the mat becomes information when it becomes communicable to others. Yet, facts on their own do not constitute knowledge. To pursue our trivial example for the moment, a hypothesis about the biological necessity of the sedentary behaviour of cats on mats would brug the observed fact into a set of relationships with other like instances. This would make our singular observation more significant and perhaps contribute to the available sum of knowledge on cat like behaviour. In this way we think of knowledge as theoretical and more generalised and information as potential knowledge.

Daniel Bell observes, "Information is news, facts statistics, reports, legislation, tax-codes, judicial decisions, resolutions and the like and it is quite obvious that we have had 'explosion' of these not only with the multiplication of organisation but because all countries and the diverse world politics and the world-wide economy now come under our daily scrutiny in newspapers and television and in the pages of specialised magazines. Knowledge is interpretation in context, exegesis, relatedness and conceptualization, the forms of argument. The results of knowledge are theories; the effort to establish relevant relationship or connections between facts, data, and other information in some coherent form and to explain the reasons for these generalisations". Institutions have been established to cope with both knowledge and information. A variety of institutions have sprung up. The development process needs the use and application of them.

1.3 ACTIVITIES OF INFORMATION INSTITUTIONS

The process of transfer of information/knowledge is usually seen as a chain of activities, the links being generator, editor, publisher of primary publications, indexing and abstracting, journal producers, libraries, documentation and information centres, on-line services, information companies and the end user. Institutions performing these activities may be broadly grouped into three categories as follows:

(a) Knowledge creating institutions, for example, research laboratories, R & D institutions, institutions of higher education and research attached to universities, etc;

(b) Knowledge/Information processing and disseminating institutions for example, journal and book publishers, statistical data organisations, S & T data centres and the like; and

(c) Institutions that collect, store, process, disseminate and service knowledge/ information recorded in various forms.

It may be noted that over the years, there has been an increasing interaction and cooperation between all these institutions. With the application of fast

developing technology to information generation, processing, dissemination, distribution and use, many of these functions are getting blended, blurring the link elements of the information chain. At present, however, the different types of institutions mentioned above operate with their distinct identity. Here we are concerned with the second and third groups of institutions.

1.4 PATTERN OF GROWTH

Studies on Information institutions growth are scanty. A thorough and useful study has been done by Vincent Giuliano for the consulting firm Arthur D. Little. Giving an historical perspective of the information transfer pattern and the institutional framework, the study discusses three basic modes of information transfer, each corresponding to a different value system. The three modes are as follows :

(i) Disciplinary Information Transfer corresponding to the value of pure science, academic and basic research—called Era I

(ii) Mission Information Transfer corresponding to the value system of government sponsored missions (like AEC, NASA in the 1960s)—called Era II, and

(iii) Problem-Oriented Information Transfer corresponding to the value system of solving societal problem—called Era III

The principal characteristics and features of the three Eras are given below :

Era I: Disciplinary Information Transfer

The basic ethic associated with this Era-I is knowledge for knowledge. The institutions came into being primarily to support education, research and development. Information is generally disseminated through journals, monographs, seminars and meetings usually associated with academic and research institutions, learned societies, professional bodies and the like. Access to primary information is through indexing, abstracting and bibliographical publications. Institutions that facilitate access to documents are largely the academic and other institutional libraries. The user communities are the students, scholars, academicians research workers and others. Financial support to the system is through internal budgetary provisions, grants and government subsidies. These services are free. This traditional system has been continuing for a long time, notwithstanding the strains and stresses now being encountered by the different components of the system such as libraries and journal publishing.

Era II: Mission-Oriented Information Transfer

The basic ethic behind the development of Era II is to *organise to do a job*. The mission-oriented information systems were developed during the 1950s and

through mid 1960s to provide support to agencies like NASA. Here the information transfer process is characterised by a need for coordinating and using knowledge simultaneously from variety of disciplines, as in the case of NASA mission where inputs of information from electronics, biology, medicine, aeronautics, chemistry, physics, etc. are required. Information is disseminated through primary publications like technical reports, besides journals and other traditional publications. Secondary services that provide access to primary information function are through varying degree of interpretative and abstracting tools. The technical information centres that offer these services, being part of the mission agencies, mostly governmental establishments, get their budgetary appropriations. The user communities consist of scientists, engineers and technologies and managers. The feed-back mechanism for controlling the system and using it to determine the needs for information or research are more or less similar to those of Era I, but the flow of information between the two systems has been unequal. While the mission-oriented system drawn heavily from discipline-oriented information system only limited reverse flow is provided through primary journals and some technical reports.

During this period, newsletters and trade journals, increasing in importance, have been reflecting that some of STI systems have a major economic value and that market-oriented information transfer mechanism has gained significance.

Era-III: Problem-Oriented Information Transfer

The basic ethic that paved the way for establishment of information organisations in Era III is solving 'societal problems'. Problem-oriented information systems have begun to emerge from the late sixties with growing thrust in the seventies. Systems that have emerged during this period represent a context in which information is utilised for societal problem-solving such as economic well-being, environmental protection, agricultural productivity, energy availability use, public health care/ safety, and disaster prevention/control. The type and structure of systems that can handle Era III information, providing new products and services, have not yet been properly established, institutionalised or legitimised, but some possibilities are in the offing.

Users of the problem-oriented systems involve a variety of groups-elected officials and their staffs, bureaucrats and civil servants, businessman and industrialists, legal professionals and judiciary, scientists, engineers, technologists, consultants, media people and the general public.

Information brokers, consultants and intermediaries are the new types of institutions emerging to offer the specialised quality of service. Repackaged information, collected from a variety of sources with validated and authentic data, is the type of specific information service expected. STI infrastructure is historically

de-signed for meeting the information needs of scientists and technologists. Expanding the context of information usage to societal problem-solving brings in new problems of interpreting technical results to enable non-technical users to take responsible decisions.

Obviously, this type of information is available only at a price. Information industry, a private enterprise and highly market-oriented and taking risks to attend to the needs of consumers, has emerged.

Individual-Oriented or Customised Information Service

Toni Carbo Bearman, Executive Director of US National Commission on Libraries and Information Science is of the opinion that an Era IV Information Transfer is emerging, in which repackaging of products and services is being designed to meet the needs of individuals whether at home or in business and industry. Delivery of information to home-bound citizens and the packaging of information for the scientists in industry are just two examples of these services. Fee-based information services began to emerge. The most striking and significant development of information institutions in the 1970s and 1980s has been the growth of information industries. They are also known as Fee-based Information Services, Information On-demand Companies, Information Consultants Information Brokers, Intermediaries and the like. They sprang up in countries like the United States of America, U.K., France, Germany, the Netherlands, Austria, Spain, Belgium, Switzerland and Yugoslavia.

While the major organisations such as PREDICASTS, Arthur Little Co. Inc., Lockheed Information Services, Bibliographic Retrieval Service, New York Times Information Banks, etc. have been operating for a long time, many of the smaller set-up having flourished from the late seventies and grown in the eighties. The large firms are founded by people with background in journalism, law, business administration, etc. and are generally staffed by subject specialists. The medium sized firms are run by information specialists with background in library automation, information retrieval, system design and analysis, etc. The small commercial services are staffed by information specialists with or without advanced degrees in subject fields.

1.5   TYPES OF INFORMATION INSTITUTIONS

Amongst the different categories of information institutions the most popular ones are : Libraries, Documentation Centres, Information Analysis Centres, Data Centres, and others. Barring these traditional institutions many non-traditional (deinstitutionalised) information services have ensured lately. Some of the important types of information institutions are described below :

1.5.1 Libraries

Since the invention of printing from movable type in the middle of the fifteenth century, and more especially since the development of scientific periodical some 200 years later, formal channels of professional communication have been heavily based on printed documents. We tend to take this medium completely for granted. But can we necessarily assume that print on paper will always be the major vehicle for formal communication in science and other professional fields ? Will paper be as important in the information systems of the twenty first century ? Almost certainly not.

The experts who are predicting the demise of books and libraries have prominent credentials. Prominent among those who are predicting an end of books and libraries are : F. W. Lancaster and Vincent E. Giuliano. Landau described a "library in a desk". Moreover, the system of Bush, Licklider and Landau assume that the user will have, literally at his fingertips, access to a large personal library and/or to a wide range of external bibliographic resources.

Libraries have undergone a major change in modern times. The history of progress in librarianship has been a story of successful integration of new technologies and new means of communication into existing programmes and services. Librarians have welcomed innovation and have, if anything, been sometimes overeager in the embrace of the new. Online catalogues are demonstrably superior to card and microform catalogues. Networked indexing and abstracting services are superior to their print forerunners. It goes without saying that modern libraries should have electronic circulation systems, acquisitions and serial control systems and should provide access to the world of digitized data and facts of all kinds—numeric, bibliographic, image-based and textual.

Looked at objectively, the relative roles of electronic communication and non-electronic communication become dear. Electronic methods are best for "house keeping" and for giving access to data and small, discrete packets of textual, numeric and visual information. People of the future will know only that which we preserve. This is a weighty responsibility and one that should be in the minds of all librarians. We do not advocate clinging to old therego because they are old, nor do we advocate clinging to old things because they are old nor do we advocate discarding old things because they are old. The library of tomorrow must be one that retains not only the best of the past but also a sense of the history of libraries and of human communication. Without that, the library will be purely reactive, a thing of the moment, sometimes useful and sometimes not but never central to human society.

In summing up we describe thus—from oral narrative to the invention of writing : from myths, legends, stories and histories literally etched in stone, through

medieval manuscripts to the printing press; from private communications between individuals, through mass media broadcasting, to electronic telecommunications and information dissemination across networks of networks interconnected globally if not yet galactically : technological advancements have progressively enabled the spread of the word and words—the communication of human thought—ever more effectively from private to public through libraries.

We live in an ahistorical age. The little that is known about the past is not used to inform the actions of the present. The library of tomorrow must be one that retains not only the best of the past but also a sense of the history of libraries and of human communication. With a sense of history and the knowledge of enduring values and the continuity of our mission, the library can never be destroyed. Along with this sense of time future being contained in time present, there must be the acceptance of the challenge of innovation. It is neither the easiest of prescriptions nor the most fashionable, but libraries have to combine the past and the future in a rational and unsentimetal manner.

1.5.2 Documentation Centres

Documentation activities of a country are very much interlinked with the research and developmental efforts of the country. Documentation centres are concerned with the dissemination of documentary information. Thus among the varied forms of organisation for collection and dissemination of information, documentation centres are quite important. Traditionally, libraries have been pursuing the basic function of collecting every kind of publications and holding them in readiness for use. After World War II, the impetus for provision of documentation and information services to specialist users has arisen, mainly due to exponential growth and complexities of information sources. Need began to be felt for analysing the contents of the holdings of libraries in finer details; whereas libraries of traditional type have not been undertaking such a task. The traditional library tools have become progressively less effective as the volume of materials grows and the requirements of individuals become more specialised. In a library, where the service is in terms of documents, those documents can be organised on the shelves in a linear manner along some logical sequence by means of appropriate notation, because each document is by itself a physical entity. But when the items of information contained in the documents are to be handled and served, no such straight-forward arrangement is possible, because the bits of information are by themselves no physical entities and are scattered in various sources. A different approach is called for in handling and serving the scattered items of information. Specialist libraries began to build up facilities for meeting the changing needs of scholarly clientele for intensive services. Later in time, documentation centres began to emerge towards the same prupose.

Nowadays, the term 'information centre' is commonly used, even though in a broad sense documentation centre and information centre may mean one and the samething. In general, a documentation centre brings to the attention of the specialist users current and recent literature of value to them, sieves through information sources and indicates pinpointedly or with high precision the right kind of information, makes an exhaustive search of literature resources so as not to miss worthwhile information, and provides documentation and information services on demand and in anticipation. However, the functions that are assigned would vary from one documentation centre to the other. A local documentation centre has the sole function of providing information services for supporting the programmes and activities of its own institution.

The documentation centres at local levels and which are attached to individual R & D institutions business houses, industrial enterprises, etc. are established and administerd by their parent institution. At the national level, it might be the responsibility of the appropriate government agency to establish and administer the national documentation/information centres.

There are varying patterns of organisation of documentation and information systems in different countries. In the past, examples of USA for decentralised structure, of USSR for centralised structure and of UK for a mixture of both the above, used to be mentioned. At present, the network concept is gaining currency. The trend is now to pool the resources, facilities and expertise of various information centres, for achieving maximum economy and productivity.

1.5.3 Information Analysis Centres

With the enormous growth of the primary scientific literature, the individual scientist or engineer is faced with the problem of its retrieval and evaluation, as most of the information remains hidden in published documents. Much information published in primary journals never catches the eye of the information seeker similar is the case with a abstract journal. Their number and size have increased. Moreover, scientific research is fragmenting into narrowing specializationand is becoming more and more interdisciplinary in nature. The time lag between the primary publications and abstracts aggravates the problem further.

In a day-to-day working situation, the need for the reliable numerical values for physical properties continually arises. A potentially useful tool for the transfer of scientific and technical information exists in the information analysis centre. Such centres, as discussed in Weinberg Report, usually serving specific fields in which large amount of data exist and require critical evaluation, consist of one or more active specialists who (a) systematically collect, index and store information in a field, (b) analyse and evaluate this information and (c) make it available in a form and language keyed to the needs of specific groups of users. The potential

17

benefits of an information analysis centre can be put as—'the specialised centre acts as the retailer of information'.

An information analysis centre (IAC) has been defined as 'an organization which indexes, abstracts, translates, reviews, synthesizes, and evaluates information and/or data in a clearly defined specialized field or pertaining to a specific mission, to provide definite users' groups with digested, repackaged or otherwise, organized pertinent information available in a useful convenient form, "relieving the user from the ardous task of mining the sand of literaure for the new grains of gold".

The functions, products and services of IAC vary with needs of its user population. The key activities are analysis, interpretation, synthesis, evaluation and repackaging of information carried out by subject specialists, resulting in the production of new evaluated information—in the form of critical reviews, critical compilation of data, correlation of data, etc.

1.5.4 Data Centres

The modern society needs data for planning and development activity in every sphere, namely, policy making as well as in formulating plan of action. Data are collected from studies involving observation and surveys. In such form, the data are called 'raw data'. Raw data are not usable for decision making. These become usable after certain manipulations involving organisation and synthesis. There are different types of data such as Scientific data, Technical data, Techno-economic data, Socio-demo-graphic data. Data collected from different sources by different methods need to be stored and made available to those who need it. For this purpose, proper institutional mechanisms have been developed. These are known as Data Centres.

Unesco defines data centre as an organisation handling quantitative numerical data. Such centres take the primary function of collecting, organising and disseminating data (mainly numerical) and also provide a measurement service and be in a position to advance relevant measurement techniques. The term data centre is used interchangeably to define a range of Information Centres, not all which are critically evaluating data. Data centres vary both in size and in scope. The scheme which will meet the initial aim of every Data Centre is to make available to the users a potential data obtained from various sources. The Data Centre includes three main components :

1. An organized data collection : the data base;
2. A connection with the data sources which feed the database; and
3. A contact with users who are expected to interact with the database with questions.

Many data centres have been established in India under the NISS AT programme. It may be noted in passing data centre and data banks are dissimilar

only regarding the subjects they deal and type of data they handle. Data Centres handle only numerical data and mostly for the science and technology dealing with physical and chemical properties. Data banks are multidisciplinary and handle all types of data particularly administrative, statistical, techno-economic, census and survey, and management that are produced by various institutions. Data Centre handles data themselves or literature about data whereas data bank handles only data.

1.5.5 Referral Centres and Clearing Houses

Referral Centres may be described as the "information desk" of the scientific and technical community. It does not provide technical details in answer to queries or furnish bibliographic assistance. It does not supply data or documents. It directs enquirers to an appropriate source for the information or data required. Referral may be to libraries and documentation centres, or to appropriate agencies and individuals. To achieve this a referral centre has certain basic tasks to perform. These are:

(i) to inventory all significant information resources in different disciplines;

(ii) to compile and publish directories of information resources;

(iii) to analyse the operating relationships that exist in the information complex of various disciplines.

Clearing Houses

The dictionary definition of a clearing house is a central agency for collection, classification, and distribution, specially of information. The definition would encompass all information centres and most special and conventional libraries. In the parlance of information scientists a clearing house is a relatively new word. For our purpose it is a depository of or documents with the additional mission of serving as a central agency for collection, classification, and distribution of information. It also includes such functions as collecting and maintaining records of research and development in the planning stage, in progress and completion. Sometimes, substantive questions about items in these records are referred to the source, and thus a clearing house may act as a referral centre also. The Smithsonian Institute's Science Information Exchange serves as a clearing house of research in progress; the National Technical Information Service combines the functions of a document centre with those of a clearing house; and a referral centre; the National Referral Centre of the Library of Congress provides referral to experts within the field of an inquiry, it does not supply data or documents. For a number of years British Library Lending Division (BLLD) functioned as a Referral centre.

Most of the clearing houses have specialists and well developed collections. They have information gathering network to acquire documents in their subject area.

1.5.6 Non-traditional Information Organisations

We have given you some ideas about the range of information institutions which have been set up for meeting the information needs of the society. The 'library' as a formed concept remains a constant; in its actuality it is protean; everchanging, versatile, regularly taking on new forms in response to everchanging needs. However, no matter how flexible and adaptive it may be, the 'library' only exists as a library in the fullest sense when it is being used in accordance with its primary purpose and the capability that society designs into it. This traditional storehouse of knowledge has been caught in the successful integration of new technologies and new means of communication. While accepting that change will come continuously, it is imperative to preserve the basis of institutionalised service by accommodating the key aspects of the overall service. However, information service is no longer limited to traditiional libraries and information centres. During the last few decades several phenomena have been developed—Information Broker, Invisible College, Information Filters and so on.

1.5.6.1 Information Broker

Information broker is in business for profit. It may be an individual or a firm. It uses a variety of sources including libraries and information centres to get answers for the client's requests. In developed countries including USA there are a number of brokerage firms in operation.

1.5.6.2 Invisible College

It is now well established that there exists, in any scientific community, a personal network of professionals, related through similar research interests, institutional ties, or former associations, who maintain a close association by informing each other of on going and planned research, asking for criticism of draft papers or reports, discussing current work in correspondence or at conferences, and possibly collaborating on various joint projects. The "invisible college", as described, for example, by D. Crane (Invisible Colleges : Diffusion of knowledge in scientific communities. Chicago, University of Chicago Press, 1972), is a personal network that tends to comprise an elite, influential, and cohesive group of workers engaged in research at the forefront of their field. The invisible colleges are extremely effective information networks, but participation is largely restricted to those who are leaders in a field.

According to D. J. de Solla Price, "There now exist dozens of what we call invisible colleges, each consisting of the few hundred persons who make up the international body of real leaders in their subjects. They are power groups, albeit often unwittingly, and the more power they have the more they gain." Then aim,

20

to spread the good word with the minimum of delay, is entirely laudable, and of course as the most prominent workers in their various fields they do generate much of the significant new information.

1.5.6.3 Information Filters

The concept is concerned with personalised information delivery. Filters are third parties to the communication between users and sources. They should possess both the knowledge and the functionality to critically examine the information in the sources and forward the information they 'judge' as relevant to users. They are addressed only for a specific and relatively narrow class of users and sources. This is a new type of information service for which manual as well as automatic techniques can be used.

1.6 INDIAN SCENARIO

After independence for developing infra-structural facilities the government has been taking initiative in the organisation of effective information system and services. This led to the development of Libraries and Information institutions throughout the country. We have discussed in unit 1.3 the three eras in the pattern of growth of information institutions. That framework is reflected in Indian context. Institutions such as Libraries, Documentation and Information centres academic and professional levels, R & D institutions and laboratories, government agencies and quite a few public and private sector undertaking have been set up. Initially, all these institutions functioned in isolation. Later the situaiton has changed and there have been established linkages within some categories of institutions.

In Era II during 1950s and 1960s missio-oriented organisations like Atomic Energy Commission, Indian Space Research Organisation, Electronic Commission, and some came into being. Council of Scientific and Industrial Research, Indian Council of Agricultural Research, Indian Council of Medical Research, Defence Research & Development Organisation may also come under this group.

In Era III that is, from the 1970s Institutions like Small Enterprises National Documentation Centre, Documentation attached to National Health and Family Welfare that is, National Institute of Health & Family Welfare (NIH & FW) and a few others are problem solving type of institutions. Most of CSIR organisations on Food, Leather, Drugs, etc. began as problem oriented research. They required specialised information to support their research activities which led to specialised information centres.

In Public sector Central Machine Tool Institute, Steel Authority of India Ltd. (SAIL), BHEL and in private sector Tata Energy Research Institute, Bharat Electronic and others developed their information units to meet their technical information needs.

In 1980s the government started encouraging the modernisation of the information systems using modern technologies. As a result, National Information System for Science and Technology, Environmental Information System, Bio-Technology Information System, etc. were taken into consideration.

Networking and resources sharing activities are pursued in the development of information services. Projects such as Library and Information Network, Delhi Library Network, Bombay Library Network, Calcutta Library Network, have been taken up to develop in phases.

1.7 INSTITUTION BUILDING

"The strategies and approaches for institution building vary from country to country in accordance with their respective environments, requirements, priorities and the level of existing institutions. An institution should have set goals, objectives and criteria for priorities. It should have challenges and opportunities, carefully conceived roles, well defined tasks and clear sense of purpose. Its programmes should be symbolic of what stands for and its role in society, infused with societal values. It has a purpose, function and ability to service and serve clientele relevant to needs, and environment. (Y. Nayudamma). The effectiveness of these institutions may be judged by their contacts with users and their information needs in different contexts and contributing in full measure to the decision-making processes for economic, industrial and social development.

All types of institutions irrespective of subjects affiliation and activities contribute to the development process. But the development itself is a complex process; a continuous and transdisciplinary one, requiring multi-pronged tesk forces, cutting across vertical and horizontal structure, to achieve desired results. A concerted and coordinated exdeavour is needed to build proper structures by government, industry, STSI institutions. This calls for a network of institutions allowing organised information flow from top to bottom and between coordinated and collateral levels.

Western models available to the third World countries must be examined in the context of the requirements of countries concerned and adopted or adapted only if they could ensure results. Information institution building is a complex process involving men, materials, machinery and money and will have to be managed effectively for obtaining optimum results. Clear perspective and farsightedness, determining appropriate goals and objectives, fixing targets for outputs, careful planning with guidelines of policies, criteria for priorities and dfficient execution, organisation and management—all these are essential elements in institution   building.

1.8 FUTURE SCENARIO

The shape of things to come in the twentyfirst century has been predicted by a number of writers of the industrially advanced countries. Alvin Toffler, for example, observes that the info-society of the future will commence a new civilization which will restructure education, redefine scientific research and completely reorganise the media of communication. The Third Wave civilization will rest on intensive, de-massified media, feeding extremely diverse and often highly personalised imagery into and out of mid-stream of the society. (Toffler) He sees deinstitutionalisation, in this third wave civilization which will be characteristic of individualistic services. He predicts total change from the present industrial society, institution building getting a back seat.

Daniel Bell does not envisage deinstitutionalisation in his post-industrial society. Communication and knowledge being the strategic resource and transforming agents of the post-industrial society, will pose economic-political problems, one structural and the other intellectual the structral problem will raise the issue of centralisation versus decentralisation what kind of techno-organisation is best designed to be efficient, meet consumer use-industrial, commercial, financial, scientific, library and information-and remain flexible enough to allow for continuing technological development. This has always been a controversial issue and may continue to be so. In fact, political organisational pattern may set the tune for the type of other organisations. The second policy problem is intellectual which is concerned with information policy, particularly the dissemination of scientific and technical information.

Lancaster predicts disembodiment of the library in paperless society. The new institution for information will be consultancy organisation, equipped with machines of various kinds, connected to remote data bases and banks on-line and offer consumer-oriented services based on needs. The Variation in the institution will be in the nature of services they offer and their scale of operations. More networks, consortia and systems may be conceived.

In India the impact of information technology is felt in the field of mass communication. How our institutions disseminating information will shape will largely depend on professional initiatives. It is not just moving into the machine age, but putting knowledge and information to work.

1.9 SUMMARY

This unit presents an overview of importance of institutions in modern society. It stresses the significance of Information Institutions to the present society, a

historical bespectacled of the growth and development of Information Institutions with special reference to India. It has highlighted the inportance of non-traditional Information Institutions. This unit has discussed the Indian Scenario stressing growth pattern of Information Institutions. Institution building is a highly complex process. The Institution should set goals, objectives and criteria for fixing priorities. It glimpses the shape of things to come in the twenty first century. Developed countries have set their own models. India has felt the impact of information technology in different fields specially in communication. It is the duty of the information professionals in India to set the country in the pursuit of innovations to remodel our Information Institutions.

1.10 EXERCISE

1. Discuss the type of Information Institutions.
2. State the functions of Referral Centre.
3. How would you organise a Data Centre?
4. Describe the growth and development of Information Institutions in India.
5. 'Information Institution building is a complex process'—Discuss.

1.11 REFERENCES AND FURTHER READING

1. Bell, Daniel: "Social framework of the Information Society". In The computer Age : A Twenty Year View, ed. by Dertouzos, M. L. and Moses, J. M I T Press, 1979 pp 163-211.
2. Guilliano, V. E. and others. Into the Information Age : a perspective for federal action on information. ALA, 1978.
3. Lawcaster F. W. : Science, scholarship and Communication of knowledge. Library Trends 1979, 27(3), 367-388.
4. McGarry K. J : Changing context of information : An introductory analysis. Clive Bingley, 1981.
5. Nayudamma, Y : Science and technology patterns of institution building. Society and science 1980, 3(4), 137-138, 141.
6. Rajagopalan, T. S. and Rajan, T. N.: Information Institutions pattern of growth and development with a perspective of future. In Rajagopalan, T. S. ed., Rauganathan's philosophy : assessment, impact and relevance. Vikas, pp 64-75.
7. Toffler, A : The Third Wave. Newyork, Morrow, 1980. p 462.

UNIT 2 □ INFORMATION CENTRES

Structure

2.0   OBJECTIVES

An information centre is an agency that provides right information to the right person in a usable form and on time. This unit will give you an understanding of

(a) the role of information centre

(b) the need for information centre

(c) the types of information centre

(d) planning of information centre

(e) services of information centre

(f) national and international information centres

2.1   INTRODUCTION

The operation of a special library or information centre takes place in a highly campetitive environment. It is one of the characteristics of organisational dynamics that resources rarely if ever approach the level of demand for them. If librarians are to retain their share, or perhaps do a little better than that, they must understand the dynamics of the organisation in which their competition for funds takes place.

There are no cut and dried rules as to the best placement of the information centre. Factors such as perceptions, personality and the interest can have more influence than the rank and status of the individual to whom you report.

The information centre should try to clearly define its role and how it fits into the parent organisation. Special libraries or information centres within a business or company are very different than other types of libraries. Special libraries share some common traits. In his book H. White identifies the sigificat characteristics of special libraries and information centres :

emphasis on providing information
nontraditional setting
a limited body of users
limited subject scope
small collections
the need to establish usefulness
relationship to organizational mission
management that is not library oriented
the impact of organizational policies
working under time pressure
libraries that take on user's burden
specialised and internal materials
restricted access
entrepreneurial activities

The information exists to support and enhance the mission of the organization in which it is housed. In information centre the emphasis is on the provision of information contained in the documents, rather than the documents themselves.

In 1946 John Crerar Library of Chicago laid the foundation of information centre. This library used to offer the industry various kinds of information services from newly formed department Research Information Service.

It is worth to note that specialist libraries began to build up facilities for meeting the changing needs of scholarly clientele for intensive services. Later in time, documentation centres, either in supra or juxta or infra position to their companion libraries, began to emerge towards the same purpose. Nowadays, the term 'information centre' is more commonly used, ever though in a broad sense documentation centre and information centre may mean the one and the same thing. The distinction is somewhat artificial. Strictly speaking, information centres ought to undertake information and supply evaluated data and information, whereas documentation centres may be satisfied with the function of contents analysis of documentary sources towards pointing out to the existence of raw information.

2.2 DEFINITION

Information services units in organizations have been usually referred to as Information Centres or Information Departments. The emphasis in the case of these centres is towards provision of information contained in the documents, rather than the documents themselves which is the main consideration of the traditional libraries. Some, however, have referred to the information centres as 'Specialist Libraries' since the emphasis was on a collection of nascent micro-documents with service to specialist readers. The functions, products, and services of information centres vary in detail, depending on the informational requirements of the user population, but are, on the whole, similar. The general sequence of operations and possible products/services is given below: ?

Activities	Services/Products
Selection and Collection of documents	Bibliographies, Current Awareness Services
Indexing & Abstracting	Indexed bibliographies, Abstracting Bul-letins, Custom Searches
Extraction	Digests, Extracts; Descriptive Reviews/ state-of-the-art report, Trend Report, compilations (unevaluated)
Evaluation	Critical Review of Area, critical compilation of Data, criteria for Experimentation, Recommendations, Solutions to (immediate) problems, Correlation of Data, Prediction of properties

In the above diagramatic representation of activities and products, the amount of intellectual activity involved in the preparation of products increases as one proceeds from bibliography to data correlation. It may also be noted that each activity and product forms the input for subsequent activities and products. While the activities of selection, collection constitute the domain of traditional libraries which are document oriented, activities of indexing, abstracting, and extraction in addition to selection and collection, are common to information centres in general. But, the evaluative acitivity is the exclusive domain of of 'Information Analysis Centres—now redesignated as 'Information Consolidation Units.'

2.3 NEED FOR INFORMATION CENTRES

Generally, Information Centres began as 'Unplanned' libraries through accumulation of books, periodicals and other records. Over a period of time they grew and became unmanageable and unproductive. It was at this time that the people concerned tended to look seriously for the establishment of a formal mechanism which would take care of the growing collection so that it could generate the needed information services to the clientele. Some of causes indicative of the need for the establishment of an Information Centre are as follows :

Perception that funds were being wasted in the purchase of multiple copies of books and periodicals because of lack of centralization and control.

Large and extensive collection of materials scattered in offices or store rooms. When they took up considerable and still did not yield the desired item when it is demanded.

A flood of mail announcing new publications, information services and databases that nobody had time or inclination to screen to determine those of interest.

An awareness by organizational professionals, from contact with others by professional gatherings, that they were not keeping with their development in their fields. This was particularly unsettling for researchers, but it was also disturbing for business executives if they suspected that there were things others knew and they did not. Professionals (or organisations) were spending a great deal of time in the attempt to track down needed information, including trips to other libraries and information centres.

An important decision had to be delayed because needed information was not found out.

Evidence of duplicated effort, with a resulting waste of time and money, because the results of earlier work were not known properly.

Another fact is that the present day Information Centres have largely been due to the interest and effort of numerous sponsoring agencies belonging to both the private and public sectors. Thus a need has arisen for justifying the establishment of new Information Centres to the satisfaction of sponsoring agencies. In other cases, the parent organisations needed to be convinced for the establishment of Information Centres as units of their organisations.

Justification for establishment of Information Centres can also be discussed in relation to :

(a) Objectives of the parent institution;
(b) Expressed or established user need;
(c) problem area;
(d) Elaboration of the subject to be covered; and
(e) Proliferation of literature

2.3.1 Objectives of Parent Institution

Study of the existing operating Information Centres reveals that almost all of them—whether they be discipline-oriented, mission-oriented or census bureau type—are, generally located in one parent institution they may be sponsored by and supported by other organisations. Further the activities of the Information Centres seem to be in conformity with the objectives of the respective parent institutions. So it would be quite in the fitness of things to assume that the institutions and their users having realised the importance and value of information for their activities have established the respective Information Centres.

2.3.2 Expressed or Established User Need

The need for an Information Centre in a particular field would become obvious if we examine the features of the World of Information. Features are : (a) accelerated growth of information, increasing rate of obsolescence, (b) wide variation in quality and reliability, (c) Interdisciplinary nature of information; scatter/seepage of information (d) wide range of standards and modes of presentation of idea, (e) pertinent information published in documents with restricted circulation, (f) multiplicity of languages, (g) too many documents. Information Centres have limited funds and space.

The overabundance of information has made many a research scientist to create new information rather than search through existing documents. Recognising the need for information, many information systems systematically identify, collect, store and disseminate information to the users and their needs. This is largely because information presented is not oriented or structured according their specific needs.

2.3.3 problem Areas

In some of the problem areas like Biodeterioration, Pollution, Nuclear. Safety, and the like where existing knowledge and experience are scattered over several disciplines and where the literature/information is spread over a variety of sources, it becomes problematic for researches, policy-makers and managers to have access to information. In other words, the inter-disciplinary nature of information in such problem areas poses difficulties requiring the establishment of Information Centres.

2.3.4 Proliferation of Literature on the Subject

Some of the factors which have influenced the character and increased the current pace of scientific and technological activities are as follows :

    (i) Exponential growth of publications,
    (ii) Rapid fragmentation of knowledge;
    (iii) Interdisciplinary nature of scientific research
    (iv) Increasingly effective technological capabilities;

The information explosion coupled with information "pollution" has created problems to users needing information. This applies especially to new, peripheral and interdisciplinary fields. One of the solutions of overcoming these hardly is to set up an Information Centre whose task will be to organise, coordinate and institutionalise the information compression and evaluation activities in the subject field concerned.

2.4 TYPES OF INFORMATION CENTRES (IC)

Information Centres can be classified in many types. Let us have a brief discription of various types :

By Level of Service
(a) Local IC serving a well-defined, comparatively small clientele
(b) State or Regional IC serving a less well-defined or less homogeneous, but comparatively a larger clientele e.g. SAARC Documentation Centre,
(c) National Information Centre serving an even more heterogeneous, but comparatively much larger clientele, e.g. NISCAIR (National Institute of Science Communication and Information Resources)

By Range of Subject-Coverage
(a) Information service covering fairly well-defined homogeneous subject or group of subjects with a comparatively small seepage of information—e.g. Food technology, Leather technology.
(b) Information service covering a fainy well-defined homogeneous subject or group of subjects with a comparatively greater seepage of information, e.g. Instrumentation, Production Engineering, Agriculture.
(e) Information service covering a wide range of subject, e.g. Physical Sciences, Medical Sciences, Behavioural Sciences.

By Orientation of Service in terms of Clientele
(a) Research and Development Personnel
(b) Research personnel, production and Industrial personnel
(c) Government
(d) Public
(e) Combination of (a) to (d)

By Variety of Services Provided
(a) Current Awareness Services

(b) Abstracting and Digest Services
(c) Product Information Service
(d) Data Bank, etc.

By Type of Material
(a) Patents
(b) Standards
(c) Engineering Drawings
(d) Audio-Visual material

By Sponsorship
(a) Government—Central, State, etc.
(b) Semi-Government
(c) Autonomous body
(d) Private
(e) International, etc.

2.5   ORGANISATION OF INFORMATION CENTRES

The different patterns of organisation of Information Centres depend on the volume of information handled, level Information Centres and status of the Information Centres within an organisation and the type of users to be served. Local level Information Centres are attached to parent institutions which organise and administer the centres. At the national level it is the responsibility of the appropriate government agencies to organise and administer the centres.

The work of Information centres may be organised on a functional basis and their operations may be organised into three areas of activity.

2.5.1 Areas of Activity

1. Management and Administrative Services : These include developing and implementing policies and standards consistent with an organisation's objectives.

2. Internal Operating Services : The selection of materials viz. books, periodicals, reports, patents, conference proceedings should reflect the suggestion of users and specialists of the Information centres. Classification, Cataloguing, indexing operations are professional jobs and should be done by specialist staff. Analysis, synthesis and summerisation of information by literature search are important areas of internal operation.

3. External Users Services
The chief service is circulation. Information Centre staff should cautiously

circulate the documents to the authorised clienteles. The Information Centres provide many more services to the external users.

2.6   SERVICES OF INFORMATION CENTRES

The IC cannot offer unlimited services. It must select and prioritize which service and level of service that it will offer to user groups. The Information Centre has three basic functions :

Acquisition
Organisation
and dissemination

1. Traditional user services : can vary, based on the organization's needs, but core services that every information centre generally provides at a minimum level are :

interlibrary loan/document delivery
reference and on-line database searching (if feasible)
photocopying
current awareness services

These services are not very cutting edge, but they have become traditional for a reason, there is a need.

Acquisitions, serials control, circulation management, indexing and inventory control, are generally considered to be 'technical' services rather than user services.

2. Reference and online database searching : The most requested service of the information centre will be probably be information retrieval. In his book E. Mount notes that

"One of the distinguishing characteristics of special libraries/information centres is their readiness and skills in locating information for their uses, often under difficult circumstances.

A retrieval service tends to consist of a wide variety of research or reference questions which range from a quick answer to long, drawn out literature searches or projects which can last for months. Mount describes various types of retrieval services:

quick answer— can be answered with a single fact
longer searches— require more than a few facts; require several hours or days.
Literature surveys— more comprehensive and exhaustive in coverage of a subject topic and will take weeks.
Identification of citations— verify incomplete bibliographic information.
Interlibrary loans— obtain items not held in the collection.

A variety of resources can be used to answer the information requests, including print sources, such as reference books, electronic resources such as an index on CD-ROM; the information centre's on-line catalogue (if it is available), on-line

resources, including the Internet and on-line database and of course, using the phone.

The most critical step of the information retrieval process is what is known as the reference interview. How the information specialist will find the answer is not as important as having a clean understanding of the request. What is the purpose of the information? Understanding why the information is needed can be helpful to the information specialist in determining where to look. A trained information specialist knows how to determine the 'real question.' The information specialist can discuss the request and suggest that the user limits or broadens the search better to suit his/ her needs. G.T. Griffin suggests some basic questions :

What is the geographic scope of the inquiry?

What time period is appropriate?

What is the budget for this project/request?

What is the deadline for this inquiry?

A request may involve checking a variety of resources or the answer may be found easily in a reference book. The information specialist needs to be familiar with what resources are available and what would be the most efficient and cost effective way to retrieve the information. Know your print and electronic collection and the scope of your database access.

3. Delivery of information : The information can be delivered in person or via interoffice mail. A facsimile machine is an important delivery tool and should be accessible. Electronic mail is becoming a very popular way to deliver information.

4. Document retrieval: The information specialist will be asked to obtain copies of documents, articles and books for users. The information centre will need a means of obtaining copies of documents if the information cannot be accessed in a full text source internally.

5. Current Awareness : The information centre should devote significant efforts to current awareness service. In essence, current awareness services allow a large number of users to be made aware of the contents of large number of publications— something for which many may not normally have the inclination or time.

The adage the right information to the right person at the right time in the right format and the right quality never rings more true than when it is applied to dissemination services. Current awareness services can be both computerised and manual. Current awareness services can involve altering users to new information centre materials. Many information centres publish information or library bulletins. These bulletins often take the form of a new acquisitions list and include new books, serial subscriptions, reports and serial materials. Sometime you can incorporate an acquisitions list into another newsletter. Other bulletins may take the form of a newsletter and include information about new services, new electronic resources, etc.

33

3

Types of current awareness services :

Journal article photocopies, journal article lists, newsletters, abstract bulletions, including short summaries of journal, acquisition newsletters listing new information sources, journal circulation available, patents and standard bulletins, bulletins containing information about forthcoming, tailored news of individuals-selective dissemination of information, press cutting service, data on a particular subject of common interest, report writing and summarizing information, electronic delivery of journal articles, end-user searching putting research and information tools onto users desk.

6. End user searching : The philosophy of most corporate information centres differs from that of an academic, public or school library. In corporate information centres, the information specialist locates the answer to the user's information request and delivers the answer, either as a raw data or as packaged information to the user. The information specialist does not point to the shelves or the on-line catalogue when a user makes a request, unless the end user searching is accepted. Many information centres make their online catalogue, CD-ROM products, the Internet and commercial online services available to their users. In these instances, the information centre also provides training on searching these resources.

7. Bibliography preparation : A request for a more formal search may include the preparations of a bibliography. Mount recommends that several factors should be considered before starting and agreed upon by the information specialist and the user. This includes the audience for which it is to be written, range of publication dates, formats to be included (books, journals articles, technical reports, audiovisual materials, patents, meeting abstracts, web sites), other aspects such as whether the information specialist will provide annotations, arrangement of citations, (by auther, subject, date, material type), and the required duedate should also be discussed.

8. Coordinating translations : Many information centres obtain translations for organizations. If the organisation has locations around the world or subscribes to foreign language publications, the need for the translation of a document, from or into another language will arise. Make sure the translation is necessary. Understand the user's time, expectation and need.

9. Library instruction : Besides training for end-user searching, the information specialist will be performing user instruction in the form of orientation to the information centre. Most organizations have their employers participate in a new staff orientation.

Other instruction will include point of use instruction on using reference sources and equipment in the information centre.

10. Abstracting and analysis : Some organizations have a need for prepared abstracts summarizing information presented in journals or gathered in a search., Many users like the information specialist to conduct a search, read the documents and prepare a summary of the literature. The information specialist may be asked

to gather information on market or industry. Requests such as these can result in a large volume of relevant information. Someone has to digest the information, analyse and synthesise and then summarise it before it can be used for decision making.

2.7 PLANNING AN INFORMATION CENTRE

R. D. Stueart and B. B. Moran in their text on library and information centre management has defined planning as 'the process of getting and organization from where it is to where it wants to be in a given period of time by setting it on a predetermined course of action.' Much of an information centre's effectiveness derives from anticipatory future direction and preparing to meet information needs before they arise.

Establish priorities. You will not be able to work on the entire plan at once. Some tasks must be done before others can be achieved and some are just more important than others. Create deadlines for completion or milestones or landmarks for smaller goals needed to achieve larger projects. Other essential elements of a plan include a clear picture of products/services provided, critical success factors, strategy funding and recommendations. Planning is a continuous process. Reviewing and evaluating the development phase should be done for any modification. V. J. Feinman in her article, outlines the five-step strategic planning process :

situations and environmental analysis, development of organizational direction, formulation of strategic plan, implementation of plan, and stratigic control, feedback, evaluation.

2.8 EXAMPLES OF INFORMATION CENTRES

Although the terms 'information specialist', 'information centre' and 'organization' are used, they should be interpreted to mean any type of librarian or information professional, any type of library or information centre, and any type of organization or company-profit or non-profit. We cite here some international and national information centres.

2.8.1 International

1. The Topography of Terror Foundation—International Documentation and Encounter Centre : The centre is located in the centre of Berlin, near the Potsdamer Platz. The centre was originated from an exhibition in 1987. (the 750 th anniversary of Berlin) to document and explain the represed history of this region during National Socialism. The documentation centre provides information about National Socialism. Serveral exhibitions, audio tours on the site, seminars, a library, a photo

archive and a multimedia encyclopedia about the National Socialism have been organised. All departments of the documentation centre are interlinked over one mask and one thesaurus. For example, if searching for information about Joseph Goebbels the searcher will get a listing of all sources which contain information about Goebbels. This listing shows links to the library, the documeat and photoarchives.

2. Ipsen International: Ipsen International is part of a world-wide organization, the Ipsen Beaufour group, with a reputation of being one of the most innovative pharmaceutical companies in Europe. Currently there are more than twenty three subsidiaries operating in over thirteen countries. Ipsen International has its non-laboratry R & D functions centralized in the UK; these are the exploratory development, clinical research and regulatory affairs departments.

The service is growing quickly and is looking at new avenues of information provision such as competitor intelligence, knowledge management and daily news update.

3. Centre National de la Recherche Scientifique (CNRS): The National Centre for Scientific Research was established in Paris in 1939. The Scientific and Technical Documentation Centre of CNRS was created in 1940. The documentation centre provides one of the world's major seceintific and technical information services. It abstracts and indexes all relevant worldwide journal literature and stores the results in computer-readable PASCAL-M and PASCAL-S databases which are used to produce more than 75 topical bibliographic bulletins. The PASCAL-M database is a multi-disciplimary file providing comprehesive coverage of the world's scientific and technical literature. The PASCAL-S database compreses 12 specialised subject files maintained in cooperation with outside organisations. It provides exhaustive coverage in the following areas : information science, energy, metallurgy, welding, building and public works, earth sciences, food industries, biotechnology, invertebrate zoology, agromomy, and tropical medicine. The documentation centre effers SDI and magnetic type services from PASCAL databases. PASCAL stands for **Programme Applique de la Selection et a la Compilation Automatique de la Literatire.**

Since 1984 the documentation centre publishes four new service of bibliographic bulletins which replace **Bulletin Signaleteque Series : PASCAL SIGMA, 2. PASCAL THEMA, 3. PASCAL FOLIO, 4. PASCAL EXPLORE.**

2.8.2 National

Many national information centres like NISCAIR, NASSDOC, DESIDOC, SENDOC, BARC and others have been organised to perform at national level.

(i) National Institute of Science Communication and Information Resources (NISCAIR)

NISCAIR has been formed on 30 September 2002 with the merger of National Institute of Science Communication (NISCOM) and Indian National Scientific Documentation Centre (INSDOC). The core activity of NISCAIR will be to collect, store, published and dissemente S & T information through a mix of traditional and modern means which will benefit different segments of society. To provide communication links among members of the research community, NISCAIR publishes 19 research journals (including one in Hindi) and two abstracting journals of international repute, covering all the major disciplines of Science & Technology. The Institute publishes three popular science magazines : Science Reporter (English, monthly), Vigyan Pragati (Hindi, monthly) and Science Ki Duniya (Urdu, Quarterly). NISCAIR has also published 60 popular science books in English under different series. It brings out CSIR News (fortnightly) and its Hindi version, CSIR Samachar (monthly). NISCAIR has also other publications and actitivies like consultancy services.

(ii) National Social Sciences Documentation Centre (NASSDOC). The National Social Sciences Documentation Centre, renamed so in 1985, was created in 1970 by the Indian Council for Social Science Research, New Delhi. It has been playing an active role by building up a comprehensive collection of different categories of documents such as doctoral dissertations, serial publications; abstracting, reprography and tanslation services; and by compiling union catalogues. NASSDOC has several publications including Union List of 'Social Science Publications' 4 vols, 'Union Catalogue of Social Science Serials', 32 vols., 'Mahatma Gandhi Bibliography (English and various Indian languages). Its current awareness publications include 'Acquisition Update' (monthly), 'Conference Alert' (quarterly) and 'Samajik Vigyan Samachar' (monthly, Hindi).

NASSDOC has been actively participating in Unesco's Asia—Pacific Information Network in Social Sciences (APIESS) programme since its inception as a the National Contact Point.

(iii) Defence Science Information and Documentation Centre (DESIDOC). Formerly known as Scietific Information Bureau (SIB) established in 1958 in R & D organisation of the Ministry of Defence, it was formed in 1967 in Delhi to function as scientific information and documentation centre to cater to the information needs of R & D Headquarters and R & D establishment since 1970. DESIDOC has been functioning in the DRDO (Defence Research and Development Organisation) of the Government of India as a central agency to collect scientific and technical information from various publsihed and unpublished sources, process it in different usuable forms and disseminate the same to about 40 DRDO laboratories and other establishments of the Ministry of Defence.

The publications of DESIDOC include **Defence Science Journal** (quarterly) **R & D Digest** (bi-monthly), **R & D Bulletin** (quarterly) **Popular Science and Technology** (half-yearly) and **DESIDOC Bulletine** (monthly).

(iv) The Small Enterprises National Documentation Centre (SENDOC)

SENDOC was established in 1971 at the Small Industry Extension Training (SIET) Institute, now National Institute of Small Industry Extension Training, Hyderbad. It provides small scale industries with technological and managerial information. The centre collects and organises information on all aspects of small industry development. It brings out a number of bulletins and adhoc publications of interest to small industries. It conducts both for national and international-participants training courses. Besides, it offers technial enquiry services, microfilming and photocopying services, etc. It has a rich collection of industrial profiles, which are periodically updated.

2.9 SUMMARY

The unit defines information centre, sums up its activities and services. It explains the need for information centres. It describes different types of information centres, organisation and planning of information centres. It explains ten various types of information services. It describes four national and four international centres.

2.10 EXERCISE

1. How would you define an information centre ?
2. State some reasons for the need of information centres.
3. Give details about the different types of information centres.
4. How would you organise an information centre ?
5. What are the basic functions of information centre ?
6. Enumerate services in detail provided by the information centre.
7. Write short notes on any three national information centres.

2.11 REFERENCE AND FURTHER READING

1. Atherton, Pauline: Handbook for information systems and services. Unesco, 1977.
2. Kreizman, Karen : Establishing an information centre : a practical guide. Bowker Saur, 1999.
3. Meltzer, Morton F: The Information Centre. American Management Association, 1967.
4. Rajagopalan, T. S. and Rajan, T. N.: Information institutions : pattern of growth and development with a perspective of the future. In Ranganathan's philosophy; assessment, impact and relevance, ed by T. S. Rajagopalan, Vikas, 1989.
5. Seetharama, S ; Guidelines for planning libraries and information centres. Indian Association of libraries and information centres. 1990.

UNIT 3 □ DATA CENTRES AND DATE BANKS

3.0   OBJECTIVES

In this unit you will know the meaning of data, their types; know the functions and activities of data centres and its difference with databanks. You will be acquainted with CODATA and national data centres and databanks. Data is defined in its strict sense to mean numeric or quantitative information relating to physicochemical and other properties.

3.1   INTRODUCTION

Every modern society needs data for planning and development activitiy in every sphere, namely, in decision making, policy making as well as in formulating a plan of action. These decisions and plan of actions are needed at various levels, viz. at national level, planning level, administrative level, and execution level. The Department of Science and Technology needs data for formulating a Science Plan

for the nation. A laboratory director will need data for determining priorities and allocating facilities. A research worker will need data for excuting his research work. Thus requirement of data is different for different purposes. It varies with the purpose and nature of decision involved. The data collected for one purpose may also be used for another purpose, with some manipulation. This means that the raw data could further be processed to yield systmatised and integrated data needed for decision making and other purposes.

Data numeric or quantitative information in tabular form is a feature of many handbooks, and as the proportion of tables to text increases, the handbook as a form of literature merges into the book of tables. Tables are a convenient way to present clearly details such as melting points, atomic weights, and solubilities. Indeed in certain fields like thermo-dynamics, or spectroscophy, or crystallography, tables are vital to the whole study and progress of the discipline, simply because such a large amount of information has been collected in tabular form. The purpose of the tables is to save time. Indeed, as R.T. Bottles points out'. . . many details of physical properties are deeply buried in the literature, and effort, patience and time are required to retrieve them.'

Data are collected from studies involving observations and surveys. In such form, the data are called 'Raw Data.' Raw Data are not usable for decision making. These become useable only after certain manipulations involving organisation and synthesis. These data are termed 'Systematized Data.' All the 'Systematized Data' may not be required or relevant to a particular decision involving executive action. These data must be further analysed and evaluated. Whatever may be the position of data, these must be stored and be accessible. The sources and uses determine the types of data.

3.2 TYPES OF DATA

There are different types of data. We discuss the following types:

1. **Scientific data** : Under this category comes the observation data collected during the experiment like thermal properties of material, spectroscophic data of the material, and data on chemical analysis of material. In this category we can conveniently include the printed standard data tables or critical tables. Indeed in certain fields like spectroscopy or crystallography, tables are vital to the whole study and progress of the discipline, simply because such a large amount of information has been collected in tabular form, e.g. International Union of Crystallography, International tables of x-ray crystallography (Biirmingham, Kynoch Press, 1952-62) in three volumes.

2. **Technical data** : In this category the data pertaining to the specifications of

various commodities or services are included. These normally cover engineering specifications.

3. **Techno-economic data** : In this category the data availability of raw material, the semifinished material, the consumption, and both internal and international market are included.

4. **Business data** : In this category data pertaining to manufacture, sales, warehouses, profits and losses, etc. are included. It also includes employment data on various labour along with the data on capital generation and formulation.

5. **Industrial data** : In this category are included data on various types of industries, their production capacity, the licensing capacity, the consumption of raw material and power, the product data, etc. It also includes data on the various skills employed in the production of products and services.

6. **Man Power data** : In this category data on various types of skills, employment potential are included.

7. **Socio-demographic data** : In this category data pertaining to the geographical distribution of the resources as well as the manufacturing capabilities and manpower are included. Apart from the above categorisation, data are amenable to grouping from the users' view point and from the stability considerations. These groups are stable data which do not change frequently; unstable data which require frequent updating; and live data which change due to on going processes in an industrial context like process control, material control, etc; or by the very use like rolling stock, air-line reservation, etc. The complexity of live data demands computer environment for collection, processing, servicing and display. Unstable data depending on the frequency and types update also require sophisticated skills and equipment. However, stable data and some unstable data needing only replacement as an update operation are to some extent amenable to manual manipulation and servicing.

3.3 DATA ORGANISATION

The problem areas relating to the data organisation are : (a) availability, (c) timing, (d) compatibility, (e) processiability.

(a) **Availability** : A major source of data is operational administrative data gathered by institutions during the performance of their functions. For instance, data collection by Government would be guided by its executive responsibility, which data collections by industries and private orgnisation is generally confined to their particular areas of operation. The data so created would not cover the entire information areas. Quite often, even when such data are required by an agency it goes unrecorded either because it is costly to collect it, or because of lack

of proper evaluating techniques. The nature of the reporting units can also render data unavailable. For planning purposes the data on projects and forecasts are not available. In any case, availability of data is a continuous problem owing to the dynamic nature of the requirements of the users of data.

(b) **Reliability** : The accuracy with which the phenomenon and its characteristics are recorded is affected by the training and capabilities of the human recorder and the sensivity and capacity of the mechanical aids used. Therefore, certain degree of subjective evaluation of the recorder should be allowed. As for collected by satellites, etc. the use of data involves interpretation with a high degree of human judgement.

(c) **Timing** : This problem is confined to the time-lag in data compilation and also to the time-coordination in recording different data sets. For instance census and survey methods are so laborious and costly that they cannot be conducted frequently. These methods cannot by themselves provide data sets that are time-correlated, thereby matching of data sets is rendered very difficult. Data from other sources require to be updated continually in relation to other data compilations.

(d) **Compatibility** : Compatibility between different data compilation can be achieved only through standardization of the concepts of the data elements and their attributes. Apart from standerdization the solution lies in data gathering at the level of individual entries to lend flexibility in aggregation. Similarly data-gathering from finely specified location of phenomenon lends greater compatibility between data sets with different spatial aggregations.

(e) **Processability** : The basic equipment of mechanical data-procession is that the input data should be convertible into machine-readable form.

3.4   DATA CENTRE

3.4.1 Data Centre Vis-a-Vis Data Bank

As noted earlier Data Centres handle quantative numerical data. Their primary function is collecting, organising and disseminating data chiefly numerical. They provide a measurement service and advance relevant measurement techniques. Data centres vary both in size and in scope.

Data centres handle only numerical data, mostly for science and technology dealing with physical and chemical properties, Data Banks are multidisciplinary. Every documentation or information centre will have to be suitably linked with national specialised data banks and through them to international banks. Even then smaller information centres can create and maintain databanks and provide data service. In fact the concept of data bank has brought with it a new concept in information service. It can be recognised as a new concept in the information system.

Data centre handles data themselves or literature about data where as data bank handles data only. It handles all types of data particularly administrative, statistical, techno-economic, census and survey and management that are produced by various institutions.

3.4.2 Role of a Data Centre

An institution in developing data handling capabilities may be called a Data Centre. In the context of National Information System for Science and Technology the data handling capabilities should be developed at the Branch Information Centres; This is logical in the sense that the expertise needed for evaluating and compressing the raw data in a given discipline is available to a Branch Information Centre as its environment. In the totality of all the Branch Information Centres, this distributed facility will provide a ready access to data which are collected at a considerable expense of resources and time over a wide spectrum of discipline. The data handling capability in a Branch Information Centre may be referred to as the Data Centre.

3.4.3 Organization of a Data Centre

The organization of a Data Centre has two main aspects-one is a general aspect and the other applied aspect. If we compare the organization of a complex information system with that of the Data Centre, we should note that the main difference between the two lies in the importance given to the information analysis. This difference is apparent in all stages of the organization and is affected through the following categories of personnel:

  (a) data coordinators
  (b) data specialists
  (c) data analysts and
  (d) programmers.

The data specialists form an essential component of the Data Centre. The need to examine the data leads to the use of highly specialized personnel able to appraise the correctness of the data received to solve all the correlations, which needs numerous contacts between the sources and the users of the data centre.

The general scheme of organization can be represented thus :

Needs covered by the Data Centre

43

The general concept of a Data Centre is based on an analysis of existing data and determination of the needs to meet. The above stated elements help us to determine the general structural organization of Data Centre in terms of

(a) the data source; (b) the documents which supply them; (c) the internal technical characteristics of the system; (d) the users need.

The most efficient method of organization consists in establishing assumptions, concerning what the Data Centre may offer, thus establishing the data needs.

The second and more important aspect of organization of a Data Centre is the applied aspect. The organization of a Data Centre has become all the more necessary only to ensure a contrasted data base to which one may always appeal and which shall include the basic data. The main considerations in the structuring of a Data Centre are : the volume and kind of data and the existence or possibilities of access to a computer. The flow of information of Data Centre may be represented thus :

Information Generator
Nature of Information

↓

DATA CENTRE	
Acquisition Processing	Output
Received Information Characteristics	Generator Information Characteristics

Translation Channel

↓

Users A, B, C, D.....
B
C
D
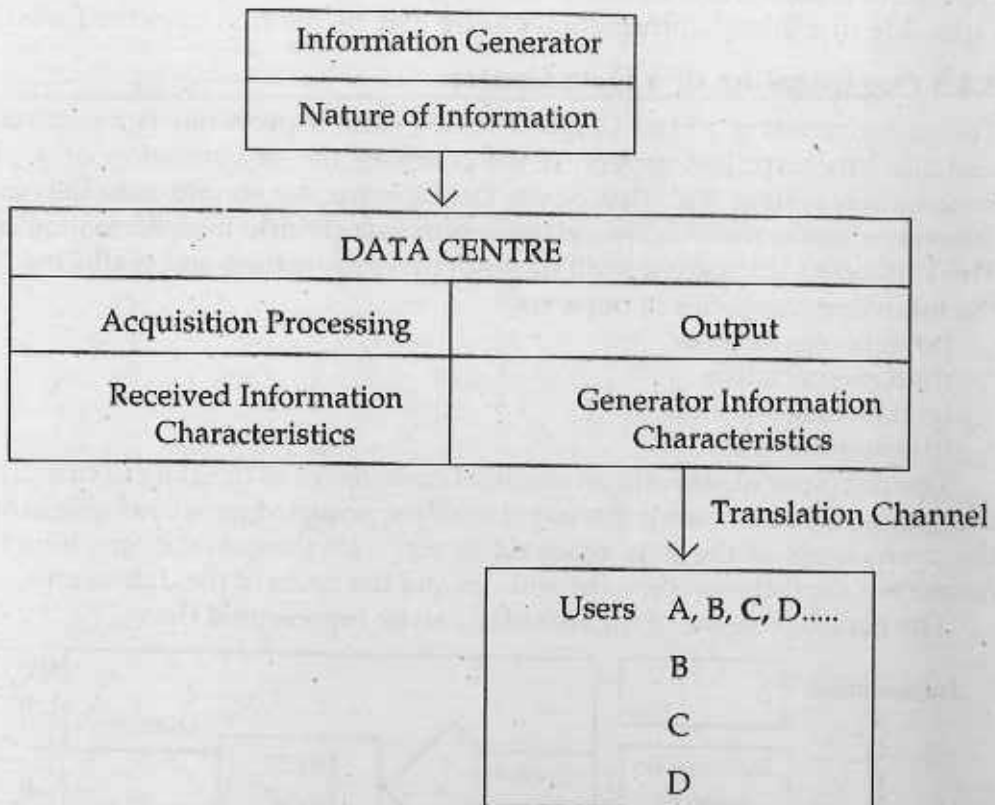
Principles involved in the organization of Data Centre :

(a) Data are received and collected from different documents by a group of specialists who decide the importance and relevance of the data, control and fit them with the generator source.

(b) The received data are organised in order to establish that they represent the basic data which must be processed or synthetic data which may be necessary for further use in their initial form

(c) The data are registered on punched cards in order to build the card indexes which represent the data base for the computer.

3.4.4 Work Methodology

In order to ensure efficient functioning of a data centre the following operations need to be performed :
  (a) data collecting
  (b) data control
  (c) data codification
  (d) data storage
  (c) organization of the card indexes and
  (f) data retrieval.

3.5 THE COMMITTEE ON DATA FOR SCIENCE AND TECHNOLOGY (CODATA)

The problem of data collection and maintenance was international in character. Even an affluent country like the USA realised that no single country had the resources of money and manpower to support the massive effort that is needed. The next step inevitably brought about international collaboration in this area of information requirements. Some efforts in this direction culminated in the formation of CODATA in 1966. In fact, International Council of Scientific Union (ICSU) took the initiative in 1966 to organise the CODATA. The objectives are to achieve informal coordination among and provide guidance for numeral data competing projects on a world wide basis and encourage support for data compiling projects by appropriate agencies. The CODATA, is itself not an operating agency for the compilation of data.

Data is one field of scientific activity where the benefits of international cooperation is evident, and CODATA has done much to stimulate joint effort. In 1974 it completed a major study for UNISIST (World Science Information System) on the problems of the accessibility and dissemination of data for science and technology. The main recommendation was the establishment of world scheme or network comprising three parts : for each subject discipline a data evaluation centre; for each country, a data dissemination centre with broad subject, coverage, and a global referral centre for directing users, enquiries to the most appropriate source. Such World Data Referral Centre has now been established in Paris. CODATA in now compiling a directory of data sources for science and technology.

The mission of CODATA is therefore, to ascertain on a worldwide basis the current activities in data compilation and publication activities; to achieve coordination among existing programmes and minimise uninternational or indecisive overlap and to recommend new computation programmes; to encourage the support of needed work by appropriate agencies; to stimulate wider distribution of compilations of high quality, to encourage and coordinate research on new methods for the preparation and dissemination of erotically evaluated data generally expressed in numerical tables.

In the CODATA there are two categories of members— union members representing ICSU and members representing countries. CODATA started with 12 union members and 15 national members. Prominent union members are— International Union of Pure and Applied Chemistry (IUPAC), International Union of Biological Sciences (IUBS), International Astronomical Union (IAU), etc. The prominent national members are U.S.A., U.K., etc. Japan is the only Asian member of CODATA-The main executive office of CODATA, Known as the Bureau, is situated in Frankfurt.

For better accessibility and dissemination of data a global plan has been drawn up by CODATA. The plan envisages three different types of service centres: Data Evaluation and Compilation Centrei Data Dissemination Centres, and Data Referral Centres.

CODATA organises conferences on data handling and its development. It brings out some regular and adhoc publications. For example, CODATA Newsletter— announcing current data compilations;

CODATA Directories of data Sources;

CODATA Referral database;

CODATA Bulletin. Oxford, Pergamon, bimonthly. It publishes conference proceedings on the subject of data in science and technology, research papers, and CODATA reports on new developments in data handling and presentation, it also incorporates the **Directory of Data Sources for Science and Technology**. Certain issues of the Bulletin are essentially concise directories of data centres and other formal projects which serve as sources of quantitative numerical data on properties of well-defined physical and chemical systems and with each issue devoted to a subject area, such as corrosion and geomagnetism.

3.6 DATA CENTRES IN INDIA

In India we are on the way to get into the mainstrean of data activity and service. The NISCAIR has taken up the work related to data dissemination. The DST and INSDOC jointly brought act a **'Directory of Data Centres in India'** in 1977. The National Committee for CODATA was set up in India for coordination of all the

Data activities in the country. There are serveral institutions and organisations engaged in data activities. A few such institutions are noted below :

The Indian Institute of Science, Bangalore is engaged in the collection and evaluation of thermophysical properties programme. This institute lends support to a few centres at:

(a) Indian Association for the Cultivation of Science for thermodynamic and transport properties.

(b) University of Madras for crytallographic data (NICRYS)

(c) University of Allahabad for stability contents of coordinate compounds.

The Bhabha Atomic Research Centre (BARC), Bombay is engaged in collecting Nuclear Science and Technology data. This centre is giving Indian input to the International Atomic Energy Agency, Vienna.

The Central Glass and Ceramics Research Institute (CGCRI) Kolkata has a hard data centre for advanced ceramics.

The National Institute of Oceanography has set up the Indian National Oceanographic Data Centre.

3.7 SERVICES OF DATA CENTRE

The data centre works in two ways in order to meet the request of the users. It supplies the current information including the synthetic data obtained from the processing on different criteria of the basic data. The second method is to supply answers to the requests of the users. The answers include the basic data stored in the databases and selected on certain constraints imposed by the user as well as synthetic data obtained through processing on other criteria other than those used in the previous case, of the stored data.

3.8 DATA BANKS

During the last three decades, may experimental data banks, data centres were created in developed countries, mainly in Sweden, Norway, USA, Great Britain and France. They include sectoral banks for management and general data banks for national, regional and urban planning intended for Gvoernment or for private users. Data banks are of different types according to the type of decision makers, users and nature of rapidly available data. They may pertain to one given sector or to multi-sectoral level.

3.8.1 Sectoral Data Bank

The industrial information system proposed by United Nations Industrial Developed Organisation (UNIDO) is a sectoral bank project which has to be started

within an industrial firm and investment projects. For example a Management Information System (MIS) or information system within a sector Industrial firm with 20 to 30 employees can be set up at sectoral level whereas data necessary for planning must cover many sectors like commerce and industry, manpower, foreign trade, etc., which are called multi-sectoral or general data banks. It requires several information systems relating to different fields for decision making those these decisions may only concern one field.

Data banks are classified as general-purpose and special purpose data banks, depending on the purpose it serves.

3.8.1.1 General Purpose Data Bank

A gigantic central databank servicing the general public is impracticable.

3.8.1.2 Special Purpose Data Bank

Owing to inadequate resources, it is preferable to set up various types of special purpose data banks linking the producer and specific users, each bank being equipped with an appropriate body of experts to perform the needed intermediary function.

3.8.1.2.1 Data Banks for Different Disciplines

Indian National Scientific Documentation Centre (Now NISCAIR), Delhi, Council of Scientific & Industrial Research (CSIR), Department of Science and Industrial Research (DSIR), Electronics Commission (EC), Planning Commission, etc. have been compiling data relevant to Science and Technology Information Bank.

The National Committee on Science & Technology and the Council of Scientific & Industrial Research have established a national network of Technology Information Bank for national planning and decision making purpose. They have established Technology Information Bank for Leather, Cement, Food, Instrumentation,   and others. The Data bank for social sciences is also a new organizational phenomenon.

Keeping in view the needs of the present day, there is a scheme for developing a system for small scale sector.

In addition to these, data banks have been developed in different fields like machine tools.

3.9   CONCLUSION

Increasingly to be found are data bases containing substantive factual information of many kinds, not merely quantitative or numeric. These are commonly referred

to as data banks or factual or factographic data bases. We have been told that non-bibliographic data bases are the wave of the future, and some observers have remarked growing expectations among many library users that the on-line terminals they see should be used to interrogate the growing number of source data bases. Librarians are not resisting this : the Canada Institute for Scientific and Technical Information has already added scientific numeric data bases to its list; 40% of Euronet/ Diane data bases are data banks; the National Library of Medicine already offers TDB (Toxicology data Bank) for online search, and MEDLARS III plans to include several source data bases.

The 'confidentiality' problem is one of the factors affecting many aspects of the data bank. Though confidentiality of data may sometimes be a pretended notion, purporting only to avail possible abuse of data, the protection of personal or business secrecy is the legitimate claim in many societies. It may be solved by (a) excluding any possibility of free physical access to data stored in the data bank; (b) classification of the users of data and installation of appropriate methods for controlling their access to data; (c) sufficient aggregation of elementary data when processed for general dissemination.

3.10 SUMMARY

In this unit we have explained the meaning of data and their types. We have discussed the functions and activities of data centre and its difference with data banks. We have described the CODATA and other national data centres. We have highlighted the services of data centres and different types of data banks and data banks of different discipline. We have noted the importance of non-bibliographic data bases and the confidentiality problem is one of the factors to be reckoned with.

3.11 EXERCISE

1. Explain the meaning of data and discuss the different types of data.
2. Discuss the problem areas relating to the organisation of data.
3. Explain the difference between data centre and data bank.
4. Discuss the role of a data centre.
5. What are the components of a data centre ? Discuss the needs covered by the data centre.
6. How would you organise a data centre ?
7. Write a note on CODATA.
8. Show your acquaintance with data centres in India.

4

3.12 REFERENCES AND FURTHER READING

1. Grgan, Denis : Science and technology : An introduction to the literature. 4th ed, Clive Bingley, 1982.
2. Grose, D : A data bank : the social and economic archive centre. **Aslib Proceedings** 1967, 19(5), 126-128.
3. Raizada, A. S. and Satyanarayana, R : Data base services, **Ann Lib Sci Doc** 1975, 22(1), 30-37.
4. Rossini, F. D.: Data for science and technology from the past into the future, CODATA news1, 1968, (1), 2-4.
5. Wadding, G : CODATA-Organization and activities. CODATA news 1, 1968, (D.4-6.

UNIT 4 □ REFERRAL CENTRES AND CLEARING HOUSES

Structure

4.0 OBJECTIVES

Information services are concerned with users. But the services provided by all kinds of institutions will aim to make information flow from sources to seekers. If the users are not satisfied, the flow would either never take place or take place inefficiently. This unit is meant to get you acquainted with the need and functions of referral centres.

4.1 INTRODUCTION

There has been in recent years, increasing recognition of the fact that no perfectly quantitative attack—even computer armed can ever cope successfully with the growing mass of information contained in the professional and technical journals, in the profusion of research and development reports, in the hard data accumulating from space technology, biological and medical research, and all other myriad facts of our technological world. With this recognition referral centres have come to introduce switching and control mechanisms to make the complex information network function efficiently and effectively.

4.2 REFERRAL CENTRE : DEFINITION

'Harrod's Librarian's Glossary. . .' defines Referral Centre thus

1. "An organization for directing researchers for information and data to appropriate sources such as, libraries, information evaluation centres, documents and documentation centres and individuals. A referral centre does not supply data or documents."

2. "A referral centre is some sort of an 'Information Desk' for the scientific and technical community which does not provide in answer to enquirers directly with the information they need but suggest sources (organization, facility, individual) likely to satisfy the users/clients."

3. "Referral centre is an organization for the indication of sources (of persons, institutions and publications) from which scientific information may be obtained on a given subject."

Here we quote a memorable commentary from J. H. Shera—"the reference librarian, I think, historically came into being because of the gap between the key to the library resources (i.e. the catalogue) and the resources. In other words, the key was only an imperfect key, unlocking only certain doors; there were a lot of other doors around the key wouldn't fit. So in a sense the reference librarian, the keeper of the keys, has all those other resources to investigate." So referral service has come to offer certain switching and control mechanisms to other resources beyond libraries.

4.3 NEED FOR REFERRAL CENTRE

Libraries now constitute, as much as ever before, a fundamental part of the information network—but there are factors related to the pressure under which today's researcher works that frequently demand assistance beyond the citation of books or pages. These factors may be discussed below :

(a) Bulk is a factor : the researcher needs some kind of information filtering mechanism.

(b) Time is a factor : the researcher cannot afford hours or days spent in scanning volume after volume.

(c) Current awareness : the researcher needs up-to-date information or he may find himself with absolute statistics or techniques.

(d) Evaluation : the researcher needs data that have been evaluated by his peers.

(e) Personal contact : the researcher requires access to a problem and will be able to provide him with a direct answer. He needs advice on people and places to which he may turn, and it is for purpose of providing such advice that referral centres have come into being.

(f) Another factor in favour of establishing referral centres is that information is not always obtained from documentary sources. In some circumstances it is more helpful to put the user directly in touch with an expert or specialist who can provide an immediate answer than to furnish documents or written summaries of information from which the user must extract what he wants to know. This is specially so when the required knowledge is so new that it has not yet appeared in published form. Sometimes it is more helpful to refer the inquirer to a forthcoming meeting or a symposium when he is likely to gain knowledge that has bearing on his problem.

4.4 FUNCTIONS

As noted earlier referral centre may be described as the 'information desk' of the scientific and technical community. It does not provide technical details to inquiries or furnish bibliographic assistance. It functions rather, as an intermediary, directing those who have questions concerning scientific and technical, subjects to organisations or individuals who have specialised knowledge in these fields and are willing to share this knowledge with others.

In answer to requests for guidance and assistance, the centre provides names, addresses, telephone numbers, and brief description of appropriate information resources. To achieve this a referral centre has certain basic tasks to perform. These may be listed as : (a) To inventory all significant information resources in science and technology, (b) To compile and publish directories of scientific and technical information resources; (c) To analyse the operating relationships comprised in the scientific information complex.

4.5 WHAT IS A RESOURCE ?

For our purpose, an 'Information resource' can be defined broadly to include professional societies, university research bureaus and institutes, government agencies, laboratories, museum specimen collections, testing stations, and individual experts, as well as more traditional sources of information such as technical libraries, information and documents centres, and abstracting and indexing services.

The National Referral Centre for Science and Technology, Library of Congress, has adopted its own working definition of an 'Information resource' which is any organization facility or individual willing and able to give authoritative response to scientific or technical inquiries out of an existing store of knowledge or expertise.

4.5.1 Types of Resource

There are two types of resources. They have termed as 'direct resources' and

'indirect resources' to denote on the one hand, those resources which respond to an inquiry, on the other those which provide bibliographies, reference lists, or copies of actual documents. The former exist as research teams, laboratories institutes, testing stations, observatories, and other units. In such places are the scientists and engineers who have compiled and distilled information, who have performed experiments, and who have evaluated the data available in their chosen fields. Many of them are willing to share their specialized accumulated knowledge, saving time and effort for their colleagues elsewhere. In many cases, of course, an information resource, may have both 'direct' and 'indirect' capabilities as in the case of centralized data centres.

4.5.2 Inventory Taking

Inventory of potential resources is a complex problem for referral centres. There have been many difficulties in conveying to the organizations what referral centres mean by 'resource', but also in obtaining the data needed for effective referral operations. The centre should know what kind of information a given resource deals with, how the resource handles this information, and how the resource makes this information available, to whom and under what conditions. The referral must know the size and kind of collections, if any the particular service provided, and in specific terms, subjects of specialization. In large number of cases, it is necessary to follow up the original contact by correspondence, telephone, or personal visit to obtain these data. Only those resources which are willing to cooperate with the centre are included in the register, and that any restrictions which may apply to services provided by a resource are strictly adhered to by the centre in making referrals, The gathered data may be retrieved or utilized either manually or mechanically. The referral centre will be able at any time, by machine printout to report how many libraries are registered with the centre in what subject areas; how many, and what kind of resource exist in the field of say, electronics; where special collections pertaining to a particular subject are located, what occupational groups are represented among those who have come to the centre for assistance, etc.

4.6 WORKING OF A REFERRAL CENTRE

The passing on of the enquirer to another agency for the answer to his question is one possible response that the referral centre can make. Indeed, community information services make extensive referrals as a matter of policy. There is the specially compiled resource file or index of names and places to which enquirers can be referred for specialist advice and help. In some special libraries referrals are almost as common as in community information services. Any referral centre keeps

a file of names of addresses of individuals and organizations able to provide specialist information. There are too sound pieces of advice : one, either referral centre must learn how to referrals the right way or they shouldn't do them at all; and two, a referral that has been handled badly is more lethal than a wrong answer'. It should take the form of a deliberate and positive recommendation, decided on as the best means of reaching the solution to a particular problem. And never should referral be made 'blind', in a speculative fashion.

Attempts have been made to devise a simple referral form. The form is handed to the enquirer with instructions on it where to go; the reverse is used to report back on the outcome; the numbering of the forms provides an indication as to how many enquirers decide not to bother. A referral centre usually receives requests by letter, telephone, and personal visits. The information given is a list of names and addresses of resources appropriate to the request. A brief description of the subject and service capabilities of each resource are also furnished.

4.7   FEEDBACK

To evaluate the effectiveness of its services, most centres rely on a comprehensive 'feedback' programme. Every requester is asked to supply information on how he fared in his search for information, and which resources were the most useful, etc. A referral centre in this way keeps on modifying and updating its files. If is found that a resource has claimed more than what it can honour in terms of supplying information, suitable modifications may be made in the files of the referral centre. Similarly any useful information available with the resource, but initially overlooked or omitted can be added/Feedback also helps a referral centre in enlisting new resources, which the user might have come across accidentally or by its own initiative and about which, the user can write to the referral centre.

4.8   PUBLICATION

A referral centre may also have a publications programme. For example, 'the Library of Congress National Referral Centre of the science and Technology Division **A Directory of Information Resources in the United States** : physical sciences, engineering, Washington, 1971. It is list designed to cover all possible sources. If referral functions are more formally established and emphasized in their programme, they can interlock effectively with traditional acquisition, cataloguing, reference and retrieval activities. For example, through its acquisitions and indexing operations, a library can develop, as a relatively inexpensive by-product, a list of organizations producing the information—professional societies issuing journals,

and monographs—and can supply, in addition to literature citations, the names of the originators as resources to which a researcher may turn. Such an activity may be thought of in terms of an annotated bibliography the annotations being in the form of resources rather than the standard explanatory remarks.

4.9 COLLABORATION

Referral centres should explore continuously the possibility of collaboration with professional societies, with a view to gaining from professional groups the knowledge individual members have about resources in their special fields and of making these resources, by including them in the registers of the centres, available to all members of such groups. Besides, referral centres welcome registration by any organization having knowledge or expertise that it is willing to share with others, and also a referral centre should be notified directly about any information resources not already listed.

4.10 SUMMARY

This unit presents the recognition of some efforts to introduce some switching and control mechanisms in the form of referral centres to make the complex information network function efficiently and effectively. Several factors have been discussed to highlight the need for referral centres. Referral Centres function as an intermediary between those who have certain questions concerning scientific and technical subjects and those organizations and individuals who have specialised knowledge willing to share with others. Information resources along with its working definition has been discussed. Working of referral centre and the feedback mechanism have been highlighted. A referral centre may have source publications channel in the form of directory which gives information on resources in different disciplines. The collaboration with professional societies is also an important factor to gain expertise from professional groups.

4.11 EXERCISE

1. What is referral centre? Why is it needed?
2. Define 'information resource'. Mention its types.
3. Explain why in the working of a referral centre feedback mechanism is needed.
4. Write a short note on the publication programme of referral centre.
5. Why should a referral centre explore the possibility of collaboration with professional societies?

4.12 REFERENCES AND FURTHER READING

1. Atherton, Pauline : Handbook of information systemes and services. Paris, Unesco, 1977.
2. Grogan Denis : Practical reference work. Clive Bingley, 1979.
3. Stearns, J. F. : The national referral centre ... a new service in the Library of Congress. Libri 1965, 15(4), 353-359
4. Weisman, H. M.: Information systems, services and centres. New york, Becker and Hayes, 1972

UNIT 5 ☐ INFORMATION ANALYSIS AND CONSOLIDATION CENTRES

Structure

5.0 OBJECTIVES

An overabundance of literature or even of information on any one topic today presents a most formidable modern information problem. However, for many information users and potential users, for many decision makers at all levels the problem is quite different; there is lack of appropriate information, namely of information which they can comprehend, assimilate and use with some confidence on their own level and within the framework of their own circumstances. This unit will give an idea about Information Analysis and Consolidation Centre, its scope, functions, activities and services.

5.1 INTRODUCTION

With enormous growth of the primary scientific literature, the individual scientis' or engineer is faced with different problem of its retrieval and evaluation as mos of the information remains hidden in published documents. Much informatio1 which is published in primary journals never catches the eye of the informatior seeker. And whatever information is noticed, is generally so diluted that it is of not much use unless it has been distilled by a suitable process. Besides libraries,

information centres and other types of information institutions there is need for another type of information institution which has been termed Information analysis and consolidation centres (IAC). This unit discusses such institutions, their origin, growth, need characteristics and functions.

A potentially useful tool for the transfer of scientific and technical information exists in this type of centre. Such centres, usually serving specific fields in which large amount of data exist and require critical evaluation, consist of one or more active specialists who (a) systematically collect, index and store information in a field, (b) analyse and evaluate this information, and (c) make it available ina form and language keyed to the needs of specific groups of users.

5.2 AN IAC CENTRE : DEFINITION AND MEANING

An IAC Centre as noted earlier, has been defined as 'an organization which indexes, abstracts, translates, reviews, synthesises and evaluates information and/or data in a clearly defined specialised field or pertaining to a specific mission, to provide definite users' groups with digested, repackaged or otherwise, organised pertinent information or data.

An IAC, at least in theory is the most efficient system for transferring to a user timely, authoritative, evaluated information in a convenient form. In an era marked by constant expansion of scientific and technical literature, it is apparent that users want the data and information contained in the literature and not the documents themselves. To quote Branscomb, "it is just as absurd for the user to take the total collection of raw material for his data as it would be for the jeweller to order six tons of gold-bearing ore when he wants to make a cuff link." The IAC centre helps in making information available in a useful convenient form; "relieving the user from the arduous task of mining the sand of literature for the few grains of gold." Retrieval of documents is not the same as retrieval of information; a technical specialist actually needs the information contained in the published literature, not the published literature itself. In order to meet this need, it is necessary to extract and compile the data themselves that is, the results of scientific research and observations. To retrieve information, the technical community has devised and organised information analysis and consolidation centres.

An IAC centre is a formally structured organizational unit specifically established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analysing, and synthesising a body of information and/or data in a clearly defined specialized field or pertaining to specific mission with the intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information and/or data in a form most authoritative, timely and useful to a society of peers and management.

The following criteria characterise and identify an IAC Centre : The key activities are the analysis, interpretation, synthesis, evaluation and repackaging of information for the purpose or numerical data of a specific field.

The centre prduces new evaluated information in the form of critical reviews, state of the art monographs, or data compilations and usually provides substantive evaluated responses to queries. An IAC provides assistance to a community of users and not just assistance to 'in-house' personnel.

E.L. Brady originally had put the IAC in the following three categories.

1. "Discipline Oriented" centres working primarily with the formally published lietarature of a particular field.

2. "Mission Oriented" centres concerned with specific problems of interest to the community they served and which received their input not only from the formal literature but also from government reports, industrial literature, and from other informal communications; and

3. The centres handling large volumes of data sometimes called a 'synoptic centre' or a 'census bureau' which collected raw or partially processed data or partially processed results and often concerned with large scale phenomena such as encountered in the study of oceanogrophy, the. upper atmosphere or in interplanetary space. This type of information analysis centres also included census type activities providing data on people, goods and materials.

Later, Brady re-categonised them as :

1. Research oriented group working primarily with formal published literature.

2. The problem solving group that obtains its input not only from the formal literature but from government reports, industrial literature, and other informal communications; and

3. Research oriented group whose input is primarily raw observational data, usually of multinational studies such as weather, oceanography or acronomy.

5.3 FUNCTIONS, ACTIVITIES AND PRODUCT

The functions, products and services of IAC vary in detail and with the needs of its user population—but on the whole are similar. The first step in its furictioning is the selection and acquisition of relevant documents. This may yield a comprehensive but unevaluated bibliography. The next step is abstracting and indexing the document. This process often consists of assigning key words to each document to identify the data or information. An indexed bibliography is a more useful document, since it can indicate to a user exactly the type of data contained as well as parameters of data points. The next phase consists of selective extraction of chunk of information, such as quantitative data description of methodologiesinterpretations,

Activities	Products
Selection and Collection of documents	Bibliographies, current awareness
↓	
Abstracting/Indexing	Indexed Bibliographies, custom searches
↓	
Extraction	Descriptive Reviews, compilation (unevaluated)
↓	
Evaluation	Critical Review of area
	Critical compilation of data
	Criteria for Experimentation
	Recommendations
	Solutions to immediate problem
	Correlation of data
	Prediction of Properties

and other material necessary for the ultimate utilization—evaluation of the content. The products resulting from this phase might be an unevaluated compilation of data or a descriptive review, sometimes referred to as the state-of-the-art review. The descriptive review is a selective extraction of information from the literature on a particular subjects; some state-of-the art reviews go beyond the desrciption of who did what and what happened and offer some evaluation, but, on the whole, descriptive reviews are summaries of the activities described in the literature for a set period of time, usually a calendar year. Uncritical data compliations can be useful products in that scientific and technical reviews and state-of-the-art reports.

Information analysis centres using high levels of selectivity, evaluation and analysis of existing information, particularly in science and technology and then synthesizing products like handbooks containing findings and/or data from a number of sources, compilations of critical evaluated data for given materials, processes or phenomena, and the like.

The analysis of barriers and of the solution as presented has led to the evolution of information analysis and consolidated centres. The greatest impetus for the

development of information consolidation came from the practices of information analysis centres as instituted from the 1950's onward.

5.4 INFORMATION CONSOLIDATION : DEFINITIONS

The idea of consolidated information comes from discussions of information problems in developing countries. Many of these problems relate to the lack of information, low resources for information work, inadequacy of information infrastructure and low propensity of users to use of information. However, it is also recognised that mere possession of information—having it available and accessible—is not guarantee of its use.

A number of United Nations Organizations have been actively seeking solutions to the information problems in developing countries, UNESCO being the most active one. Information consolidation as a suggested solution to the problems of barriers to use of information was a particular topic of three meetings sponsored by the **General Information Programme (PGI)**, UNESCO.

1. **First Meeting of the UNISIST Working Group on Information Analysis Centres.** Unesco House, Paris, 3-5 November, 1975.

2. **Symposium on Information Analysis and Consolidation** (second meeting) Colombo, Sri Lanka, 12-15 September, 1978.

3. **Third Meeting of the UNISIST Working Group on Information Analysis and Consolidation** Kula Lampur, Malaysia, 12-16 September, 1983 they provide a handy, time-saving amalgamation in a convenient format. These products are prerequisites for the fundamental function of the IAC. This results in the creation of new knowledge—like critical reviews, critical data compilations, criteria, recommendations, solutions to problem, correlations, and predictions.

5.5 PROBLEM OF USING INFORMATION

Historically, the concept of information consolidation evolved as a response to complaints about and analysis of barriers to fruitful use of information among them:

There is too much information on a topic and the potential user is overloaded or overwhelmed—the sheer amount decreases the willingness to use information, taking too much time and effort.

Information is presented in a context or with examples that are outside the user's cultural framework—the divergent cultural attributes impede the ability to relate to specific circumstances.

The packaging may be an impediment to information absorption.

Validity and reliability of information is not evaluated and thus information is questioned.

These and similar barriers have been a serious impediment in the use of information throughout the world.

Clearly, bibliographic organization, classification, indexing and abstracting services, related databases and the like, are important solutions to the problem of controlling and locating information. Without them there would be total and unthinkable information chaos and a great many activities such as science, would grind to a halt.

However, these services contribute directly to overcoming the listed barriers to use of information. It has been recognised that other solutions are needed. Over the years a number of them have been tried and proven sucessful. Some of them may be noted here.

The following definition was adopted at the Colombo meeting : "Information Consolidation Activities is used to define the responsibilities exercised by individuals, departments, or organizations for evaluating and compressing relevant documents in order to provide definite user groups with reliable and concise new bodies of knowledge. Individuals or groups of individuals performing information consolidation activities would each constitute an INFORMATION CONSOLIDATION UNIT (UCI).

A related, but more elaborate definition was offered by T. Saracevic and J. Wood:

"**CONSOLIDATED INFORMATION** is public knowledge specifically selected, analysed, evaluated, and possibly restructured and repackaged for the purpose of serving some of the immediate decisions, problems, and information needs of a defined clientele or social group, who otherwise may not be able to effectively and efficiently access and use this knowledge as available in the great amounts of documents or in its original form. The criteria for selection, evaluation, restructuring, and repackaging of this knowledge are derived from the potential clientele."

5.6 USERS

The users of IAC centres address several distinct types of user groups :

Scientists, engineers and professionals engaged in R & D activities, manufacturing, health services, planning, education, etc.

Managers and business people engaged in small and large business, commerce marketing, etc.

Policy and decision makers in government.

Technicians, supervisors, paraprofessionals.

Communicators such as extension workers, local leaders in adaptings new technology or practices.

Agricultural and industrial workers from rural and urban populations.

The information needs of the last two groups mentioned above, are receiving particular attention from information consolidation efforts, because these are the groups that are left unserved by majority of existing information services and products produced in both developed and developing countries.
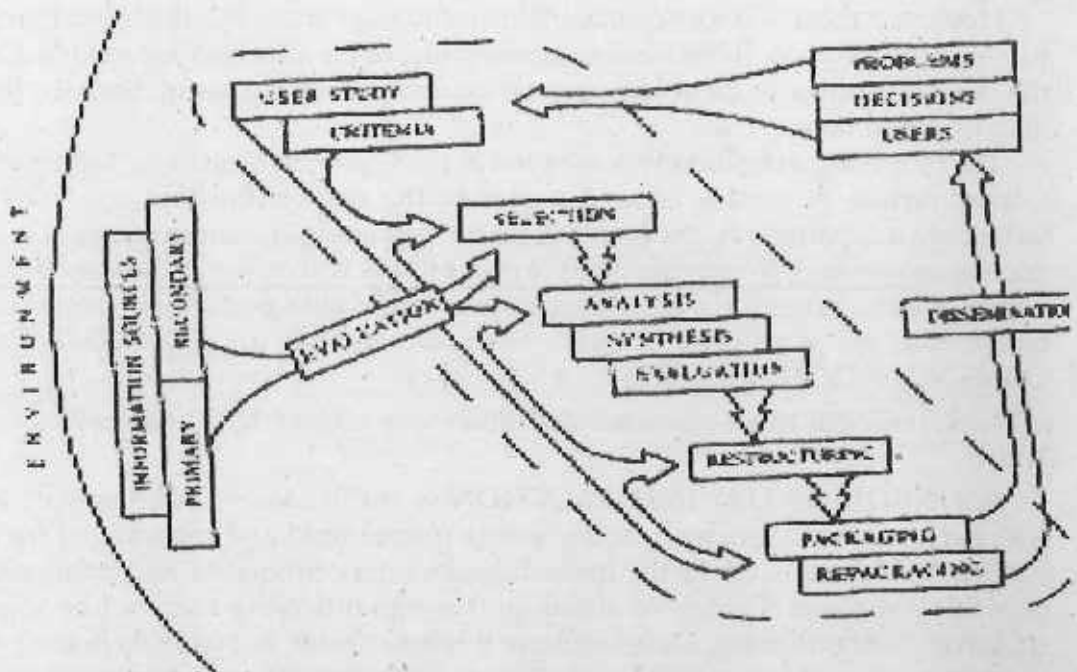
Processes in information consolidation

Processes in Information Consolidation

Implied in the definition noted above are the following basic processes invlved in the preparation of information products.

1. **Study of potential users** to derive criteria for all other processes.

2. **Selection of information source(s)** potentially containing the most useful information for given user problems and information needs; the selection can be done from a variety of primary and secondary sources.

3. **Evaluation of information** as to its intrinsic merit, validity and reliability.

4. **Analysis** to identify and extract the most salient features.

5. **Reconstructing** (if necessary) the extracted information into a content that can be used most effectively and efficiently by users; this may involve synthesis, condensation, rewriting, review, state-of-the-art presentation, etc.

6. **Packaging and/or repackaging** of restructured information in a form that will enhance the potential of its use. (Restructuring concerns with the contents or substance of information while packaging deals with the media, format and the form of its presentation).

7. Diffusion or Dissemination of information in ways that will encourage and promote its use; this may also involve education of users in the use of information and marketing of information.

8. **Feedback** from users, evaluation of the effects, and adjustment.

The above figure summarizes the processes, elements and relatios invovled. Although related to other iformation activites, most notably abstracting and indexing, information consolidation is a proposition of much higher complexity and greater demands. In this lies the basic problem of information consolidation.

5.7 VALUE AND BENEFITS OF CONSOLIDATED INFORMATION

On a general level information consolidation is justified for its contribution to the process of social and economic development. On a specific level its benefits can be argued as a contribution in problem solving and decision making. Let us discuss in turn.

The process of development in an increasingly interdependent world involves and requires an increase in sophistication and use of scietific, commerical and related information. The value of such information does not lie in its existence (or even in the systems that assure its availability and accessibility), but in its acceptance and use. In turn, chances for acceptance and use of information are increased by its being more appropriate. Consolidated information aims at being more appropriate to the users, their needs and levels, the capacities and time allotments given to information absorption and similar user—related factors. Clearly, arguments for consolidated information should involve economic aspects (savings, earning, productivity, competitiveness, etc.), but its value may be even greater because it is related to other values in a society. Consolidated information may contribute to information sophistication of a population, which in turn contributes to quality of life. For instance, consider the value of consolidated information that helps to improve sanitation, which in turn decreases disease, pain and suffering. More specifically, the value of consolidated information can be argued in relation to its role in decision making and problem solving. Making decisions and solving problems, even those encountered in everybody work, requires information.

65

5

Moreover :

As complexity of decisions or problems increases, the need for information intensifies;

As the amount of available information proliferates, it becomes harder to get and use the relevant information;

As complexity, interdisciplinarity and technical sophistication of available information increases, less can be used by decision makers and problem solvers as presented in its original form.

All these point to the need for consolidated information.

As the amount of information presented to a decision maker is increasingly consolidated, its value increase; as the information is increasingly expressed in the everyday language and social/cultural framework of the user, its value increase for that user; as the information is increasingly packaged in a way that will make its use easier, its value increases.

5.8 PRODUCTS AND EFFORTS OF IAC

Several information centres in developing countries have devoted part of their efforts to development and distribution of information consolidation products particularly aimed at the broader audiences (technicians, villagers, extension wokers, teachers in rural areas, etc.). Among these are :

Tata Energy Research Institute, Bombay, India: **Biogas Handwork, Biogas Technology: A Manual for Decision Makers, Biogas Technology: A Manual for Extension Workers, Windpump Handhook** and **Cooking Stoves Handbook.**

International Ferrocement Information Center in Bangkok, Thailand publishes a "Do It Yourself Series" among these are : **Ferrocement Canoe,** and **Ferrocement Water Tank.** Cassava Information Center in Cali, Columbia : **Cassava Drying, Cassava Harvesting Aid.**

Further description of activities from 15 other information centres from 13 countries can be found in **Specialized Information Analysis Centres in International Development** from the International Development Research Centre of Canada. Most advanced and among the best designed information consolidation products are produced by the four information centres in geotechnical engineering, environmental sanitation, ferrocement and renewable energy of the Asian Institute of Technology in Thailand, described in some detail in **Information Services for Developing Countries** by J. Vails.

The Canadian International Development Research Centre (IDRC) has devoted considerable efforts to fostering specialized information centres around the world.

IDRC efforts in this area have been quite effective, highly visible and noted with great favour among information professionals in developing countries.

Unesco has commissioned a handbook on informatio consolidation [Saracevic, T and Wood, J: Consolidation of Information. A Handbook on Evaluation Restructuring and Repackaging of Scientific and Technical Information. Paris, Unesco, 1981 (PGI/81/WS/16)] and published a guidelines in 1982 for the establishment of information consolidation units [Mazumder, A: **Consolidation of Information: Biogas Handbook.** Paris, Unesco, 1982 (PGI/82/WS/19)] Central Machine Tools Institute. **Machine Tool Design Handbook.** Bangalore, NICMAP.

Indian Council of Medical Research Handbook of Radio-immunioassay. New Delhi, 1987. Central Machine Tools Institute. **Trend Report on Electrochemical** Maching 1965-72. Bangalore, WICMAP. Central Leather Research Institute : **Health and safety at work: Leather, Leather goods and Footwear Industries.** Madras, NICLAI, 1985.

There are mannuals published by Indian Council of Medical Research on Laboratory Techniques from Hyderabad in 1983, on Low Cost balanced diets and school lunch programme suitable for south India from Hyderabad, National Institute of Nutrition in 1977.

There are state-of-the-art reports on studies on Himalayan Glaciers, published by Department of Science and Technology, New Delhi, 1984; on Sal Fat published by Central Food Technological Research Institute, Mysore.

5.9   IAC CENTRES IN INDIA

In India some of the information centres held by Tata Energy Research Institute, Central Food Research Institute, Leather Research Institute, Defence Science Documentation Centre and few other centres established by the Department of Science and Technology are bringing IAC products to cater to the needs of in-house scientists at various levels. But these centres have not yet been geared up to meet the needs of specialised groups all over the country. At present India needs establishment and all round development Information Analysis and Consolidation centres to meet the needs of research community at various levels in the country.

5.10 SUMMARY

This unit addresses the problems of the proper use of information in this age of information explosion. This unit contributes to the clarification of consepts, problems and requirements of specific information practices referred to as information analysis and consolidation. The aim of information analysis and

consolidation centre is to increase the effectiveness of information usage and to widen the circle of population of users served. Information analysis and consolidation is neither an information panacea, nor substitute for any of the existing information activities. It is one approach in the whole spectrum of information practices needed for various aspects of development.

However, information consolidation is an effective approach to fulfilment of specific informational needs for evaluative and synthesized information services for yet unserved. Here in this unit we have discussed functions, activities and products of IAC Centres and steps in the processes of information consolidation. Information consolidation has proven its value and benefits in information transfer. Therefore, information consolidation should be given a proper consideration in the institution or refinement efforts serving developing countries.

5.11 EXERCISE

1. What is an IAC centre? How does it differ from other types of information centre?
2. What are the functions of an IAC centre ? Discuss its activities and products.
3. Define information consolidation. Discuss the role of Unesco in this context.
4. Discuss the problems encountered in the use of information.
5. Describe the processes in information consolidation.
6. Explain the value and benefit of consolidated information.

5.12 REFERENCES AND FURTHER READING

1. Atherton, Pauline : Handbook for information systems and services. Paris, Unesco, 1977.
2. Bhattacharyya, Ganesh: Information analysis for consolidation. DRTC Annual Seminar 18, Paper A 1981.
3. Saracevic, Tefko : Process and problems in information consolidation. *Information Processing and Management* 1986, 22(1), 45-60.
4. Seetharama, S : Planning of information analysis centres : some general considerations. DRTC Annual seminar 18, Paper H.D. 1981.

UNIT 6 ☐ LITERATURE SEARCHES

Structure

6.0 OBJECTIVES

In this unit you will learn :
Literature searching, its benefits, the routes or paths of literature searching, the devices adapted for searching, the locating devices of literature, and especially literature searching in library and information science.

6.1 INTRODUCTION

Literature searching is an intrinsic part of scholaiship. A true scholar cannot pursue his search for truth or knowledge without a proper route to the published or unpublished literature in his field. Literature search is especially vital for undertaking a research. It has been and will be a very important part of a research work.

6.2 SCOPE

It is vital for researchers to know what has already been done in their fields. They learn this by turning to records of observations and experiments of their predecessors. This record of earlier work on a subject is known as its literature. Locating this information is called making a literature search.

Literature searching is a procedure by which the searcher tunes in on the scholarly discussion at the level of generality corresponding to the familiarity of the subject and then follows the discussion through closer analysis of more specific matters to reach the level of detail and currency indicated by the problem. The most generalized and firmly established principles are sought out first, and these

provide the necessary background for consideration of more detailed and unsettled matters, closer to the advancing frontiers of knowledge. The literature search is of value to researchers by helping there to regard their studies as contributions to a larger topic of which the inquiry is only a part.

6.3   LITERATURE SEARCH—BENEFITS

Literature search is the endeavour to identify, locate, and synthesize the complete research reports, articles, books, and other materials about the specific problems of a research topic. Literature searches help to specify and clearly mark the research problem; it reveals overlooked conclusions and facts that must be considered before a research is to be undertaken; suggests new approaches and plans for investigations; helps to look at the extent to which the particular problems have been dealt with and helps to understand the theoretical approaches of proposed problems.

6.4   LITERATURE SEARCHING—THE ROUTE

The route of literature searching encompasses from the general to specific forms of literature. As is known, the most comprehensive, generalized, and many sided account of a subject is presented by a scholarly encyclopedia. Encyclopedias summarize current knowledge as well as the background and developmental history of a subject.

The history of a discipline conveys 'what is known' at another level. From the historical perspective, existing knowledge is viewed as the outcome of the scholarly effort as it has developed over time.

The textbook represents yet another approach to synthesis. It formulates a systematic body of explanation and definitions derived from the past research effort. An essay collection performs the similar function.

The handbook summarizes current activity in a research field, and examines the status of questions of current interest. So its approach to a topic is apt to be more fragmented than that of an encyclopaedia or textbook. Handbooks give more stress on the specifics of data and methodology to the unsolved problems and issues engaging the interest of researchers.

The periodic stocktaking review considers the ongoing research effort, outlining its directions and accomplishments and the issues of major current interest.

The review article represents a more limited and detailed level of approach to 'what is known'. It examines and infers the evidence from a body of research in quite specific terms and proposes conclusions that may be drawn. Such reviews

often reveal gaps in available knowledge and indicates directions for further research.

The reports of individual studies view 'What is known' with emphasis on newly acquired knowledge proposed for addition to the existing stock. So the research reports are the gateways through which new information and ideas enter the system, to combine and interact with what is already existing and, potentially to produce changes in what has been set forth all the way back up the line to the generalized formulations of textbooks and encyclopedias.

This route from the generalized, comprehensive account of what is known about a subject to the detailed studies of single instances insulates is the basic pattern of information seeking in scholarly literature. This is the case for the advanced scholar as well as undergraduate students for the exhaustive study of a subject.

This route from the general comprehensive account of what is known about a subject, to the detailed studies of single instances, is the basic pattern of information seeking in scholarly literature. This is not to say that every search must traverse the full route of publications from encyclopedias to research journals with all immediate steps. Only a portion of the sequence may be involved on any particular occasion, even though the basic pattern and direction are essentially unvarying.

The portion of the literature to be traversed in a given instance represents the distance from where the searcher is, in terms of his prior knowledge to where he wants to go. The point at which a literature search ends is determined by what the searcher wants to know. That is, the reader proceeds along the route from more general to more specific publication forms until he reaches the level of detail and specificity corresponding to the question he has in mind. This sequence from more generalized to more detailed accounts can be matched to a corresponding sequence of publication forms, from encyclopedias to journals.

6.5 LOCATING DEVICES

There are several methods to identify the literature relating to a subject. One familiar procedure is to follow up references cited in the works that the reader has already seen. An advantage of this method is that it focuses directly on the problem under consideration. But a major drawback of this method is that the process normally moves backward through time and cannot be used to investigate the subsequent development of an idea. The technique of citation indexing is designed to deal with this problem.

The second means relies our the searcher's memory and personal familiarity with what has been written on a subject. This approach is employed quite often by scholars and can be used only to a very limited extent by students.

The use of bibliographies is another method of locating information in the literature. The current awareness list, 'retrospective bibliography,' 'guide to the literature' are all important bibliographic tools of scholarship which comprise a system whose structure and organization parallels that of scholarly literature.

On-line searching is another effective tools which permit an interaction between the searcher and the system. The most important advantage of this is that this system gives current, up-to-date information instantly. Indexing and abstracting databases are also nonetheless important in aiding the researcher in literature search process. In addition to searching the literature through abstracting and indexing services, one should scan through the footnotes in retrieved papers to find other related publications; such citation analysis often points to older materials missed in a search of current databases.

6.6 LITERATURE SEARCHING IN LIBRARY AND INFORMATION SCIENCE

An example of literature search in library and information science is 'Library Literature'—the author and subject index to selected library science materials, published by H. W. Wilson Company. It is among the most useful sources for locating relevant contemporary literature. When searches are needed for retrospective or historical information, the indexes like 'A Bibliography of Librarianship', 'Bibliography of Library Economy' proves useful. Theses and dissertations are also valuable sources of research information. The Journal of Education for Librarianship', 'Libri', Journal of Academic Librarianship' provides research topics on library science. A part from these, other bibliographies of library science thesis and dissertations which includes 'Library Science Dissertations', 'Master's theses in Library Science', are worth mentioning.

Other specialized reference tools which have proved to be valuable for literature searches are 'Advances in Librarianship', 'Annual Review of Information Science and Technology', 'Encyclopedia of Library and Information Science', 'ERIC Educational Documents Abstracts', and 'Australian Library and Information Science Abstracts'.

Other helpful journals in this field which needs regular scanning are 'College and Research Libraries', 'RQ', 'Library and Information Science Research', 'Library Resources and Technical Services', and the 'Journal of the American Society for Information Science'. Some journals not directly related to the field are also worth considering, like Internet Research.'

For directories and guides in this field, one has to consult 'The ALA Handbook of Organization', 'Subject Directory of Special Libraries', 'Directory of Special Libraries and Information Centres', British Library Resources. A Bibliographic guide', 'Directory of Academic Library Consortia', 'Guide to Reference Sources in Computer Science', and 'Guide to the Research Collections of the New York Public Library'.

6.7 EXERCISE

1. Discuss the importance of literature search in research work.
2. Give an idea of the literature search in library & information science.

6.8 REFERENCES AND FUTHER STUDY

1. Busha, Charles H.— Research methods. In Encyclopedia of Library and Information Science, Vol. 25, Edited by Allen Kent and others; p. 283-284. Mercel Dekker.
2. Gorman, G. E. and Clayton, Peter— Qualitative research for the information professional: a practical handbook. London : The Library Association, 1998.
3. Mellon, Constance A.— Naturalistic inquiry for library science : methods and applications for research, evaluation and teaching. Westport, C.T. : Greenwood Press, 1990.

UNIT 7 ◻ DOCUMENT DELIVERY SERVICE

Structure

7.0 OBJECTIVES

This unit will give you an idea about the second type of information services-document delivery. You will learn its scope and definition and the categories of document delivery services, the key agencies implementing these and lastly, the future of document delivery service.

7.1 INTRODUCTION

Document delivery refers to the provision of materials that is provided to the users through the libraries, and that may be retained by the users. The medium of the document delivery have undergone a vast change, but the main framework within which this system works remains the same. It differs from the interlibrary loan service, which is more complex and depends on many factors. Document delivery is much simple, cost effective and userfriendly.

7.2 DEFINITION AND SCOPE

Document delivery is the service in which a library or other agency makes some form of publication available when needed and requested by a library user. Earlier this term meant the delivery, to the user of an original publication from the library's own collection or borrowed from another library. Today, the delivery of a publication, or part of it, to a library user can be achieved by a wide variety of methods and sources. The photographic methods of reproduction has become more efficient and economical, and the delivery of an original item has been replaced by

the delivery of a photocopy. Document delivery, in a broad sense, means the provision of materials that may be retained by users. Document delivery encompasses the provision of published or unpublished documents in hard copy, microform or digital form, usually for a fixed fee upon request. This means that the physical or electronic delivery of documents from a library collection to the residence, or place of business of a library user, upon request, is provided through this service. This service enables users to order copies of materials retrieved by on-line searches, either by direct despatch of items or via an agent.

Document delivery can be proactive or reactive, depending our the users and their needs. In the early 1990s Current Alerting Services-Individual Article Supply (CAS - IAS) was launched, which provided a mechanism for alerting end-users and librarians to the existence of new article titles. In this above mentioned service, a database is constructed, chosen from the tables of contents from important journals that are in active use. Searching this database enables individuals to identify titles of particular relevance to their query and to place an order online for the article itself. These services are more costly than interlending or centralized document delivery services, because a royalty payment is made to the copyright holder, or publisher in order to comply with national copyright laws. In case of reactive service, document delivery is used by the librarians according to budgetary requirements. Due to the growth in budgets, it is not possible for the libraries to acquire all types of materials that the users require. Such economic pressures, combined with the rapid increase of information available electronically, has led to the changing role of libraries, which now do not own much material and instead provide access to those materials to the users via document delivery.

Document delivery is a complex process which spans time and distance between customer and supplier. The key factors involved here are document discovery, the location of a supplier, request and delivery. In the modern age, librarians, publishers and other document delivery services need to combat with the complexities of this system, since conventional document delivery is nowadays interwined with electronic document delivery. Document delivery has generated significant attention in recent times. Owing to financial crunches, with adequate access to journals for researchers, document delivery seems to be the only solution. Today libraries have a choice in how to provide customers with needed but unowned materials through this service. Another factor, for many libraries is the limitation of space libraries have had difficulty maintaining their operating budgets; when it comes to securing funding for additional space to house the evergrowing collections, it becomes much more difficult. One way to gain space in an existing facility is to look at long back volumes of journals, especially those that have very little usage. Withdrawing the physical volumes provides shelving space. But the question then

becomes how to provide access to the withdrawn titles. Buying microfiche film versions is one option; but microfilm storage cabinets take up space, and the cost of microforms and the equipments to use them must be considered. So accepting the document delivery option saves space and the cost of requested materials may never equal the cost of the microforms.

7.3 DOCUMENT DELIVERY SERVICES-CATEGORIES

Document delivery consists of three main items—
a)   creation of a document through authors, editors or publishers;
b)   alerting to document existence-through library, publisher, subscription agents current awareness service, bibliographic database producer and on-line search service;
c)   provision of a document through library, library consortium, subscription agents, publishers, current-awareness service, and commercial document delivery service.

Documents may be delivered through CD-ROM, fax, on-line or web, or in print form. Different types of documents delivered are books, journals, journal articles, or reference works. The nature of the delivery may be in the form of purchase or loan.

The various categories of document delivery services are discussed below :

(i) Library networks and consortia—

The cooperative activities of the libraries is a relatively old concept, and through these exchange of print based documents or interlibrary loan is facilitated. Now-a-days print delivery has been supplemented by electronic document delivery. The networking of libraries relate to the creation of union catalogue database as a means of accessing and sharing the resources of a group of libraries. The networks help in revealing the contents of a large number of libraries or a large number of publications, especially through accessibility of catalogue databases, and making the resources shown in these databases available to individual libraries and users when required. Many organisations have taken to this networking and various projects are going on in this area, like CONSER (cooperative on-line serials), OCLC, RLG (Research Libraries Group), BLAISE (British Library Automated Information Service), LASER (London and South Eastern Region), JANET (Joint Academic Network), EARN (European Academic Research Network) etc.

(ii) Document delivery on CD-ROM

Both bibliographic and source databases are supplied on CD-ROM. Where the library acquires a document on CD-ROM, they may provide networked access to the document under appropriate networking licenses. A DONIS is a CD-ROM

based article delivery system. There are articles from over 680 titles and more than 70 publishers in the biomedical fields. The documents in ADONIS are images, so the actual text of the article is not searcheable. Items included in the index alone have currency as search terms. This index is assertible using Boolean searching, comparative and proximity searching, and wildcard searching. Printing an article incurs the Publishers Copyrights charges, which is set by each publisher. Update CD-ROMS are produced as soon as ADONIS has processed the journal issues.

(iii) Commercial document delivery services.

Many new commercial document delivery services are directed towards end users. Most involve partnerships between document providers and on-line services. They rely on a combination of technologies, or on alternative technologies, like fax, Internet, or electronic bulletin board system. OCLC Firs!: Search is on on-line search service that is very much used in the academic community. It provides access to a wide range of databases, with an easy-to-use menu interface with cost controls through end use pricing. KR Source One is another example of a commercial service, linked to a search service. Documents can be ordered through DIALORDER, on DIALOG, or through email, phone, fax or WWW. Un cover is a sister service to KR Source One. Document delivery is from a periodicals database that indexes 17,000 multidisciplinary titles. This database can be searched through a web interface by topic, author name, or periodical title.

(iv) Library suppliers & subscription agents.

Recently many book suppliers have established electronic ordering systems. These allow the library to consult a book suppliers database on-line for book selection purposes. In the electronic ordering of books, links can be made from author to retailer via publisher, wholesaler and library. Libraries interface with suppliers or wholesalers, and then makes items available, recording transactions through their circulation control systems. Many serial subscription agents such as SWETS, EBSCO and Blackwell have developed a range of services based on the databases of journals and links with publishers and libraries. Services like data swets give electronic access to the subscriptions database enabling users to search for bibliographic and price information, and to look up subscription details.

(v) Electronic journal publishers and suppliers

There are two forms of electronic journals journals—that are originally published in print form, and which are available in digital form; journals that are born digital which often do not need a publisher, and which can be managed by an editor and a scholarly community. The rise in the 1990s of e-journals available via the world wide web posed a challenge to traditional forms. Such journals are in some cases referred, some are freely available, and some of them command a price. Many of them do not have a printed equivalent, from which a document request might be

satisfied. Document delivery is a particularly contentious issue for venders of electronic information, and a clear definition of terms is one of the most valuable functions model licences can perform in supporting the needs of the library's document delivery functions. A model license is an idealized version of a licensing contract that gives both libraries and venders a basis for evaluating and negotiating contracts that will be fair and profitable to all parties. A development in the UK electronic journal environment is the National Electronic Site Licence Initiative (NESLI) established by the Joint Information Systems Committee (JISC). It is intended as a service designed to promote the widespread delivery and use of e-journals in the U.K. higher education and research community. In case of delivery services for e-journals, one should be cautious in choosing an e-journal vendor, and should see to the following criteria-

- type of acces s provided
- quality/content of the database
- ordering options (user, library)
- costs & what is covered (copyright fees)
- delivery options (fax/email)
- reliability
- payment options
- customer service availability

Lancaster and Sandore (1997) have chalked out a possibility of access/delivery options for journal articles, which is shown below :

```
                        Ownership by library

    Inprint form                 /              In electronic
(or microcopy of print)         /                   form

                         Access

library resource —       commercial        — network access to journals;
    sharing            suppliers of copies    also available in paper form;
                                                   only in e-form

                      Delivery options

                    rail - fax - network

physical (print based)                              virtual (digital)
```
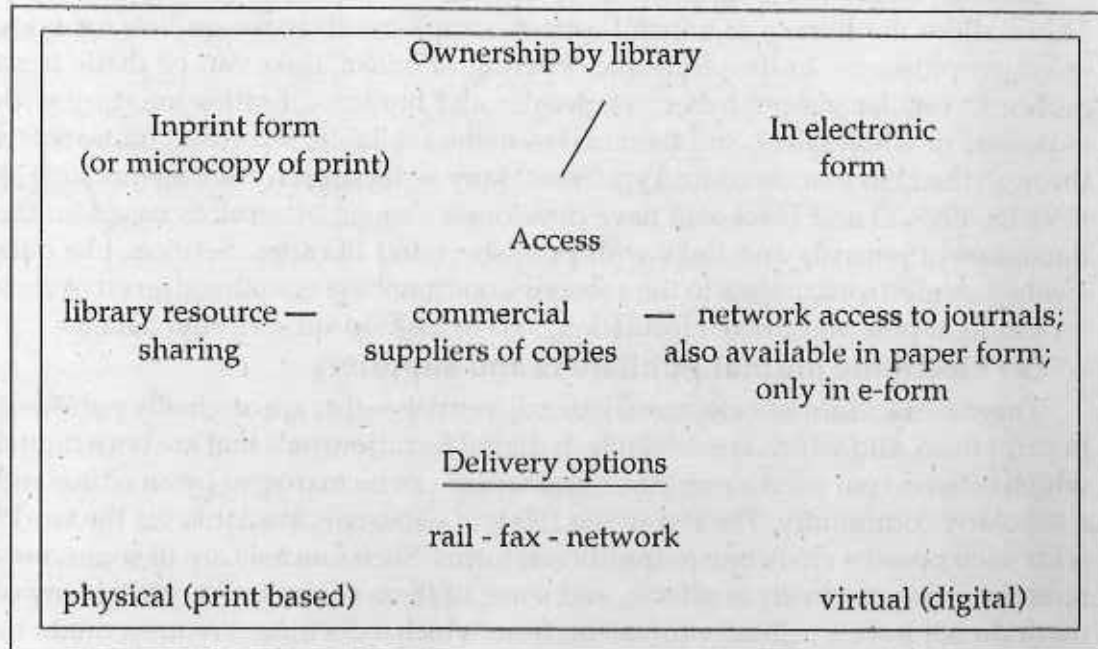
According to them, the most physical form of delivery can be considered as the delivery to the user of an original item from the library's collection or from that of another institution. Somewhat less 'physical' is the delivery of the photocopy of that item. The most 'virtual' is the provision of access to journals that exist only in network-accessible form.

7.4 DOCUMENT DELIVERY—KEY AGENCIES

The British Library Document Supply Centre (BLDSC) dominates the U. K. Scene for document delivery. It was set up as British Library Lending Division (BLLD) in 1973 by amalgamating the stocks and services of the National Central Library with the National Lending Library for Science & Technology. It receives over 3.8 million requests each year, over a million of which are from outside U.K. Three quarters of the requests received by BLDSC are made electronically. Most of the orders are despatched by mail, and delivery to clients takes place very fast. BLDSC makes provision of service to science, technology and industry, and also supplies documents to the humanities and social science communities. Requests are carried out electronically through the BLDSC's proprietary ART system. Similar services operate in France (INIST), in Germany (Hanover, Cologne), in Canada (CISTI) and in other countries that have adopted the BLDSC model as their basis.

EDDIS is a project that is automating to integrate the whole process of information access, from discovery to delivery. EDDIS is designed as an end user service which integrates document discovery, location, request and receipt available through a www interface. This project have demonstrated that electronic document delivery is possible, but implementation depends upon the type of users and also acceptance of standards.

BLDSC has contributed to the EDIL (Electronic Document Interchange between Libraries) project, with partners in France, the Netherlands and Germany, working on a system enabling the fast interchange of electronic documents between libraries. This project shared the view that Interned standards and electronic mail are the most appropriate approaches to electronic document delivery.

BIDS, the service offered by the UK office for Library Networking, established in 1989, supports the development of networking activities among UK Libraries. It has played an important role in making electronic databases available at competitive rates within the UK academic community. Key databases are BIDS ISI Service, BIDS COMPENDEX service, BIDSEMBASE service, etc.

EBSCO, an important name in electronic journal services offers four services which are EBSCO subscription services, EBSCO publishing which publishes electronic indexing, abstracting both on-line and on CD-ROM, EBSCO dock, a

document delivery service providing article delivery of print documents, and EBSCO host, an on-line client-server system providing search and retrieval of abstracts & full-text articles.

In USA, OCLC plays a boding role in providing an interlibrary lending subsystem to its library management system, thus facilitating the creation, sending, and tracking of document delivery and interlibrary loan requests for materials included on World Cat (OCLC's On-line Union Catalogue), which provides access to the combined resources of over 6700 libraries, totalling over 43 million records. It has developed its own Article First, and Contents First database too. OCLC First Search is the on-line search service that is widely used in the academic community. Document delivery for articles identified through access to OCLC First Search's bibliographic database can be brought through a number of different modes like ASCII full-text on-line, printed document images, and electronic document images.

INFLIBNET has initiated a new Document Delivery Service in collaboration with six university libraries : Banaras Hindu University, Varanasi; University of Hyderabad; Indian Institute of Science, Bangalore; JNU-New Delhi; Punjab University Chandigarh and Tata Institute of Social Science-Mumbai. These serve as document delivery centres and deliver, on demand, the copies of papers from learned journals, conference proceedings and other materials.

7.5 DOCUMENT DELIVERY—THE FUTURE

Document delivery service will gain immense momentum in the future, though the nature of document supply will inevitably change as an increasing amount of material becomes available only electronically. But side by side, a number of factors will be taken into consideration too. The debate over copyright law and its application is an impatient one as libraries and publishers attempt to deal with the implications of new technologes, new formats for imformation and improved networks of communication. The development of standards for the delivery of materials is another issue. The increasing number of commercial suppliers and the increasing possibility of a changing marketing model are other issues. As libraries move from a traditional model where they are the resource centre and purchase items, to an access-based model, this role becomes even more critical. Document delivery will become more streamlined, more integrated and less reliant on library personnel mediation as suppliers move towards providing direct electronic access to the end-user. The need for a library-based document delivery department will remain but it is likely that its role will change. To sum up, we can say that the following factors will have a direct impact on the document delivery services—
a) Increase in information

b) The nature of document delivery
c) Technological developments.
d) Shift from holdings to access based policies
e) Integrated and wider catalogue access among libraries
f) Current-awareness services.

It can be concluded in the words of Suzanne Ward that 'The only certainties in document delivery today are that the number of requests will increase exponentially and that tomorrow there will be ever more suppliers and methods for ordering from them.'

7.6 EXERCISE

1. What are the various categories of document delivery services?
2. Discuss the key agencies involved in the document delivery services.

7.7 REFERENCES AND FURTHER STUDY

1. Evans, Edward G. & Zarnorky, M. R. — Developing Library and Information Center Collections. Libraries Unlimited, 2004.
2. Finnie, E. — Document delivery, ASLIB, 1998.
3. Morris, A. & Blagg, E. — Current practices and use of document delivery services in U. K. Academic Libraries. *Library Management*, 19 : 271-80

6

UNIT 8 ☐ TRANSLATION SERVICES

8.0   OBJECTIVES

This unit brings into forefront the third type of information services, i.e. translation services. You will learn the role of libraries in this aspect, the types of translations, the methods of translations, various translation pools and translation tools.

8.1   INTRODUCTION

Translations have always been regarded as an important part of information services. The information explosion has much augmented the necessity of translation services as a huge amount of publications are in different languages of the world. The inportance of translation pools and translation tools have soared high and a number of agencies are now involved in this work at Government, Non-government, public and private level.

8.2   DEFINITION AND SCOPE

The word 'translation' is a popular one in the English language dictionary. The Random House Dictionary describes it as to turn from one language to another. The Oxford English Dictionary gives its meaning as 'Express the sense of word, speech, book etc. in one or into another language into another form of representation.' So we can say that translation in libraries, is a written work expressed in a language other than the languages in which it was originally composed. The purpose of a translation is to make a document accessible to those

who have insufficient knowledge of a language, to be able to comprehend the text in its original form. Language constitutes a very serious barrier in comunication. It has been found that more than 50% of the world's scientific and technological information appears in language other than English. So dissemination of non English foreign languages in scientific and technological literature is difficult. Some scientists and engineers feel that they may safely ignore materials written in languages other than their own native tongue. But this is a very serious mistake on their part. The need for translation is increasing rapidly as increased industrialization and national prosperity are causing useful information to appear in one or more languages. On-line access to multilingual database is also contributing to the need for translation, a need which is growing, as scientists attempt to keep up with the immense proliferation of scientific literature in their fields.

8.3 TRANSLATION SERVICES : ROLE OF LIBRARIES

The role of libraries in providing translation services is being increased day by day. Libraries often have their own pool of experts who provide translations to their customers. The character of a library in this service should be such that it must be national in scope, and should not duplicate or bypass existing translation projects, should publish & bring out bulletin containing lists of newly reported translations. It should translate data on all known resources, national or international. Not only this, but libraries must have information about translation pools and centres, professional associations conducting trans'ations, government agencies, commercial publications and their products, like cover to cover translations, preparation of digests and abstracts, bibliographical lists in English or other foreign language titles and translation of monographs, and similar others, directories of translators and translation firms. Libraries often maintain on up-to-date basis, ability to assist clients in identifying institutions holding the needed translations.

The role of libraries or library staff is noteworthy in this respect. The provision, in house, of a Current Awareness Service, may often indicate that the librarian or the library staff possess some foreign language ability, depending on how the service is compiled. The translators, may be often employed by the organization; in which case they are part of the library staff to help users. Staff members should be able either to translate, to abstract or make summaries of materials needed for translation. Translators act as a kind of medium, expressing ideas which would be inexpressible otherwise. The foremost duty of the translator is to keep the style and character as much as similar to the original, and faithful as much as possible to the original.

If all these factors play well, then we can prove the saying that translation builds libraries & libraries nurture translations.

Often the concept of 'double barrier' is felt in dealing with the translation literature. First is the language barrier, which has been dealt with, and the role of libraries in solving it has also been discussed. The second barrier is the time lag between the appearance of the original paper, and its subsequent translation, provided the translation is made. Therefore sometimes a common network is provided by the libraries or by the 'invisible college' of scientific researchers which in some way obviates the need for translation. A prior translation of articles, therefore can be predicted by a citation analysis to have a wide impact, and therefore their publication in a selected translated format.

8.4 TRANSLATION TYPES

The types of translation varies according to the nature of material to be translated. Natural, applied and social science documents are translated adhering to the content of the original. The legal materials, technical information, correspondence, pure and applied sciences all fall under the category of literal translations. In this type of translation, the subject matter is vital, styles and techniques are important. These type of translations are made for mass consumption, and these are repeatedly translated too. For example, Rabindranath Tagore's Gitanjali may be translated for mass consumption repeatedly. On the other hand, the scientific and technological translations are meant for specialists, and these are translated once a while. So these translations need precision and accuracy. Free translation refers to the freedom to substitute for the original word, that which is more appropriate, timely & understandable to the readers of the target knowledge, who live not only in a different country, but in different centuries too.

Published translations are accessible to a wide audience through conventional outlets such as libraries and booksellers. A translation can be published in the same form as the original (e.g. book, report, journal) or incorporated into a collective publication such as a translation journal. Translation journals contain a selection of translations from either the same source or multiple sources, usually in the same subject field. A cover-to-cover translation journal is a full translation of a journal originally published in another language. A dhoc (unpublished) translations are translations that have been privately commissioned by an individual, commercial or government organization for in-house use. Source organizations make their scientific and technical translations available through the World Translations Index (WTI) database to give other researchers the benefit.

8.5   TRANSLATION METHODS

There are mainly two methods of translation-human & machine. The most common method of translation is that of human translation performed by someone with a good knowledge of both the subject and the source & target languages.

Since the 1960s it has been possible, to a varying extent to employ computers to generate translations. This is known as machine translation. A machine translation is a translation generated by a computer, with or without the assistance of a human intermediary. Machine translations provide translations of entire sentences or texts but can offer translations that are unacceptable. Machine aided translation is another type of translation generated by a human with the help of a computer. This help can be in the form of word processing, terminology banks or dictionaries, other computerized databanks, spelling, grammar or style checkers & electronic publishing.

8.6   TRANSLATION POOLS

Translation work is a very expensive and time consuming process. So cooperation at international and national levels is essential for an effective translation process. This cooperation has resulted in the formation of translation pools. These pools publish various tools of translations, like indexes or bulletins. There are pools of translation at ASLIB and BLDSC, and elsewhere. The National Translation Centre at Chicago, the International Translation Centre at Delft, the National Virtual Translation Centre deserves special mention.

(a) The National Translation Centre

Located at the John Crerar Library, Chicago, it is an important depository and information source for unpublished translations into English from world literature of the natural, physical, medical and social sciences. It is a valuable research tool for the English speaking scientific community. Many scientific and professional societies, government agencies, colleges, universities and other academic institutions in U.S.A., and elsewhere deposit the translations prepared by them in the centre. Inquiries are also answered on the availability of translations from the centre. It acts as the national clearinghouse of information on translations. A number of indexes have been published by the centre which are as follows :

   i. Author list of translations, 1953 and its supplement, 1954.

   ii. Translations monthly, 1955-58

   iii. Technical translations, 1959-67

iv. Bibliography of translations of Russian scientific and technical literature, 1954-56.

v. Consolidated index of translations into English, 1969.

In 1967, the NTC started publishing its new index under the title Translations Register-Index which is a semimonthly journal. This section announces newly accessioned translations of the NTC recorded in subject categories arranged by the COSATI classification and terminology. It also indexes translations from other sources including the NTIS. The NTIS is responsible for collecting translations from both U.S. and foreign government sources. Translations available from the NTC are also available from the BLDSC of Great Britain on loan, or in photocopy.

(b) The International Translations Centre

Also called Centre International des Traductions, is a non-profit organization, serving as a clear house for information on existing scientific and technical translations from any source language into western languages. Founded in 1961, it is the part of a network that includes national translation centres in a dozen countries. It maintains a central reference catalogue and an information bureau to facilitate identification of and access to nearly one million translations. It produces the World Translations Index, a hardcopy and machine-readable index to scientific translations in all fields. The centre provides reproductions, and acts as a referral centre in relation to the national centers and other organizations holding translations, but it is important to role that the Centre does not perform translations itself. The major input here is in the form of notifications of translations from cooperating national centers and more than two hundred other organizations throughout the world. The centre maintains the machine readable World Translations Index data base, which holds approximately 250,000 references and covers the period from 1977 to the present. Approximately 28,000 items are added each year. The World Translations Index is published jointly with the Documentation Centre of the Centre National de la Recherche Scientific, Paris, and in cooperation with the National Translations Centre at the University of Chicago. It announces more there 28,000 translations per year (both completed & in-progress) of serial articles, patents, standards and monographs. The Journals in Translation is one of the Centres, publication, published jointly with the British Library Document Supply Centre, Boston Spa. Five-Year Cumulation of the World Index of Scientific Translations (1967-1971 & 1972-1976) is its another publication. Nine-year Cumulation World Transindex (1977-1985) published jointly with the Documentation Centre of the National Scientific Research Centre, Paris. It contains more than 190,000 notifications of scientific and technical translations, which includes source and author indexes.

The World Translations Index data base is also available on-line through ESA/ IRS, and it is produced by means of the PASCAL system. The database provides such bibliographic data as author name, title of translations, number of pages of translations, agency name from which the translation is available, price, language, name, year, volume & number of the original periodical. Reproduction of translations can be ordered'through the Questorder service of ESA/IRS.

(c) National Virtual Translation Centre

Established in 2003, it is an inter-agency element with a small, but diverse office staff coming from different agencies, academia, industry, etc. The main work of this centre is to develop policies, procedures & systems for managing translation requirements & services; create a virtual information sharing architecture that connects the translation tasks, language resources and linguists anywhere in U.S.A.; identify and utilize translation resources from U.S. Government, academia and private industry; support continued development and fielding of proven human language technologies designed to help processing of foreign language data. It was established for the purpose of providing timely & accurate translation of foreign intelligence for all elements of the intelligence community.

(d) The British Library Document Supply Centre

The BLDSC is the most important depository of translations in Britain. It collects and promotes translations from and to various sources. The BLDSC holds a comprehensive collection of translation into more than half a million Journals translated by English from a wide variety of languages particularly several articles translated from Japanese, Russian, German and French ranging from 1800 to present day. It holds cover to cover translation of selected Russian scientific serials many available through ZETOC. Patents, Standards, conference papers and books translated into English are also available. BLDSC often checks for an existing English version of the document required by any one. As an alternative it supplies documents in its original language item.

(e) NISCAIR

Formerly known as INSDOC, this Indian centre provides a translation service since the inception of INSDOC. The demand on this service is mainly for important European languages like German, Russian, French, into English. There is source demand of translations from Japanese & Chinese too. INSDOC had brought out a bulletin entitled National Index of Formulations (NIT). At present this index lists the translations of INSDOC and 22 collaborating institutions. Translations done in NISCAIR and a few other institutions in the country are regularly announced in the World Transindex of the International Translations Centre.

(f) Centre for Translations—Sahitya Akademi.

Sahitya Akademi, the famous Indian centre for literature, has established four centres for translation at Bangalore, Ahmedabad, Delhi and Santiniketan. These centres bring out special series of books from the language of one area of India, translated into English and other languages. Beginning with a series of premodern classics from the Bangalore centre, these centres will also translate books for the scheme "one hundred twentieth century classics," being brought out in English by Sahitya Akademi in collaboration with National Book Trust, India. The Bangalore Centre is stated to bring out translations of premodern classics in different languages under the series 'Prachya'.

Apart from these, there are other important translations pools which cater to the needs of the scientists and researchers all over the world. These are as follows : Royal Library of Belgium-National Centre for Scientific & Technological Documentation; Linguistic Research centre of the University of Texas, Austin; Institute for the Translation of Hebrew Literature; Canadian Index of Scientific & Technical Translation (CISTI) etc. In the Indian scenario, National Centre for Software Technology (C—DAC) is worth mentioning. It is a scientific society of the Department of Information Technology, Govt. of India, involved in research and development into the area of software technology. The project undertaken by it is called Matra which is the human aided machine translation system of English, Hindi and other languages.

8.7 TRANSLATION TOOLS

Translation indexes are the most important tools of translations which cover translations produced by a single organization or a country, or pertaining to a specific subject field. The most significant of these indexes is the Index Translationum which is the International Bibliography of Translation. It lists translation of books published by member states of UNESCO. It does not include journal articles. Articles covered are from 1932 to date. Searching mode is by author or title. It is published annually. Arrangement in it is by names of countries and ten main divisions of UDC. The details of World Translations Index has been discussed earlier. The subjects covered here are engineering and aeronautics and aerospace technology, biological and marine sciences, chemistry, earth sciences, iconography, agriculture, maths, physics, nuclear science, energy and technology. Half of the English translations were originally published in Russian and 30 percent were from Japanese and German originals.

Other important translation tools are Consolidated Index of Translations into English (1969), supplemented by Translations Register Index (1969); World Index

of Scientific Translations (1972); National Institute of Health's Translation Index (1954-63); Literature of the World in English Translations : A Bibliography (3 volumes) etc. 1969, the NTC issued an important guide, Consolidated index of translations in English (CITE). CITE contains details of 142,000 translations. CITE II, covering the years 1967-1984, appeared in 1987. In the USA, the Joint Publications Research Service (JPRS) produces many pages of scientific and technical translations each year. JPRS translations are notified in the announcement service Transdex index. Current announcements of translations from British sources are carried out in British reports translations and theses (BRTT).

8.8 EXERCISE

1. Discuss the importance of translations in the modern society.
2. Describe the important translation pools.

8.9 REFERENCES AND FURTHER STUDY

1. Guha, B. — Documentation & information, services, techniques & systems. Calcutta, World Press, 1983.
2. Kent, Allen, ed. — Encyclopedia of library & information science. Vol. 31, Mercel Dekker.
3. Mann, Thomas — A guide to library research methods. New York. Oxford University Press, 1987.

UNIT 9 □ TRADE LITERATURE

Structure

9.0 OBJECTIVES

We take trade literature to mean literature which an organization produces in connection with its products or services. By reading this unit you will know that manufacturers or dealers issue in a tremendous variety of forms, ranging from single sheets to multi-volumed sets, to describe and instruct their goods or services, of course such 'product data' as it is often called is his prestige. You will know different forms of trade literature, one of them is house journals. You will also understand the problems of their acquisition, arrangement, retrieval and use.

9.1 INTRODUCTION

One authoritative estimate is that in the United Kingdom alone there are over 30,000 companies producing trade literature. Its function may be to advertise or instruct the reader in the use, exploitation or maintenance of these products. Some of this literature is more information oriented than sales oriented, and some even encourages the reader to find new application for the products or materials available. The literature may take the form of sales brochures, catalogues, manuals, house journal, annual report, a handbook, a newsletter or a trade journal. Commonly it is very technical: in the case of chemicals, for instance, as Crane

points out, it will frequently summarize the chemistry of compounds, give extensive information on physical properties, tell how to use them in various ways, and give references to the literature. In many cases the aim is as much to inform potential customers, users and others, e.g. students, teachers, research workers, about commercially available materials, equipment and processes, as to stimulate sales as such.

In recent years manufacturers have been stepping up the informational content of the literature to encourage users themselves to find new applications and new markets for particular products. In some companies as much as half the advertising budget is devoted to trade literature. It has been estimated, noted by Grogan that in the field of electronic engineering, for instance, suppliers use 200,000 pages of trade literature to describe their wares. Some of these publications are merely trade catalogues, i.e. basically little more than enumeration of available goods, with brief details and sometimes supplementary indexes or keys, Prices are usually omitted, although separate price lists are sometimes available on request. Often of course this information is of commercial rather than strictly scientific or technical value. Even so they serve a vital function for the scientist and technologist: the chemist who needs a substance with certain characteristics, or the engineer looking for a piece of equipment to perform a specific task finds such catalogues invaluable, for without their aid he may not be able to ascertain easily whether they are available commercially and may thus be obliged to synthesize or builds for himself. But what raises manufactures' publications to the level of a primary source of scientific and technical information is the continuous flow of sheets, folders, pamphlets, bound and loose-leaf volumes, on new products and processes, theory and applications, containing original data that has not yet appeared in the regular literature.

It would be a mistake to assume that trade literature has only ephemeral importance. It is being increasingly realised how valuable are retrospective collections of trade literature for studies such as industrial archaeology, business history and the history of science and technology. It has frequently been discovered that contemporary manufacturers' brochures are often the only source of information on various museum objects or industrial relics particularly of the nineteenth century and early twentieth centuries. Unique so far is L. B. Romaine *A Guide to American Trade Catalogues* 1744-1900 (New York, Backer, 1960).

It may be mentioned in passing that not all trade literature is published by individual firms : trade associations sometimes issue catalogues listing their members' products, e.g. *British Chemicals and their manufacturers* (Association of British Chemical Manufacturers). Works of this kind are very similar in layout and use to the conventional trade directories. In fact trade directories are often regarded as a form of trade literature, though their publication in most cases through

normal book- trade channels would seem to indicate that they are best looked on as a specialized form of directory. Some trade directories do make a feature of including what is undeniably trade literature, e.g. the manufacturers' data sheets and catalogue pages describing products and services in *concrete yearbook*. Other examples are :

Kelly's Manufacturers and Merchants Directory. East Grinstead, Kelly's Directories, annually.

Key British Enterprises. The top 20,000 British Companies 2 vols. London, Dun and Bradstreet annually.

Sell's Directory : products and services. Epsom, Sell's Publications, annually.

Thomas Register of America Manufacturers and Thomas Register Catalog File. New York, Thomas Publishing Company, annually.

9.2 FORMS OF TRADE LITERATURE

The typical piece of trade literature is a folder or pamphlet, glossily produced but commonly of a nonstandard size and thousands of each pieces are distributed by manufacturers daily. What distinguishes such publications from general advertising is the wealth of technical detail and the very solid body of information conveyed. Substantial pamphlets with dozens of pages of well written text and diagrams are common, e.g. *Shell chemicals Ltd. Building with plastics* (1965), Foredo Ltd. *Friction materials for engineers* (1961) and booklets of a hundred or more pages are frequent e.g. NV philipes *Audio amplifier systems* (1970), ICI Ltd. Dyestuffs Division. *Rubber Chemicals for footwear* (Manchester, 1961). They may be no more than a single page, e.g. the data sheets on British Oxygen Chemicals Ltd. range of products issued as *BOC information*.

Some catalogues appear in serial from, e.g. *Elastomers notebook* (Du Pont), though they are usually too irregular to rank as journals.

Some of the trade literature are almost equivalent of a standard work in their field e.g. C.E.A. Shannon *Chemical analysis of flat rolled steel products* (Richard Thomas and Baldwins Ltd., 1961). In some cases, they are indistinguishable from regular textbooks or monographs, save for the fact that they are issued by an industrial firm and not a publishing house, e.g. Sir Joseph Lockwood *Flour milling* (Stockport, Henry Simon Ltd. fourth edition, 1960) is the basic text on the subject. A number have attained the status of recognized reference books in their fields, e.g. Yorkshire Engineering Supplies Ltd. *Bronze : a reference book* (Leeds, 1962), *Alcoa aluminium hand-out* (Pittsburgh, Aluminium Company of America, 1962). The number of trade publications in the form of bibliographies is a further indication of the sophisticated approach to the user, e.g.. ICI Fibres Ltd. *Select bibliography on nylon* (Pontypool, 1966). The amount of literature produced by a number of the major companies is

so great that some have felt it necessary to produce bibliographies of their own publications, eg. ICI Ltd. Dyestuffs Division *Technical publications subject index to June 1963* (Manchester, seventh edition, 1964): some indication of the range of materials is given by the list of series covered—sales circulars, Chemicals pamphlets, technical information series, technical circulars, pattern cards, swatches, manuals.

A special form of this literature is the customer's handbook, or maintenance manual, service manual, or user's guide, as they are variously called. These are basically textbooks and/or reference books prepared by the manufacturer for his customers on how to install or operate or maintain or repair his particular equipment. The best known examples of this type are the workshop manuals for the various makes of cars, but there are similar compilations for most kinds of scientific and technical hardware, such as electron microscopes, furnaces, lathes, etc. Some are necessarily very elaborate, eg. the series of volumes known as the *IBM Systems Reference Library*, covering the hardware and software of all IBM Computers and peripherals.

9.3 HOUSE JOURNALS

One of the distinctive forms of trade literature is the periodical published by a particular industrial or commercial firm or public corporation e.g. *Atom news* (UKAEA), *Dupont magazine, Welder,* the *'Planters Chronicle'* (First house journal in India), *NCR World* (USA). These are known as house journals or house magazines (also as house organs in USA). Like other forms of trade literature they are basically advertising publications, but in some instances they also have great information value.

9.3.1 Internal House Journals

In the United Kingdom the total number probably approaches more than two thousand, and in the United States perhaps five times that number. A large proportion of house journals are designed for internal consumption, that is, by the companies own employees or shareholders, and may indeed by restricted to them e.g. *Vickers news, The lamp* (Exxon Corporation), *Nobel times, British Aerospace news.* The internal house journals are meant for the employees of the concerned organization. Their aims are to inform and educate the employees about the organization. They also aim to provide the employees with a form to express their views and grievances. They are also meant for the welfare of the organization. They serve the function of newspapers written a firm and certain information, for instance, personnel changes, suggestion schemes, expansion plans, although a number do have roles other than communication and morale building. The

importance attached to them by the companies and the care with which they are directed at their particular audiences can be seen in the fact that Esso Petroleum Co. Ltd. have a whole range of such journals : *Esso Oilways international, Esso newsline. Esso magazine, Esso air World, and Esso farmer*. The international character of many modern companies can be seen reflected in the separate language editions of a number of their journals, e.g. *Philips technical review* appears in Dutch, English, French and German. Of Course many of them have little scientific or technical interest, e.g. bank reviews.

9.3.2 External House Journals

The journals of most concern to us are those which circulate outside the companies and these fall into three main categories and are meant for the external audience. Categories are:

(a) Prestige : Usually aimed at the nontechnical reader, and often lavishly produced, but more with creating goodwill and preserving a favourable public image, e.g. *Ciba-Geigy journal, Aramco World Magazine, Oil lifestream of progress* (Caltex Petroleum Corporation), one of the best of all, the now defunct *Far and Wide* (Guest keen and Nettlefolds)

(b) Scientific technical: these are clearly aimed at a knowledgeable audience and qualitatively may be equal of some of the research and technical journals e.g. *IBM journal of research and development, steel research* (British Steel Corporation), GEC *journal of science and technology*, The *Bell System technical journal*.

(c) Popular : these are similar in appeal to the commercially produced popular subject periodicals e.g. *Decorating review* (Wall Paper Manufacturers Ltd.). Motoring journals are particularly well represented, e.g. *Ford news, Austin—Morris express, Specialist car* (British Leyland). And yet when the joint research team reported on their study of house journals they called their article. 'The hidden literature'. They had concluded that 'House Journals' are generally regarded as and proved to be, an extremely elusive form of literature'. Only a small proportion can be found in standard bibliographies such as the *World list of scientific periodicals,the British-catalogue of periodicals*, or the *Union list of serials*.

9.4 PROBLEMS OF TRADE LITERATURE

Trade literature abounds with problems of acquisition, arrangement, retrieval and use. Since virtually all such literature (including house journals) is available free of charge from the manufacturer, simply for the asking, the librarian might well wonder whence comes the acquisition problem. In point of fact, it is the very availability which causes one of the major difficulties : like the research reports trade literature is outside the usual source of literature supply, the book trade.

Booksellers are naturally reluctant to deal on large scale with producers of literature other than regular publishers and even more disinclined to deal with free material. This means that librarians are obliged to employ direct or do-it yourself acquisition procedures, by first identifying appropriate manufactures from trade directories, advertisements and other sources, and then writing either for particular items or with a request to be placed on the mailing list. Trade literature is either ignored or deliberately excluded from most current bibliographical lists (including abstracting and indexing services). The quarterly *COPNIP* list published by the committee on Pharmaceutical Non-serial Industrial Publications of the Special Libraries Association is a unique example of a current list devoted to trade literature. The best sources of information on new trade publications are the scientific and technical periodicals a number of which make a feature of noticing or at least listing new titles, eg. *Engineering Metallurgia, R & D, Chemical Week.*

But acquisition is a simple task compared to the organization of a collection. Despite the British and American standards the variety of sizes and shapes encountered is immense, no doubt because to a manufacture whose products have to compete with rivals a publication in an unusual non-standard format has a head-start, and for a collection composed mainly of folders and pamphlets even the simple question of storage needs careful thought.

As to arrangement, it will suffice to indicate the nature of the problem. Ideally, any system should provide for access by name of manufacture, name of the product, trade name, and subject; yet one trade catalogue may describe hundreds of different products. And perhaps more than any other form of scientific and technical literature the information content, and therefore its value, varies unpredictably. A particularly acute problem is maintenance. The provision of accurate and up-to-date prices is a particular headache. Because access to the information in trade literature is devoid by indexing and abstracting services, adequate arrangement, indexing and maintenance is more than usually crucial, without it a collection is virtually unusable.

9.5   COMMERCIALLY AVAILABLE TRADE LITERATURE SERVICES

A partial solution to the librarian's problems is to subscribe to one of the 'package libraries' or 'catalogue services' which are now increasingly available. Known also as product information services, for an annual fee they will provide within a particular subject field an indexed collection of trade literature in standard format: the newer services will also guarantee to maintain the collection, usually on a monthly basis. Commercially available 'product data services' take the form of

collections of trade literature with specially compiled product and company indexes. These collections are hired out and maintained by service organizations. Two examples are as follows:

The Technical Indexes System, available from Technical Indexes Ltd. Willoughby Road, Bracknell, Berkshire. *Barbour Index*. Barbour Microfiles, New Lodge, Drift Road, Windsor, Berkshire.

9.6 USES

To help you choose suitable products, equipment, materials, services, etc. for your requirements.

To give you detailed information about products, equipment, materials, etc. which are already in your possession and which you wish to use or maintain.

To give you details about rival products or services.

9.7 GUIDES TO TRADE LITERATURE

If the name of the supplier or manufacture is known, but their literature is not available in your organization or locally, the problem is usually to find their address or telephone number, so that you can approach them direct. The directories to the various types of organizations or their database equivalents will help you here : for example, telephone directories or KOMPASS : United Kingdom for British commercial organizations. The Science Reference Library publishes *Trade Literature in British Libraries* (a brief directory).

If you only know the type of product you want, the first problem is to identify the name of a suitable supplier or manufacturer. You may do this via the product or subject index of your local collection of trade literature, if you have one, or via the indexes in the directories.

If you wish to keep up-to-date with new products in a particular field, you have to rely on the various periodicals for advertisements, or ask appropriate suppliers or manufacturers to keep you informed of their own products. There are some journals which consist entirely of advertisements, and there are those which actually list details of new trade catalogues.

9.8 SUMMARY

We have discussed the importance of trade literature to the scientists and technologists. We have noted the different forms of trade literature. One of the

distinctive forms is the house journals-both internal and external. We have highlighted the different problems of trade literature, commercially available trade literature services, and uses and guides to trade literature. The functions of telephone directories and KOMPASS in locating various trade literature have been discussed.

9.9 EXERCISE

1. What do you understand by 'trade literature'? Illustrate.
2. Give examples of at least five trade directories.
3. What are house Journals? Discuss their functions.
4. Discuss the problems of retrieving information from the trade literature.
5. What are the guides to trade literature? Give examples.
6. Show your acquaintance with the commercially available trade literature services.

9.10 REFERENCES AND FURTHER READING

1. Drott, M. C. and others : 'The hidden literature : the scientific journals of industry. *Aslib Proceedings* 1975, 27, 376-84

2. Ford, M : 'The technical indexes system for the control of trade literature'. *Aslib Proceedings* 1972, 24, 284-292

3. Grogan, Denis : Science and technology : An introduction to the literature, 4th ed. Clive Bingley, 1982

4. Kelbrick, N : 'Trade literature as a library material'. *Library Association Record* 1971,73,65-67.

5. Kennington, D : 'Product information services— some comparisons'. *Aslib Proceeding* 1969, 21, 312-316

7

UNIT 10 □ STATE-OF-THE-ART REPORT

Structure

10.0 OBJECTIVES

Side by side with the growth in the volume of information, attention has been given to the limitations of the systems that have been made use of during the past three centuries for the dissemination of information. This unit presents with the aim to overcome the complaint 'so much has already been written about everything that one can't find out everything about it' and to make the proper use of information.

10.1 INTRODUCTION

Of the various phenomena that have occurred in the field of communication of information during the past few decades, two are particularly noteworthy. First, scientific and technological information has been accorded the status of a vital resource. The benefits that a nation can aspire to derive from this resource are no less important than those derivable from the material resources like mineral, plant or animal wealth, energy sources, etc. However, the information resource differs radically from other resources in that its exploitation is not limited by barriers of national interests. Through a network of media, imformation has over the decades been flowing into a common pool of knowledge for anybody to exploit it.

The second notable phenomenon has been the explosive rate of generation of information. Particularly during the last five decades, the volume of scientific

information has been growing in geometric progression. Surveys of recent trends indicate that at the moment the rate of generation of technical information is faster than that of scientific information.

The two major weaknesses of the primary periodical system recognized are dilution and dispersion of information. New information gets distributed over some 50,000 and odd primary periodicals. An active research worker is bound to get bewildered in trying to get at articles of specific interest to him through primary sources. Thus, information of specific interest to the research worker lies scattered in a high state of dilution.

The search for alternatives aimed at ridding the research worker of the tedium of having to go through all that is relevant to his work and the work in related areas has been going on for the past few decades. A number of systems have been emerging in the form of secondary media of different types the abstracting, alerting and indexing media on the one hand and the review publications on the other. It has been clear for some years that even the scanning of indexes and abstracts is proving too much for some workers, and there have been urgent pleas for more digestible forms of secondary publication. In response we have seen a remarkable revival of the review, a literature form far older than abstract, but which has lain in its shadow for a hundred years or more.

10.2 REVIEWS OF PROGRESS

Reviews of progress are now seen very definitely to be of great importance; by some they are regarded as offering a possible pathway out of the literature jungle. In some fields they are used more heavily for literature searching than abstracts and indexes. H.V. Wyatt for instance considers that 'The future of biological literature lies not in classification by words but in distillation by review'. The preface to the first (1962) *Advances in nuclear science and technology* refers to the 'bewildering information problem to both expert working along its narrow crevices and the dilettantes hoping to keep abreast of the ever expanding frontiers. Clearly what is needed by both groups are well-organized review articles' The preface to the first (1960) *Advances in computers* describes how the review is 'intended to occupy a position of intermediate between a technical journal and a collection of handbooks or monographs. It is customary for a new scientific or technical result to appear first in a journal, in a form which makes it accessible to specialists only. Years later it may be combined with many other related results into a comprehensive treatise or monograph. There appears to be a need for bridging the gap between these modes of publication, by surveying recent progress in a field at intervals of a few

years and presenting it in a form suitable for wider accdience.' Such reviews are seen as supplementing rather than supplanting the abstract journals.

10.3 TYPES OF REVIEW PUBLICATIONS

The basic difference between the traditional retrieval systems and the reviews is the failure of the former to give the following essential treatments to information handled:

Condensation
Analysis
Interpretation
Synthesis
Evaluation

By giving these treatments to the mass of information handled, reviews possess the unique advantage of converting information into usable knowledge.

There are different types of review publications. The most common types are as follows :

(i) Periodic reviews which are usually annual review type containing state-of-the-art reviews, published in book format. These reviews are concerned with a limited subject area and limited period of time.

Annual review of nuclear and particle science
Annual review of biochemistry

(ii) Advances type containing both critical and state-of-the-art reviews, published somewhat less regularly in book format.

Advances in computers
Advances in chemical engineering

(iii) Journal type containing critical reviews, often published as a quarterly or monthly journal

Chemical reviews
Recent progress in surface science

(iv) Popular journals—generally broad in scope, providing popular articles in topical areas

Scientific American
Science Today

(v) Yearbook type—a form of the state-of-the art reviews dealing with individual copies.

Yearbook of radiology
Yearbook of science & Technology

(vi) Monograph series, usually irregular series of long treatises in a particular field, forming a definitive work or milestone in the development of subject.

Botanical and Zoological monographs brought out by the Publications & Information Directorate., CSIR, New Delhi.

(vii) Essay types, generally providing tutorial type reviews aimed at a broader audience than the subject specialist, particularly teachers and lecturers.

Essays in toxicology

(viii) Comments type, usually containing brief review of a subject, taking one or a small number of recent papers as the nucleus.

Comments on Atomic and Molecular Physics.

10.4 CLASSIFICATION OF REVIEW ON THE BASIS OF THEIR INTELLECTUAL LEVEL

An alternative system of classifying reviews bases the distinction on their intellectual content. Thus, there are

(i) the critical reviews, the preparation of which involves lot of intellectual effort and subject knowledge on the part of the expert who prepares the review and (ii) an indicative or bibliographic review which represents more or less a bibliography in narrative forms. In between two extremes lie other variations, the preparation of which requires varying degrees of effort, skill and subject knowledge. Thus, there are the interpretive, the state-of-the-art, the evaluative and finally the critical review. On the basis of the intellectual effort involved, reviews may be arranged as   follows:

Type of review	Function Performed
Evaluative ⎫	
Expert ⎬	Critical
Analytical ⎭	
State-of-the art	Topical
Interpretive ⎫	
Popular ⎬	Explanatory
Informative ⎫	
Indicative ⎬	Bibliographic

The value of a well prepared review is immense, since it neglects the trivial, omits the mediocre, selects the significant and stresses the important.

10.5 COMPREHENSIVE REVIEWS

These are thorough, systematic, and condensed accounts of developments in broad field over a narrow time interval (and sometimes within a particular geographical

area). Long-established examples to study are *Annual reports on the progress of chemistry* (1904-) and *Annual review of biochemistry* (1931—). Firmly based on the literature, they provide extensive references e.g. in *Annual surveys of organometallic Chemistry* for 1965 the six-page survey on aluminium has 76 references; the fifteen-page account of carpets in *Review of textile progress* for 1965-66 has 114 references.

Some surveys are published as articles in periodicals, eg. 'Progression in heat transfer—review of current literature; annually in *Progress engineering;* 'Annual review of the literature on fats, oils and detergents' in *Journal of the American Oil Chemists' Society*. One issue each year of *Rubber Chemistry and technology* is 'Rubber reviews'.

Surveys of this kind have an obvious appeal to the specialist in that their comprehensive nature enables him to fill any gaps in his knowledge of recent developments and their broad coverage can often give him a new angle on his subject.

10.6 TOPICAL REVIEWS

These are 'state-of-the-art' reports on selected, specific topic of active current interest. Increasingly in the last five decades these have appeared collected in volumes issued as a series e.g. *Progress in Semi-conductors, Reviews in engineering geology*. Examples of individual reviews in such volumes are 'Jewels for industry in *Modern materials : advances in development and application* 6 (1968), 'Immunity to ticks *Advances in parasitology* 18 (1980); 'History of noise research' in *Advances in electronics and electron physics* 50 (1980); 'Dehydrated mashed potatoes' in *Advances in food research* (1979).

They are specifically designed to be intelligible to the non-specialist, and while not 'popular' in approach are aimed at all levels of readership from the student to the director of research. One particular aim they have is interdisciplinary cross-fertilization, and their target is the worker in related fields of science and technology anxious to remain in touch with the more significant developments outside his immediate area of interest. Such reviews of progress are evidenced by the reaction to the first (1960) *Advances in computers* Volume, 'felt by many readers as a welcome attitude to the ever-growing specialization of technical fields'.

Although written by specialists, like the comprehensive surveys, topical reviews are seen by their editors as something much more flexible. Topical surveys can obviously be published in a variety of forms, but it is burgeoning review services such as *Advances is chemical engineering, progress in optics, Recent progress in surface science, Macromolecules* reviews, which have been responsible for the spectacular rise to its present prominence of this form of scientific and technical literature.

Each of these new series follows more or less the same pattern, with separate volumes containing half-a-dozen or more review articles, appearing at intervals.

Reviews need not be published in collected volumes : they can be issued separately as are the paperback sigma science surveys, deliberately limited to 5000 words in length and issued at the rate of four a mouth. Some appears in both forms : each article in *Progress in material science* is also published separately to make it a available quickly.

A popular way of or the 'state-of-the-art' surveys to appear is in the form of papers read at conferences, and these may be later published separately in a periodical or collected in a volume of conference proceedings. A number of scientific societies try to include such review papers in their programme as a matter of deliberate policy. Occasionally the whole conference may consist of reviews or review-type papers : the series *Advances in the astronautical sciences* are the proceedings of annual and other meetings of the American Astronautical Society, and *Progress in astronautics and aeronautics series* is based on papers read at symposia of the American Institute of Aeronautics and Astronautics.

10.7 REVIEW JOURNALS

For many years there has been a special category of periodical solely devoted to review articles, e.g. *Science progress, Chemical reviews, Biological reviews, Quarterly review of biology, Contemporary physics.* Apart from their format and frequency, these review journals are often indistinguishable from review series discussed above. The editorial policy of the *Review of modern physics* is that 'The best papers in the journal should be milestones of physics, embodying the intellectual contributions of hundreds of others whose work appears in the original literature' the objective is to publish perspectives and tutorial articles in rapidly developing fields of physics as well as comprehensive scholarly reviews of significant topics.'

10.8 BIBLIOGRAPHICAL CONTROL

The ways in which reviews of current progress serve the scientist and technologists are obvious. Currently they help them to remain aware of the major advances outside their particular areas of activity. So the demand is there. The attempt by librarians to satisfy it soon brings home the fact that even for the resources which already exist bibliographical control although improving still has some way to go. A useful aid to identify, appropriate collected reviews is UNESCO *List of annual reviews of progress in science and technology* [Paris], 2nd edition, 1969, with some two hundred titles in subject order; the then British Library Lending Division produced

lists which included review journals as well, eg *Some current review series* (1964) and KWIC index to some of the review publications in the English language (1966). The most comprehensive list is A M Woodward *Directory of review serials in science and technology,* 1970-1973 (ASLIB, 1974) with about five hundred titles.

Reviews are not always easy to recognise : out of 8601 reviews in the field of chemistry it was found that only two contained the word 'review[1] in the title. Some indexing and abstracting do try to signal reviews. *Chemical abstracts* uses R to mark reviews in its index; *Biological abstracts* augments the title with the word 'review'. *Science Citation Index* uses (R) to indicate review article. Fortunately, the need for special tools is gradually being recognized and there now available a handful of bibliographical confined to reviews : *Bibliography of medical reviews* is a cumulated listing based on the corresponding section in the monthly *Index mediates; Bibliography of reviews in chemistry* derived from *Chemical abstracts,* but ceased publication after 1962 for lack of support, although it was revived in 1975 in the shape of *CA reviews index,* a computer produced KWIC index produced twice a year with some 20,000 review articles per issue.

Bibliographically much remains to be done. And if what we read in the introduction to *Macromolecular reviews* for 1966 is true '... the review article is becoming the primary [in principle] source of information to a large majority of scientists'. One hopeful sign is the first general index to appear, the computer-produced *Index to scientific reviews* from the Institute for scientific Information.

10.9 SUMMARY

Information is one among the major resources of a country such as its raw materials, finances, manpower, etc. that needs to be mobilised, organised and utilized for the progress and well being of the people. Any work undertaken, invariably begins with a search for information already generated and recorded in that area. The serval barriers to fruitful use of existing information and the solutions proposed to overcome the barriers have been discussed. Thus the state-of-the-art reports are more appropriate than the traditional reviews. We have discussed in this unit reviews of progress, types of review publications, classification of reviews, comprehensive reviews and topical reviews on selected, specific topic of current interest. The demand for such reviews is obvious and the bibliographical control of reviews is all the more necessary.

10.10   EXERCISE

1. Discuss the Characteristics and functions of reviews.
2. Indicate the important barriers to the use of information.

3. Describe the different types of review publications.
4. Highlight the values of well prepared review.
5. What is understood by 'topical reviews'. Illustrate.
6. Discuss the various attempts to control reviews bibliographically.

10.11 REFERENCES AND FURTHER READING

1. Atherton, Pauline ; Handbook for information systems and services. Paris, Unesco, 1977.

2. Grogan, Denis : Science and technology : an introduction to the literature, 4th ed. Clive Bingley, 1982.

3. Virgo, J. A : 'The review article : its characteristics and problems'. *Library Quarterly* 1971, 41, 275-91

4. Woodward, A. M : 'The role of reviews in information transfer'. *JASIS* 1977, 28, 175-80.

UNIT 11 ◻ TECHNICAL REPORTS

Structure

11.0 OBJECTIVES

Engineers are found to depend more heavily on internal (inter-corporate) sources of information than on outside sources. In sharp contrast to the approach of the scientists, the technologists are not quite free to communicate the results of his R&D effort. Here in this unit you will know about the accepted bibliographic format for dissemination of technical information.

11.1 INTRODUCTION

The term technical literature encompasses a number of different types of publications : technical reports, standards and specifications, patents, company publications (including house journals) and trade catalogues. The technical report is an accepted bibliographic format for the dissemination of technical information generated through applied R&D effort, in the same way as the scholarly journal article is the accepted channel for communicating the results of scientific research. According to C.P. Augur 'A report is a document which gives the results of or the

progress with research and/or development investigation. Where appropriate it draws conclusions and makes recommendations and is initially submitted to the person or body for whom the work was carried out, commonly a report bears a number which identifies both the report and the issuing organization'. The report normally contains sufficient data to enable the qualified reader to evaluate the investigative process of the original research or development.

A very large number of technical reports are issued each year. In 1963 the Weinberg Panel estimated about 100,000 Government reports written each year in the United States. About 85% of the world output of report literature is produced in the United States. Report literature has been regarded by the regular bibliographical tools, as a 'minefield in which only the wary venture'.

11.2 HISTORY OF REPORT LITERATURE

Neil Brearley suggests that technical reports predate scientific journals and that 'scientists were exchanging reports with one another long before scientific communication was institutionalized'. Copernicus distributed a preliminary draft of his new cosmology to a few selected scientists two decades prior to publishing his monumental work in 1543. [Edward Rosen, 'Copernicus published as he perished' *Nature*, 1973, 241 (5390), 433-444] Industrial research laboratories have always used technical reports for internal communication. But the history of technical service reports as a distinct format dates back only to the beginning of the 20th century. The *Professional papers of the United States Gaeological Survey* (1902-) and the *Technological Papers of national bureau of standards* (1910-) may be said to mark the beginnings of report literature. Since 1928 the *Technologic papers* have been incorporated in the *NBS Journal of Research*. The earliest reports issued in Great Britain were the *Reports and Memoranda* series of the Advisory Committee for Aeronautics (now known as the Aeronautical Research Council) which began in 1909.

The Second World War spurred a great deal of research activity, especially in subjects directly or indirectly affecting the war effort. Government expenditure on R & D increased greatly as a large number of defence-related projects were sponsored by numerous government agencies, including the Army, Navy, and the War Production Department. A separate agency called the Office of Scientific Research and Development (OSRD) was set up in June 1941 to mobilize scientific and technical information resources for national defense.

With the cessation of hostilities, the OSRD was abandoned, but the pace of government-sponsored research effort and the generation of technical reports from these were not lessened in the years following the war. After the war in June 1945

a cabinet Committee Called the Publications Board (PB) was established by the executive order to release scientific and technical information generated during the war. Each report was given a PB accession number, and weekly announcement service titled *Bibliography of Scientific and Industrial Reports* (BSIR) was established with a view to promoting wider dissemination of reports. The announcement service has evolved into the present *Government Reports Announcements and Index*.

The Publication Board merged with a new agency called the Office of Technical Services (OTS) was set up in 1946 under the Department of Commerce to look into the distribution of technical reports. During the years 1957 and 1958, and number of nongovernmental libraries were designated as depositories of PB reports. In 1964 a new facility the Clearinghouse for Federal Scientific and Technical Information (CFSTI), was established under the National Bureau of Standards and functions of the OTS were transferred to the clearing house. In 1970 CFSTI was merged with the newly established National Technical Information Service (NTIS), a part of the Department of Commerce.

This series of developments represents one stream of events that led to the establishment of NTIS as a national agency for the Centralized bibliographic control and distribution of technical reports. Cousequently, a number of parallel series of events took place, and these culminated in the establishment of various agencies such as the United States Atomic Energy Commission (USAEC), the Defence Documentation Centre (DDC) and the National Aeronautics and Space Administration (NASA) all of which have been responsible for the production and distribution of large quantities of report literature.

11.3 CHARACTERISTICS OF REPORT LITERATURE

In view of great variations in the nature and quality of the contents the boundaries of reports literature are not easy to delineate. On the heterogeneous nature of report literature, the following observation was mode in the SATCOM Report:

'Other attributes of technical reports as a whole are so heterogeneous that one-can find ready examples to support almost any generalization that happens to strike his fancy : that they are too long or too short; badly refereed or well refereed— or not refereed at all; reliable or unreliable; inadequately distributed or too widely distributer; too detailed and technical or not technical enough; to expensively printed or shoddily assembled; a valuable complement to journals or a serious handicap to conventional publications.'

Much of the debate recurring in published literature centres around three themes: (a) the uneven quality : Most technical reports are of uneven quality because

(i) most of them are written by engineers or technologists

(ii) the reports are addressed to the technical experts of the sponsoring agency and not to entire scientific and technical community

(iii) the time available for the preparation of reports is usually very limited

(iv) because of the confidential nature of their contents, reports are not refereed by outside experts

(v) technical editing expertise and facilities available for report editing are usually very limited.

(b) Diversity of contents : Technical reports vary greatly in the nature of their contents. Besides the results of research and developmental work, diverse types of material such as literature reviews, bibliographies, compilations of statistical data, catalogues, directories and conference papers and proceedings appear as technical reports.

The subject covered in technical reports encompass all branches of science, engineering, technology, the social and behavioural sciences that include various aspects of energy and environment, and even some branches of humanities.

11.4 STATUS OF TECHNICAL REPORTS

The uncertain status of technical reports as a form of scientific literature was described by the Weinberg Panel thus :

'The documentation community has taken an equivocal attitude toward informal reports : in some cases the existence of these reports is acknowledged and their content abstracted in the abstracting journals. In other cases informal reports are given no status; they alleged to be not worth retaining as part of permanent record unless their contents finally appear in a standard hard-copy journal. Editors of many scholarly scientific journals have criticized the uncertain quality and uncentrolled proliferation of technical reports.

Notwithstanding the controversy over the status, technical reports are becoming increasingly important as vehicles for the dissemination of technical information. The strength of technical reports lies in their timeliness and flexibility. As vehicles for disseminating technical information, technical reports are much faster than journal articles.

11.5 TYPES OF TECHNICAL REPORTS

The COSATI Task Group on the Role of Technical Report has identified the following eight types of technical reports.

(i) "Pre-Print" Reports : Manuscripts of reports or papers intended for

publication in a journal or for presentation in a conference, after distributed by the author to a select group of specialists known to him. Sometimes the PrePrint is given some degree of formal or official status for example, the "p" papers of the Rand Corporation.

(ii) Corporate "Proposal-type' Reports : These are of a proprietary nature, and their circulation is usually limited to the staff of the agency commissioning the report.

(iii) Institutional Reports : These are periodic reports of activities and progress, usually issued annually, by government agencies, foundations, corporations, societies. Much of this material is directed at general public audiences, customers, shareholders and society members.

(iv) Contract Progress Reports : These are primarily directed at the sponsors of contractual R & D effort who require the periodic reporting of progress on the contractual project.

(v) Contract Final Reports : These are perhaps the most valuable type of technical reports.

(vi) "Separate" Topical Reports : Encouraged either by research sponsors or by a desire to disseminate their findings to a wider audience, contractual investigators often publish separate, topical reports in addition to the progress reports and final reports submitted by the sponsors. Variously called 'research memoranda', 'technical memoranda' or 'technical notes' these come closest to journal articles in style and they are after submitted to journals for publication, usually in an abbreviated form, after expert review.

(vii) "Books" in Report form : State-of-the-art reports, reviews and surveys prepared by information analysis centres or agency contractors are after issued as technical reports.

(viii) Committee Reports : There are issued by the investigative and advisory committees of governments, national and international societies, and other agencies. They incorporate details of investigations, hearings, findings, conclusions, and recommendations.

11.6 SECURITY CLASSIFICATION

Since some technical reports contain sensitive nature of contents, their distribution is restricted to varying degrees by a system of security classification. Reports of research in aerospace, nuclear energy and the like containing sensitive information of importance to national security are usually classified, at least for an initial period of time. Typical security designations are "Top Secret", "Secret", "Confidential", and "Restricted Circulation" Numerous other designators for example, "Addressee

only", "For U. S. Government use only" are used in government documentation to indicate various levels of restricted access to documents.

The Freedom of Information Act (PL 89-487), which became a law on July 4, 1967, was promulgated to maximize the disclosure of information to the general public, without prejudice to national security.

11.7 TECHNICAL REPORT NUMBERS

One of the principal features of a technical report is their issue in series, characterised by number or letter code. Originally adopted for security reasons, was intended to be a helpful device for facilitating for physical and bibliographical control of reports. But the uncontrolled proliferation of reports and report numbering schemes has been a vexing problem to technical librarians and users of report literature. Indeed they may be deliberately contrived not to reveal but to conceal their origin and availability. In his book on report literature C P Auger cited one announced in scientific and technical aerospace reports with no fewer than thirty characters : N72-28275 [NLL-M-20984-(5828, 4F): NEN 3005]. Over 20,000 such codes are listed in L.E. Godfrey and H F Redman *Dictionary of report series codes* (New York, Special Libraries Association, Second edition 1973); they describe the situation as 'Chaotic', with an 'astouuding number of codes blossoming each year'. Complementary to some extent is D Simontom *Directory of engineering scientific and management document sources* (Newport. Beach, cal, Global Engineering, 1974)

Report numbers are made up of code designators that indicate several of the following data elements :

> Sponsoring agency
> issuing agency (where the report was written)
> Location of specific branch or department of the issuing agency where research was done
> Distributing agency or chearinghouse
> Subject matter
> Type or form of report
> Date of preparation or release
> Individualizing identifer
> Security classification code.

It is obvious that not all report numbers contain designators for each of these data elements. Most report numbers consist of three or four of the elements in various permutations.

11.8 CLEARINGHOUSES

A clearinghouse is a control agency for collection, classification, and distribution, specially of information. The definition would encompass all information centres and most special and conventional libraries.

For our purpose it is a depository of documents with the additional mission of serving as a central agency for collection, classification, and distribution of information. It also includes such functions as collecting and maintaining records of research and development in the planning stage, in progress and completion. Sometimes, substantive questions about items in these records are referred to the source, and thus a clearinghouse may act as a referral centre also. The National Technical Information Service combines the functions of a document centre with those of a clearinghouse, and referral centre.

The Defence Documentation Centre (DDC) is a depository of reports and other documents generated by the Defence Department, both classified and unclassified; it is also a referral centre for indentifying experts in various fields.

The function of a clearinghouse is primarily to collect, and disseminate scientific and technical information with the purpose of making the results of technological research and development more readily available to industry and business, and to the general public. Clearinghouses came into existence because it began to be generally felt that the information explosion required effective information dissemination   and analysis mechanism, and there was need to develop some effective   central mechanism to achieve the above ends. Let us discuss some important clearinghouses.

11.8.1 National Technical Information Service (NTIS)

NTIS whose history can be traced back to 1945 is one of the world's largest specialized information service organizations. It is responsible for the bibliographic control and distribution of America and foreign technical report literature and other speciality information products. The principal announcement service for technical reports is the *Government Reports Announcement and Index* (GRAI), a biweekly abstracting and indexing service that has evolved through a services of changes from the *Bibliography of Scientific and Industrial Reports* started by the erstwhile office of Technical Services in 1946. The report summaries are arranged under the subject categories developed by the Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology.

11.8.2 Defense Documentation Centre (DDC)

The Armed Services Technical Information Agency (ASTIA) was set up in 1951

under the operational control of the United States Air Force by merging two earlier agencies which were responsible for handling classified technical reports (a) the Navy Research Section of the Library of Congress, established in 1946 and (b) the Central Air Documents Offices at Daytime, Ohio, Started in 1948 and operated by the United States Air Force. ASTIA gave accession numbers starting with letter AD (ASTIA Document) to reports received from the Department of Defence (DOD) research facilities and their contractors. In 1963 ASTIA was renamed the Defence Documentation Centra (DDC).

DDC receives technical reports from various research laboratories of the DOD and their contractors. It continues to assign AD numbers initiated by ASTIA, but the abbreviation now stands for Accession Document.

11.8.3 National Aeronautics and Space Administration (NASA)

NASA was created by the National Aerospace and Space Act of 1958. The act required that the aerospace activities of the US should contribute to the expansion of human knowledge of phenomena in atmosphere and space. Six program offices, 10 field centres and the National Space Technology Laboratories Constitute the principal components of NASA for planning, directing and managing its activities. NASA publishers a semimonthly abstracting journal entitled *Scientific and Technical Aerospace Reports* (STAR). The abstracts are grouped under 34 subject categories and arranged in an unbroken series of accession numbers starting with the letter N and the last two digits of year of accession (e.g. N 72-10856).

A complementary abstracting service entitled *International Aerospace Abstracts* (IAA) covering journal articles, books and conference papers is published semi-monthly by the American Institute of Aeronauties and Astronautics under NASA contract.

NASA operates a SDI service *'Selective Current Aerospace Announcements'* (SCAN), especially designed for scientists and engineers employed by NASA and its contractors.

11.9 SUMMARY

This unit describes the history of report literature and its characteristics features. It discusses the quality, states and types of technical reports. Technical reports involve security classification and technical report numbers are assigned to each report for control. It highlights the functions of clearinghouses and discusses the three most clearinghouses in the United States.

11.10 EXERCISE

1. What is understood by 'Report literature'? What led to the development of report literature?
2. Discuss the characteristics and states of report literature.
3. Write a note on the uncertain states of technical report.
4. Describe the different types of technical reports.
5. What is clearinghouse? Give a brief description of three clearinghouses for report literature.

11.11 REFERENCES AND FURTHER READING

1. Augur, C. P. ed. : Use of Report literature; Shoe String Press, Hamden, Conn. 1975.
2. Brearley, Neil: "The Role of technical reports in scientific and technical communication' IEEE Trans. *Professional commun* 1973 16/3, 117-119
3. Klempner, Irving : 'The concept of national security and its effects on information transfer'. *Special Lib* 1973, 64(7), 263-269.
4. Redman, Helen F : 'Report number chaos'. *Special Lib* 1962, 53 (10), 54-60.

UNIT 12 □ TRADE CATALOGUES

Structure

12.0 OBJECTIVES

By reading this unit you will understand the characteristic features of trade catalogues along with their functions. Trade catalogues with the dual function of information and persuasion appear in a variety of sizes, formats and colours. Because of their peculiar nature systematic acquisition and organisation in libraries and information centres are tedious.

12.1 INTRODUCTION

The term 'Trade Catalogues' denotes a variety of literature produced by manufacturers and distributors of every kind of material, product, or service from pets, books, drugs, and chemicals to extremely complicated equipment and components used in research and industry. The basic purpose of trade catalogues is : (i) to provide information on the various attributes of a product process, material or service, (ii) to stimulate sales of the product, process, material or service. The earliest trade catalogues were book lists distributed by booksellers. A catalogue of books issued in 1564 by Gorge Wilier, an Augsburg bookseller, is believed to be the first such catalogue.

This was a subject list of 256 books. Andrew Munsell brought out the first trade catalogue of books in England in 1596. Benjamin Franklin issued a catalogue of books in 1744. According to Romaine, the first American drug catalogue was issued in 1760 by John Tweedy of Newport. The second drug catalogue of John Day and Company was printed in 1771.

During the 17 80s metal manufacturers of Birmingham and Sheffield were sending out elaborately illustrated catalogues to their agents in France, Italy, America and also perhaps to India and Russia. In many of these early British trade catalogues, the manufacturers names were omitted so that customers were forced to order goods through agents. In contrast to this, American trade catalogues always contain the manufacturer's name to facilitate direct ordering of books to the manufacturer.

An excellent annotated guide to early American trade catalogues is Lawrence B. Romaine's A *Guide to American Trade Catalogs*, 1744-1900 (R.R. Bowker, New York, 1960). Columbia University, the Centre for Research Libraries in Chicago, and Smithsonian Institution Library have large collections of trade catalogues.

12.2 COMMERCIALLY AVAILABLE TRADE CATALOGUES

The conception of assembling in standard format the catalogues of several manufacturers goes back at least 75 years, as can be seen in the publication of organizations like standard Catalogue Co. Ltd. of London; e.g. the four volumes of the *Architects Standard catalogues* for 1981 comprise over three thousand pages on building materials, components, and services, one third of which are the manufacturers' own leaflets and brochures. In the United States, the Reinhold Publishing Corporation have for many years been providing a similar consolidated bound set of manufacturers' literature with the title *Chemical Engineering catalogo.* Best known of all is probably the massive series of volumes from Me Graw-Hill, *Sweet's Catalogue file,* covering mainly engineering and building.

In 1963 the Microcard Corporation Started a service to supply in the form of 6 in by 4 in microfiches some 14,000 catalogues of the companies listed in *Thomas' register of American manufacturers.* There are on the market a number of product information services using microforms, and some former hard copy services have added microfiche or microfilm also and some have switched almost entirely to microforms, e.g. Technical Indexes Ltd.

12.3 CHARACTERISTIC OF TRADE CATALOGUES

A cursory glance through Thomas Register of American Manufactures is enough to reveal the vast variety of products described in trade catalogues. Apart from this tremendous variety in the products themselves, there is considerable diversity in the format, size, and source of catalogues, as well as in the nature and amount of information provided therein. Trade catalogues range from a small advertisement

116

in a periodical or a piece of paper briefly announcing a simple product, to elegantly bound multimvolume compendia or frequently up-dated loose-leaf services describing in detail thousands of products of a large number of manufactures, often with photographs, drawings and even bibliographic references to literature. Some product advertisements are so indistinguishable from journal articles that editors of some journals (e.g. the *Reader's Digest*) label them as "Advertisement" to distinguish them from feature articles. Some general characteristics of trade catalogues are trade catalogues contain application-oriented descriptive information rather than discourses on theoretical principles. However, trade literature describing medicines and   complex scientific instruments frequently includes a brief description of relevant background research, supported by charts, diagrams, equations, and literature references.

Trade catalogues are primary sources in which information about products or processes appears prior to its publication in journals or other forms of literature. In fact, much of the information about specific commercial products depicted in trade catalogues is not likely to be published at all in other forms of literature.

Much of the information contained in trade catalogues loses currency very quickly as need products and processes are contantly being developed and improvements are made to existing ones.

In general the following types of data are included in product catalogues :
1. Historical overview of the manufacturing company.
2. Research background leading to the development of the product.
3. Product description (dimensions, capacities, materials of construction, shape, size, colour, or other physical or engineering properties)
4. Applications.
5. Operating characteristics.
6. Installation instruction.
7. Operation and maintenance procedures, repairs.
8. Mode of acquisition, terms of licensing or lease, shipping and insurance data, delivery period, availability of spares and auxiliaries and the like.
9. Illustrations, including photographs, layout plans, circuit diagrams, etc.
10. List of customers, testimonials from satisfied customers.
11. Names, addresses, and telephone numbers, agents, local distributors, and service centres.

Trade catalogues are often undated, supplied free. Price is usually not included and has to be requested by interested customers. Some technical journals for example, *Chemical Engineering* with plenty product news and advertisements are supplied free to qualified professional engineers. Because of their dual function of information and persuation trade catalogues come in a variety of sizes, formats

and colours. The American National Standard Institute and the British Standards Institution have formulated several specifying the format and contents of trade catalogues.

12.4 TYPES OF TRADE CATALOGUES

The design of trade catalogues seems to be governed by the psychology and economics of advertising and selling rather than by consideration of their use and preservation. Despite bewilderig variety in the physical characteristics of trade catalogues, a few basic types can be identified :

(a) Advertisements and announcements in technical journals and trade magazines.
(b) Special issues and supplements of journals.
(c) Manufacturers' Catalogues and data sheets.
(d) Directories of industries, products, and companies.
(e) Product descriptions supplied at trade expositions, convention exhibits, etc.
(f) Trade catalogue services.

12.4.1 Advertisements and Announcements in Journals

Most technical journals and trade maganizes carry product advertisements as well as product news and notes complied by staff writers. Almost always each issue has an advertisers' index. Some journals (e.g. *Production Equipmen Digest, Chemical Processing,* and *Product Engineering)* carry entirely new product announcements and advertisements. Another feature that is becoming increasingly common in Journals containing product announcements and advertisements is the inclusion of one or more "Reader Service Cards" (RSC) in each issue. The RSC is a simple mechanism for the reader of the journal to obtain more detailed information about a product or service advertisement or announced in the journal from the manufacturer or distributor.

Some journal publishers periodically send bunch of postage-paid product inquiry cards to journal subscribes. Each card contains a description of one product and address of the manufacturer or supplier. The user simply has to write his own address on the card and mail it.

12.4.2 Special Issues and Supplements of Journals

Many technical journals publish an annual special issue or a supplement, usually called "Buyers' Guide" or "Directory Issue". Annual buyers' guides issued by *Chemical Engineering, Electronics, Hydrocarbon Processing, Chemical Week,* Machinery,

and *Nuclear News* are typical examples. These special issues are independent publications containing product and company information and advertisements. *The Nuclear News Buyers' Guide* contains : (a) an annual survey of important developments in the nuclear industry; (b) a world list nuclear power plants; (c) a directory of nuclear products, materials, and services; (d) a directory of suppliers, including companies located outside the United States. Each year in November, the journal *Science* (published by the American Association for the Advancement of Science) issues a special directory of scientific instruments.

The American Chemical Society's annual *Lab Guide* is a directory of laboratory supply houses, manufacturing companies, instruments, equipment, chemicals, supplies, analytical and research services, trade names and new books in analytical chemistry.

In most libraries these special issues and supplements are treated as reference works of the directory type and are shelved along with other directories.

12.4.3 Manufacturers' Catalogues and Data Sheets

These range from a single sheet of paper with a technical description of one product to a bound volume containing detailed descriptions and technical data on numerous products of a company, or loose-leaf service kept up-to-date by periodic supplements. Some catalogues for example, *Alcoa Aluminium Handbook*, published by the Aluminium Company of America, Pittsburgh, have attained the status of a reference work.

12.4.4 Directories

These are independent publicatins containing data on a number of companies and their products in one branch of science, engineering or technology. *World Aviation Directory* (published by Ziff Davis Publishing Company, New York) is an international directory of air carriers, manufacturers of aircraft and related equipment, government agencies and other organizations concerned with aviation in some 160 countries.

The *Directory of Chemical Producers*, USA (published by Stanford Research Institute) is kept up-to-date by quarterly supplements. *Chemical Engineering Catalogue* (published by Reinhold Publishing Company, New York, 1916-) is a book of reference for engineers, buyers and others seeking information on chemicals, equipment also publishes an annual *Chemical Materials Catalogue*.

12.4.5 Trade Fair Catalogues

Manufactuers exhibit their products and distribute catalogues at conventions and conferences organized by professional societies. Trade catalogues are also issued at international trade fairs and expositions such as the famous Leizig and Frankfurt Fairs.

12.5 TRADE CATALOGUE SERVICES

A number of commercial catalogue services have started providing copies of manufacturers' catalogues on a continuing basis; sometimes this subscription service also includes an inquiry service. The Thomas Publishing Company, New York—publishers of the well-known *Thomas Register of American Manufacturers* (annual)— supplies microfilm copies of catalogues of most of the manufacturers listed in the annual *Register*.

Another trade catalogue service on microfilm is the Visual Search Microfilm File (VSMF) offered by-Information Handling Services, Inc., Denver, Colorado.

R. A. Wall has described an SDI service for trade catalogues offered by Indata Limited, in England. Interest profiles of subscribers are matched every week with new additions to a computerized database of trade catalogues and subscribers receive weekly lists of new items as well as data cards containing specifications of the products. Collection and subject indexing of the catalogues are done in collaboration with the British Scientific Instruments Research Association.

12.6 ACQUISITION AND CONTROL OF TRADE CATALOGUES

Trade catalogues are seen as ephemeral materials that become obsolete very quickly; they are also thought of as expendable material because of the case with which they are available to the users free of charge. Most engineers who regularly use trade catalogues do not find it difficult to acquire and maintain their own personal collection of trade catalogues. Conventional abstracting and indexing services do not cover trade catalogues. The acquisition of trade catalogues is relatively simple. Many manufacturers routinely mail their catalogues and promotional material to technical librarians and information officers in companies. Reader service cards can be used to acquire additional material free of charge.

The organization of trade catalogues is also simple. The catalogues themselves can be filed in vertical files or pamphlet boxes, alphabetically by manufacturer's name. A card index can be service maintained to provide access by product name. A simple coordinate index of Uniterm type is adequate for this purpose. Trade catalogues usually do not contain publication dates, and it is difficult to determine their currency. Without constant attention and weeding, a collection of current trade catalogues will soon become a retrospective collection of archival material, more useful for historical purposes than for obtaining current and accurate information on companies and their products. Subscription to a commercial

catalogue service will ensure the availability of up-to-date information on companies, materials, products and process.

One specific feature of trade catalogues is the extensive use of trade names to identify specific products. Many directories of companies and products include trade name index. Where such is not available, the following two publications may be noted for obtaining explanations of product names and the names of their manufacturers :

1. Crowley, Ellen T *Ed: Trade names dictionary.* Gale Research Company, Detroit, 1976.

This is a "guide to trade names, brand names, product names, coined names, model names and design names, with addresses of their manufacturers, importers, marketers or distributors"—described by its publishers.

2. Gardner, Willian : Chemical Synonyms and tiade names. 7th ed. rev. and enlarged by Edward. I. Cooke, Ohio, Chemical rubber Co. Press. 1971. This handbook provides definictions of trade names and where available, it gives the names of manufacturers.

12.7 SUMMARY

We have discussed about the manufacturers and distributors of various kinds of materials. We have noted an excellent trade cataloge by Romaine. Commercially available trade catalogues are highlighted. Trade catalogues are primary sources in which information about products appears prior to its publication in a formal channel. We have described the various types of data that are included in the trade catalogues. There are six types of trade catalogues and these types are discussed in detail. Acquisition, arrangement and control of trade catalogues are very simple and librarians can achieve all these very easily. Finally we have noted two publications for obtaining the names of the manufacturers and their products.

12.8 EXERCISE

1. What is a trade catalogue ? What purpose does it serve?
2. Discuss the characteric features of trade catalogues highlighting their different types.
3. Describe some trade catalogue services. Give examples.
4. How would you organise trade catalogues in a library ?
5. Write a note on product advertisements, product news and notes.
6. What are the functions of trade catalogues ?

12.9 REFERENCES AND FURTHER READING

1. Auger, C. P. *Ed : Use of report literature.* Hamden, Shoe string Press, 1975.
2. Boylan, N. T. G.: "Technical reports, identification and acquisition." *RQ* 1970, 10, 18-21.
3. Godfrey, L. E. and Redman, H. F. : Dictionary of report series codes 2nd ed. *Special Libraries.* 1973, p. 9
4. Grogan, Denis : Science and technology : An introduction to the literature. 4th ed. Clive Bingley, 1982.
5. Subramanyam, K : "Technical literature." *In* Encyclopedia of library and information science. Vol. 30. pp. 144-197.

UNIT 13 □ DATABASES : TYPES AND USES

Structure

13.0 OBJECTIVES

By availing of in-house resources and resources available elsewhere we have seen in earlier units various information services and products can be offered to users. Here we shall discuss the Database Support services. In this unit we shall explain what is a database, its various type, importance of each type, search services and the use of database in India.

13.1 INTRODUCTION

The term database needs to be explored fully if one is to gain an understanding of and appreciation for it. The initial focus is on bibliographic information, but many other types of information and databases are created and used. A database starts when a publisher creates a format for information. This information might be a bibliographic citation, a statistical table, or a bibliographical fact, to name a few.

The publisher determines which elements of information are important, how these elements are to be displayed or printed and which elements can be manipulated by the computer. Machine-readable files of this information are created in the form of computer tapes or discs. Once the data is in machine-readable form, the file can be put to multiple use. One of the principal uses is to print a publication, such as an index or abstract, which is sold or distributed to the organization's members or subscribers. Another use is as an internal information database for the organization's own use; the telephone directory is an example of this process. A telephone company compiles data from its customers and puts the data into machine-readable form. This electronic version is used to create the published directories that are sent to the telephone company's customers and to subscribing libraries. A second use in for the telephone company's information operators as a machine-readable database. A third use is the learning or sale of these files to external information service companies.

Information service companies are sometimes called vendors, to distinguish them from the organizations that create the databases, which are called producers. A few organizations such the National Library of Medicine, serve both functions.

Vendors serve as a link between the databases and these who use them. Using their own software and its associated search language, these companies make further decisions about which data elements are important, how to format each data element, which elements will be retrievable or searchable, and which elements will merely be displayed at the terminal or printable. These decisions are extremely important to database users, since they determine the ways in which these databases can be searched.

13.2 DATABASE : DEFINITION AND CHARACTERISTICS

The noun database has one meaning : an organized body of related information.

(1) A database is an application used to store and manipulate data. The application may be a simple one that provides for flat files only and that cannot be programmed, or it may have the capability of producing databases that are programmable and relational. (2) A collection of specified related information.

Database field : The part of a database record that contains a specific item of information; the basic unit of a database record.

Database file : A file made up of records of information in distinct, related fields.

Database set : A growth of linked database files containing related data. For example, a set may contain one database with customer names and addresses, another database with price and quality information about items held in inventory for sale, and the third database with a record of order entered. Creating an invoice

or statement may involve combining the customer information (complete with mailing address and terms) and the order information which is supplemented by pricing from the inventory database.

Each unit of information stored in a database consists of discrete data elements, each consisting of a specific characteristic of the entity being described. For example, a bibliographic database will contain information relating to books, periodical articles, reports etc.

Author
Title
Call Number
Accession Number
Edition
Imprint
Collation
Series
Keywords

Each of the above represents a field. Thus a total of 9 fields, corresponding to each book will be there. This constitutes one record. The database will be as large as many are records or number of books.

13.3 TYPES OF DATA

Databases may be set up to organize form different categories of information : words, numbers, images (pictures or graphs), and sound. In addition, there are multimedia databases combining information on more than one medium. Each category has a distinct machine representation and requires a distinct kind of software (computer programs). Word-oriented databases have as their principal data words in the form of phrases, sentences, paragraphs, flat-text or structured factual data such as names and addresses. The principal data in numeric databases, often called databanks, consist of numbers and symbols representing numbers. They take the form of time series, tables of numbers, and graphs based on such tables. The term time series refers to events or phenomena observed over a span of time. Image databases, many of which are used for scientific or engineering purposes, may contain representations of virtually any multidimensional structure, including chemical structures, unclear predates, scientific photography, architectural plans, and geographic maps. Audio databases contain sounds— recorded or computer—generated sounds (discrete sounds, music or aural words).

13.3.1 Word-Oriented Databases
Word-orianted databases consist primarily of strings of alphabetic or alphanumeric

symbols known as character strings. A user's query typically is answered by a search of the database for strings of characters that match the string of characters in names, titles or other words or phrases listed in the query.

13.3.2 Bibliographic Databases

The earliest electronic databases introduced in the 1960s, were in the fields of science, engineering, technology and medicine. These databases were word-oriented, containing bibliographic references to published literature and only a few dozen were available. The first comprehensive directory of publicly available databases was published in 1976, with 301 databases listed. By the early 1990s over 7,000 electronic databases were publicly available.

Bibliographic databases range in size from small specially files such as Genetics Toxity (GENTOX), covering 2,600 chemicals and produced by the U.S. Environmental Protection Agency; to CAD/CAM, a database containing 10,000 records and published by Bowker A & I Publications; to COM-PENDEX, by Engineering Information, Inc., which has approximately 2 million citations in Engineering; to CA SEARCH, produced by Chemical Abstracts Services, which contains more than 10 million citations. These databases are handled by libraries and information centres in various ways such as CAS, SDI, compilation of bibliographies, etc.

13.3.3 Full-Text Databases

Full-text databases provide immediate access to the texts of documents such as legal cases and statutes, newspapers, journal articles, encyclopedias and even textbooks. The pioneer full-text legal database, LEXIS, was established in 1973 by Mead Data Central and has long been regarded as one of the world's largest databases, most other full-text databases were established after 1980.

Full-text news databases include those of the United Press International and the Associated Press, among wire services; *the New York Times* and *Wall Street Journal*, among newspapers, and *US News* and *World Report* and *Newsreels*, among news magazines. Full-text journal databases are exemplified by the *Harvard Business Review* and many of the American Chemical Society journals; by the electronic journal *Current Clinical Trials* of the American Association for the advancement of Science, and by electronic encyclopedias such as *Encyclopedia Americana and Academic American Encyclopedia*. Textbook databases include *Gray's Anatomery Textbook of Surgery* and *Principles and Practices of Emergency Medicine*.

13.3.4 Number-Oriented Databases

Numeric databases Contain transactional data, statistics, time series, properties and other numeric data. The large databases called transactional databases record

events (transaction) in real time that is, as they occur and new data continually replace prior data. Examples of number-oriented databases include the *FOREIGN EXCHANGE DATABASE* of Interactive Data Corporation, which covers monthly exchange rates for 22 currencies, and the DRICOM (DRI Commodity Database) of DRI/McGraw-Hill, a time-series database of commodity futures.

13.3.5 Image Databases

Image databases are highly specialized and few in number. Their data consist chiefly of specifications for shapes, distances, geometrical relationships, colours, and the like. Image data include animated images and the use of images to represent numeric data in visual form (visualization).

13.3.6 Sound Databases

Audio databases of recorded or computer-generated sounds contain more than just sounds. An example of an audio database would be one that tracked the development of a particular type of music. The database might contain recorded music, images of music scores, narration and perhaps textual information describing the music.

13.4 PUBLIC DATABASES

The range of public databases has grown so enormously that it is now passible to find data on almost any subject. Databases have been created for nearly every field, including most major branches of science, business, management, law, politics, social sciences, arts, humanities, and religion, as well as news, consumer interest areas, stock quotations, and various subfields and problem areas such as transportation, shipping, rebates, oil spills, and child abuse. One-third of all public databases can be classified as business databases, these are followed by science, technology and engineering databases and then by health and life-science databases. Databases in the arts and humanities are less numerous.

When a database is developed for public use, it is usually made accessible to users through a telephone ('on-line') or on a distributable medium. Distribution media include CD-ROMS (Compact disks with read-only memory) and floppy disks for use on personal computers and workstations and magnetic tape for local loading on a mainframe. An online service may be provided by the producer of the database and offer online searching of several to many databases. Such online search services, also known as database vendors in the united states or 'hosts' in Europe, have computers and software that allow outside users to search the databases for numerical data, facts or textual information.

127

Users of public databases include most groups of people where occupations require that they have quick access to information such as scientists, lawyers, doctors, financial analysts, librarians, executives, and researchers.

13.5 PRODUCTION AND DISTRIBUTION

Databases are produced by a wide variety of commercial, non-profit and government organizations. The way in which database is created depends on its types. To prepare a bibliographic or reference, databases, for example, the producers cull the primary literature—journals, and conference proceedings for articles relevant to the subject area of the database. For each article selected, they prepare a bibliographic record that lists the author or authors, the title of the article, and any further identification needed to find the publication cited. The record is then entered into the database. In some bibliographic databases the records include index terms for the articles and book referenced; abstracts also may be included.

Most large databases are issued periodically (monthly, weekly or even daily) on magnetic tape. Some databases are issued on floppy disks or on CD-ROM for use on personal computers. Large databases are sold chiefly to government agencies and corporations for in-house use and to on-line search services, which retail access to the database to their subscribers.

13.6 SEARCH SERVICES

The principal mode of access to electronic databases is through on-line search services, also known as vendors. However, databases available in CD-ROM format may be used rather than on-line database, particularly in academic libraries. Database vendors provide on-line databases together with software for search and retrieval, data manipulation, and modelling. They are often called information utilities, because an on-line search service serves a far-flung network of users, providing access to information from databases, residing in a distant computer facility. Several hundred such services in the United States and Europe provided access to more than 3000 databases and databanks by the early 1990s.

Among the leading on-line services for searching numeric databases are DRI/ Me GrawN-Hill, General Electric Information Services Company (GEISCO), the WEFA Group-all three of which provide business databases- and the Chemical Information System (CIS), which provide mostly scientific databases.

Among the Vendors of word-oriented databases are Mead Data Central (MDC);

DIA LOG Information Services Inc; ORBIT Search Service; the National Library of Medicine (NLM); WESTLAW; BRS Information Technologies; Compu Serve; and others.

13.7 ACCESSING DATABASES

Online use of a database requires an account with a search service that offers access to the database, a password to log onto the service, knowledge of how to use the service, and information about specific features of the database. The equipment required includes a computer terminal or personal computer (PC), a modem, and a telephone. The modem, a device that allows the PC to communicate over telephone lines, may be built into the terminal or PC, or it may be a separate, connected   unit.

Procedures for using search services and the databases to which they provide access very widely. The degree of complexity in using a database depends on the type of information and on the nature of the group of users that the database is designed to serve. For example, searching a database for thermo dynamic properties of a certain class of substances knowledge than does searching a database for the names of hospitals in Kolkata. Similarly, an on-line system intended for professional researchers who are expected to use the system everyday can be considerably more complex—and therefore can contain more useful features than one aimed at occasional users.

13.8 DATABASE USE IN INDIA

Databases are some of the most primary components of an information retrieval system. In some subjects areas in-depth treatment is lacking in global databases, while in others local information has more importance than international information. Keeping these problems in view a major thuust has been given under the NISS AT (National information system for science and Technology) programme to the development of indigenous databases by the sectorial information centres set up on machine tools at the Central Machine Tools Institute, Bangalore; latter at the Central Leather Research Institute, Madras; food at the Central Technology Research Institute, Mysore; drugs and pharmaceuticals at the Central Drug Research Institute, Lucknow, textiles at the Ahmedabad Textiles Industry Research Association, Ahmedabad; Chemicals at the National Chemical laboratory, Pure; ceramics at the Central Glass and Ceramics Research Institute, Kolkata, and some others. At present in India more than 150 indigenous databases covering most of the disciplines are available to users.

9

The Physical Research Laboratory (PRL), Ahmedabad has developed an online bibliographic information storage and retrieval system called READ Fast which enables users to retrieve details of information using appropriate keywords, author names, classification numbers, accession numbers, date of publication, etc.

The Patent Information System (PIS) has been developed by NIC for on-line retrieval of patent information. The data and Information Centre at the National Institute of Oceanography, Goa has been developing a bibliographic database called OCEANLINE. The Defence Scientific Information and Documentation Centre (DESIDOC), New Delhi has already developed the software for creating a database on Military Science and allied subjects.

National Institute of Science Communication and Information Resources (NISCAIR) formed on September 30, 2002 has developed expertise in the design and development of databases. Some databases include Indian Science Abstracts. Database, National Union Catalogue of Scientific Serials in India Database, Indian Patents database and Aromatic Plants Abstracts Database. All these databases are available on-line.

One of the main objectives of INFLIBNET is to create database of projects institutions and specialists for providing online information services. INFLIBNET will provide database services—Bibliographic database services and nonbibliographic database services.

Both public and private sector organizations are now showing keen interest in the activities relating to database creation, maintenance and use in India. With the development of INFLIBNET and other regional networks it is that the database use will be strengthened in near future.

13.9 SUMMARY

In this unit we have defined database and its charecteristic features. Different types of databases are identified and explained. At present databases are created for nearly every field. These databases have been developed for public use. It is made accessible through online services. Database are produced depending on its type. Some databases are created on magnetic tape, floppy disks or on CD-ROM for use on personal computers. We have defined vendors. They provide online databases since 1990 several hundred such services are being initated in the United States and Europe. Accessing databases is an area that depends on the type of information and on the nature of group of users. Finally we have discussed the database use in India. NISSAT has created several databases and with the development of INFLIBNET India will have several users of databases in near future.

13.10 EXERCISE

1. Define 'database' and explain its characteristic features.
2. Discuss the different types of data and databases.
3. Describe the use of databases in India.
4. How would you develop 'database' for public use?
5. What is the mode of access to electronic databases?
6. Show you acquaintance with database vendors.

13.11 REFERENCES AND FURTHER READING

1. Cuadra, C.A. *Ed.* : Directory of portable databases. New York, Elsevier, 1990.
2. Frank, Lars : Database : theory and practice. Addison-Wesley, 1988.
3. Lahiri, A : An Indian model for database services. New Delhi, NISSAT, 1991.
4. Williams, Martha E. *Ed.*; Computer readable databases : A directory and data sourcebook. 8th ed. Gale Research. 1992.

UNIT 14 ☐ DATABASE INTERMEDIARIES

Structure

14.0 OBJECTIVES

Information flows all around us all the time. Intermediaries can manipulate information streams. This unit introduces you database intermediaries who can help users to search databases. The most successful searches are those in which intermediary knows sufficient about the background of the user's query to ask pertinent questions, which would draw full answers about his requirements from the user. Here you will understand the role of intermediaries and know the their functions in searching databases.

14.1 INTRODUCTION

The major components of an information network are the user, the database producers, search service vendors, telecommunication networks and the intermediary who will carry out the search to the entire satisfaction of end user. As information becomes ever more pervasive and important, users increase on a

variety of information streams to meet their information needs. Rather stream replacing another in this economy of information, each stream has its own niche.

An information stream conveys data from an information provider to an information consumer. For instance, on the WWW (World Wide Web), servers generally provide information. Browsers generally consume information. Often the stream simply conveys the information after additional processing, as the telephone does, but sometimes information can be usefully injected or modified along the stream. For instance, some telephone companies provide real-time language translation, or some webs communicate from one network to another through a firewell. Nevertheless, the student can be forgiven for feeling confused by the proliferation of providers of information. And it does not make for clear understanding to find particular kinds of providers playing a variety of roles at the same time : service suppliers may also be data base producers, producers may also be suppliers etc. Libraries, with which student will be particularly concerned, in addition to provide in-house search services for their own readers may also be database producers (as the National Library of Medicine with MEDLARS) or agents for database producers (as the University of Loughborough with COMPENDESX) or online search brokers (as the Science Reference Library).

14.2 DATABASE INTERMEDIARY

Database contains information which intermediary collects on behalf of the users. It is the role of the intermediary to search database and provides answers to the user according to his requirement. The intermediary is the vital link between the database and the user. Intermediaries are information specialist and have the proper skills in searching databases. Their role is to identify the requirement of the user and meet his requirement by searching the database. The user may lack the capability to formulate his queries in the proper form and the intermediary help him in this regard. The intermediary selects the proper database to answer the queries of the user.

14.2.1 Definition
We define intermediarees as computational entities that operate on information flows along a stream. Because of the tremendous numbers of information streams that are now available, there is new opportunity to take advantage of intermediary computations. We believe intermediaries can add several different ways. Namely, an intermediary can (a) produce new information injecting it into the stream, (b) enhance the information that is flowing along and (c) connect different streams, possibly translating communication process. It may be noted that intermediaries

do not create new information devices (such as telephones or web browsers) but increase the value of existing devices by the streams up which the devices operate. Likewise, intermediaries do not create information streams but enhance existing streams.

In any way intermediaries need knowledge and experience of hardware, software, communication technology and the database. He should have skills in interviewing and communicating with end users. He needs efficiency to get access to database information. In a word, the database intermediary is an information specialist skilled in database searching and satisfying the end users.

Intermediaries can do more than simple network translation and caching. A web intermediary can compress large images before sending them across network link such as a telephone line.

14.2.2 Intermediaries are everywhere

The concept of an intermediary is not a new one. In fact, intermediaries are commonplace that it is sometimes difficult to notice them. For instance intermediaries abound. Travel agents translate customers requests into data airline reservation computers. In this way a travel agent acts as a protocol intermediary, effectively connecting a customer on the telephone to a main computer running the airline reservation system.

Scientific journal editors comprise another intermediary based system. To receive submissions from authors, send manuscripts to referees or reviewers, forward back to authors, receive corrections from authors, and deliver final copy to these activities are designed to add value to the information stream that requires authors writing down their findings. The journal editors enhances the value of information stream by providing competent reviewing, ensuring anonymity, organizing and indexing articles, and editing completed manuscripts.

Intermediaries are common in many other kinds of information streams as e-mail depends on intermediaries to hold messages after they have been sent and they have been received.

The collection web directories in Yahoo! Is another example of intermediary. These directories do not themselves contain topical information to provide an intermediary service for connecting web users to information.

Analysing such commonplace and complex systems of information flow in information origin, destination, and intermediaries illuminate design principle of computational intermediating systems.

14.2.3 Anatomy of an Intermediary

Though intermediaries on information streams are ubiquitous in both bumble

computational systems, a thorough and systematic study of their properties has been undertaken. In this section, we begin such a study by considering how many parts are needed to make up an intermediary process.

14.2.4 End points and middle points

Information streams consist of origin and end points, the stream itself, and various intermediaries that are located at and that operate upon the stream. A serious complication in analysing such that they may be decomposed into these constituent elements in many ways at many different levels. Consider the case of a person browsing a database in the Web. The basic elements include the user, a Web Internet, the Web server, and a database. In one decomposition of the system the database is the origin endpoint, the Web browser is the destination midpoint. Interment and webserver are intermediaries. However, Web servers are often as the information origin, even if they actually use a database. In that case, the Internet is the only intermediary.

Partitioning an information stream into origin endpoint, destination midpoint, intermediaries involves several division points : everything beyond origin point is the origin; everything beyond chosen destination point is destination; and various points in between are chosen as breaks between intermediaries. Many decompositions are possible, but the most suitable one matches the needs. Now let us consider the functions of the three basic entities: origin midpoint, destination endpoint and intermediary. The origin endpoint has connection point and transmits information to it. It may also receive requests for information may transmit proactively. The destination endpoint also has one connection point receives information from it. It may also transmit requests for information required to do so. An intermediary is most easily conceptualized by considering everything on one side of it to be an origin endpoint and everything on the other side to be a destination endpoint. The intermediary has two connection points : one to be an origin and the other to a destination.

14.2.5 Message Streams

Information streams vary widely in complexity, which roles of the processes involved in information transfer. The simplest information stream consists of a unidirectional flow from origin to destination. We refer to this system as a unidirectional message stream.

The next level of complexity occurs when the origin and destination endpoint are allowed to play both roles; that is the destination can transmit messages to the origin. If the endpoints can act in either role arbitrarily the system is bidirectional message stream. One example of such a system is a simple two-party chat either party can chat at any time.

14.2.6 Transaction streams

A more structured bidirectional system results if the reverse roles in a regular way occur. The most common example is when the destination sends a request message to the origin and then the origin sends a response to the destination. The terms *origin* and *destination* are chosen because the request normally includes a description of some desired information the response contains that information. The desired information flows from the destination; the request is simply a mechanism for accessing the desired information. An example of this system is the Hyper Text Transfer Protocol (HTTP) that is the World Wide Web. A browser sends a request message to a server with resource locator (URL) that describes the desired information. The server sends the response message that contains the information referred to by the URL. We call the system as a *Unidirectional transaction stream*. A transaction is defined as request-response pair.

The final structure we consider is the *bidirectional transaction stream,* and the previous case in which the origin and destination can reverse roles arbitrary special case of the bidirectional message stream because each request requires response, rather than simple message transmission.

To see this classification scheme in action, let us consider the standard telephone which consists of three parts : an origin telephone, a destination telephone, telephone central office intermediary. When the system is in its quiescent telephones are 'on-hook' and idle. One party lifts the receiver, which sends 'hook' request down the stream. This request is intercepted by the telephone office intermediary, which sends a 'dial tone' response back to the telephone completing the first transaction. The originating party then dials a destination number. The central office intercepts this request, sends a 'ring' request to the destination telephone, 'ringing tone' response back to the origin telephone. The second transaction is complete, and the third transaction has begun. When the destination phones it sends an 'off-hook' response to the central office intermediary, which completes third transaction. The central office now connects the two telephones together begins acting as a transparent intermediary, simply passing audio message forth between the two telephones. The system has switched modes : from unidirectional transaction system to a bidirectional message system.

14.3 SEARCH INTERMEDIARIES

On-line searches can be made by the scientist or technologist in person. Put at its simplest, the case for scientist or technologist undertaking his own search is that he alone knows exactly what he wants and he is familiar with the subject field. But bibliographical search has never been an easy task even for a professional searchers

and the complexities of on-line have added to the difficulties. We have seen that on-line search in many cases has to be combined with manual search to be fully effective. No one can deny that many of these computerised systems lack what has been called 'transparency' letting a searcher use this service without first becoming an expert in the complexities of its structure.

To what is basically the intellectual barrier of search formulation and strategy the advent of on-line has added a further hazard, immediacy, and has erected a quite new barrier, the command language. Both are direct consequences of the interactive nature of the search process. In the first place, his search strategy needs to be flexible. In the second place, because instructions to the computer on how to proceed with the search have to be individually given in each case, the searcher has to be familiar with the range of commands that may be needed. We should be careful to distinguish these commands about how to search from the distributors used in the search statement which indicate the subject of the search, that is, what to search for.

The Science Reference Library advises its readers that 'effective searching ... requires carefulprior preparation involving the consultation of manuals, thesauri and term lists'. Such work usually confines themselves to one database, e.g. AGRICOLA *on-line users guide*, BIOSIS *search guide*. Sometimes there are two or more manuals for the same database, e.g. *Engineering index COMPENDEX online user's manual for the Lockheed DIALOG Information Retrieval Service* and *SDC COMPENDEX user manual*.

In had been very clear even in the earliest days of batch searching that there was a major problem, familiar to reference librarian the world over : the need for some kind of skilled and experienced intermediary between the users and the system, to explain, advise, teach and indeed to search on their behalf. In his pioneering 1968 evaluation of the MEDLARS demand search service F W Lancaster found that 'The greatest potential for improvement in MEDLARS exists at the interface between user and system'.

The plain statistical facts of the matter are that ever since on-line searching was introduced the great majority of searches have been undertaken by intermediaries. Such as librarians, information scientists, search analysts, etc. Even the Science Reference Library now states that 'searches will be carried out for you by trained intermediaries.' At the library KTH where all searches are carried out by intermediaries. Results from a research study of on-line searching at the University of Manchester Institute of Science and Technology showed that' the most successful searches were those in which the intermediary knew sufficient about the background of the user's query to ask pertinent questions, which would draw full answers about his requirements from the user'.

From the foregoing analysis, it can be inferred that intermediaries should have

self-confidence, logical mind, good communication skill, knowledge about subject area, patience, and technological awareness.

14.4 ROLE OF INTERMEDIAREES

The database intermediaries usually play two major roles in providing data services from databases.

14.4.1 As Searchers
The searching process begins with the request from the end user and ends with completing the search after getting the probable answers to the request. When the search ends, the searcher keys the command to exit from the system.

14.4.2 As Editors
A properly edited and formatted copy of the search should be handed over to the user. So the editor's role includes—formatting the search, references/citations, database name, source, searcher's name, cost, document availability, and the like.

14.5 FUTURE OF DATABASE INTERMEDIARIES

Intermediaries effectively open up pervasive computing devices, establish to manipulate data within data flows of the device. In the future, it is likely that end users will perform their own searches when search procedures will be more simplified or user-friendly. So the end users should be trained properly to face the role of information consultant. A good deal of research is needed to make the role of intermediaries brighter and more effective.

14.6 SUMMARY

We have discussed in this unit the major components in the information network and the role of intermediaries in the process of search. We have defined the role of intermediaries and the end-users. The search strategy should be flexible and the searcher has to be familiar with the range of commands. The future has been predicted when the search procedure will be more user-friendly.

14.7 EXERCISE

1. Discuss the role of database intermediary.
2. Explain the message streams and transaction streams in database searching.

3. Explain what is the intellectual barrier to the search formulation and strategy.
4. What should be the qualities of intermediaries?
5. How can intermediaries play the role of information consultant?

14.8 REFERENCES AND FURTHER STUDY

1. Chen, C-C : On-line bibliographic searching : a learning manual. Neal-schuman, 1981.

2. Grogan, Denis : Science and technology : An introduction to the literature. 4th ed., Clive Bingley, 1982.

3. Henry, W M and others : On-line searching : an introduction. Butterworths, 1980.

4. Houghton, B and Convey, J : On-line unformation retrieval systems. Clive Bingley, 1977.

5. Oulton, A J and Pearce A : 'Perspectives on online systems in science and technology'. *JASIS* 1980, 31, 153-200.

UNIT 15 □ ONLINE INFORMATION SYSTEMS AND INFORMATION NETWORKS

Structure

15.0 OBJECTIVES

You will have an idea about technological developments in accessing online information systems and information networks. You will know the various online bibliographic services offered through networks.

You will understand the benefits and problems of online service. You will know the networking systems available in India.

15.1 INTRODUCTION

The key technological components of online systems are computers that can act in time-shared mode and teleprocessing systems with terminal equipment. On-line services employ on-line systems technology to provide remote users with access to information organized in databases with greater flexibility, precision and speed than comparable print resources can.

The development of networks ensures equitable access to services and contents especially in the public domain as well as facilitating the free flow of information.

140

In promoting the development of electronic networks, Unesco lays emphasis on policies and strategies to develop the most appropriate methodology to meet the specific needs of the different communities. Through its global and regional networks, the organization seeks to effectuate social development, democ-ratisation and good governance. By providing access to relevant information in an interactive format and in an easily assimilated form Unesco fosters capacities to acquire new knowledge and skills.

Regional information networks, virtual laboratories and learning communities and other information networks offer a new paradigm for global cooperation using traditional and multimedia technologies to promote applications in the organization's field of competence.

15.2 TECHNOLOGICAL DEVELOPMENT

Online systems have developed rapidly since the 1960's through the convergence of several streams of technological advances : time-sharing computers that permit large number of users to conduct simultaneous interactions with systems that may be located far from the central computer and its information store; interactive computer programmes *(software)* that are increasingly efficient, powerful and user-friendly; rapid—access storage devices that are growing in capacity and decreasing its data storage costs; computer terminals and compact, inexpensive personal computers that can transmit, receive and display information; telecommunication networks that provide fast, cheap data transmission; growing volumes of numerical and textual and graphical information *(databases)* created by publishers and other organizations in computer readable form. Local area networks permit online access over a limited site (e.g. University Campus). Wide area networks operate nationally and internationally and may themselves be linked together in a network of networks *(Internet)*.

15.3 ONLINE SEARCHING

In the late 1960s and early 1970s three simultaneous technological advances brought online bibliographical searching into the realm of the practical: firstly, the development of random-access computer memories on disk with greatly increased storage capacity, secondly, the availability of simple and cheap acoustic couplers and the more reliable modulator—demodulators (modems) to convert analogue signals to digital (and *vice versa*) and thus allow computer terminals to be linked to the regular telephone system; and thirdly, improvements in cable, microwave and satellite telecommunication which allowed greatly increased amounts of computer

data to be transmitted faithfully over greatly increased distances. Such online facilities permit the individual user to conduct his own biliographical search of a distant computerized database using a two-way telecommunication link from a teletype terminal (which is like an electronic typewriter with more keys than usual and is sometimes fitted with a visual display unit) in his own laboratory, office or library. It should be explained that the terminals can be connected to the computer by private lines or dedicated lines leased from the telecommunications authorities or connection can be made by the user by dialling up the computer as required, over the regular telephone system. Increasingly, these methods may use the facilities of data (as opposed to voice) telecommunications networks, designed especially for computer traffic. This shows a great saving in cost, particularly if the data is transmitted by the 'packet-switching' technique, that is, interleaved automatically on a time-sharing basis with other packet-based traffic. Would-be users normally take out a subscription with a service supplier; they are then allocated a unique and confidential 'password' which allows them to identify themselves to the computer and thus gain access to the database they wish to search. Online bibliographical searches have increased enormously in number in recent years, particularly in the US and Western Europe.

Online access is now possible to well over two hundred bibliographic databses containing over 75 million records, mostly in science and atechnology. Currently the largest, most succesfful and most heavily used onlne database in the world is MEDLINE, the online version of MEDLARS.

15.4 FUNCTIONS OF ONLINE SERVICES

Most database producers, particularly those compiling bibliographic databases, license their databses to other organizations called 'online services' or 'host computer services' or simply *host*, which provide the computer, software and telecommunications support that enables remote users to access databases. There are more than 1500 commercial hosts operating worldwide. The larger one—of which DIALOG is an example—provide access to several hundreds of databases in a wide range of subject areas (they are sometimes calle 'supermarket' hosts). The functions of hosts are structuring, loading and subsquently updating the databases into large time-sharing computers; maintaining 24-hour access; connecting their computers to national and international networks; maintaining user-friendly programmes so that databases can be interrogated easily and efficiently; offering downloading facilities enabling users to store and display retrieved information locally; providing gateway access that permits users to switch to other hosts; connecting to document delivery services by means of which the full text of retrieved references are delivered electronically (e-mail, fax) or by post.

15.5 ONLINE SERVICE SUPPLIERS

Thus we saw emerge yet another category information profiders, the big-league service supplier, sometimes called system operator, concentrating exclusively on online provision and offering access to databases on an international scale over variety of telecommunications links. The market leader is DIALOG Information Services at Palo Alto, California, a subsidiary of the Lockheed Corporation. DIALOG provides 'fingertip access' to well over a hundred databases. This access is by dialling direct, or by leased line, or via TYMNET or TELENET which are major commerical data communications networks mainly serving North America but with modes around the globe. The second major US-based supplier is the Search Service of System Developoment Corporation at Santa Monica, California, a subsidiary of the Burroughs Corporation. Using the ORBIT retrieval system, SDC offer over sixty databses for searching.

In the UK the largest supplier is BLAISE (British Library Automated Information service) which commenced in April 1977 under the auspices of the British Library but using a rented computer. Linked with this development is MERLIN (Machine Readable Library Information), a new integrated computerized system being developed by the British Library to support bibliographical and cataloguing services and other library house-keeping activities for its own purposes as well as for external users.

The largest service supplier in Europe is the Information Retrieval Service of the European Space Agency (IRS-ESA) at Frascati, near Rome.

15.6 ONLINE SEARCH SERVICE BROKERS

This has led to the emergence of another category of information provider in the shape of the 'broker' (or service intermediary), whose role is to provide or sell online search services on demand to those who do not have access to a computer terminal. Unlike service suppliers such brokers do not necessarily require their own computer facilities or database tapes: all they need is a terminal providing online access to distant computerized databases, together with some experience in searching them.

15.7 SERVICE CHARGING

The main components of most charging systems relate to telecommunications rates; the elapsed time a user is connected to a host computer; storage of regular routines;

downloading and printing fees for retrieved information. The latter are often components of the royalty charges paid by hosts to database producers, with whom the copyright of the database usually resides. Some hosts charge a fixed annual subscription to their specialized services which allow unlimited access over a twelve month period.

15.8 END-USER ACCESS

In the earlier years of online services, connecting to hosts and searching databases was a complex, expensive activity and the task was often delegated to specialist 'intermediaries' (librarians and information officers), Recently the trend has been towards encouraging the individuals actually seeking the information—'the end-users'—to do their own searching. Users can download the searches of their results into a e-mail service. Complementary document delivery services have been implemented though which an end-user can request (and pay for credit card transfer) copies of original documents.

15.9 PROBLEMS OF ONLINE SEARCHING

Perhaps two controversial issues are cost and effectiveness: of course they are intimately linked. On the face of it at least, measuring the cost of an online search in order to compare it with alternative, that is, a traditional manual search, should be a simple straightforward matter. While one camp arguing that online is cheaper, the other retorting that when properly costed it is not. A. J. Hartley in discussing MEDLARS searches make the point that 'if the person using the output was a professor of medicine, it was almost always cheaper to the computer. If he was a research student it was cheaper to make him use *Index medicus* in the library'.

But cost comparisons alone prove nothing: what is really important is the effectiveness of the search. Whatever the truth about the relative cost and effectiveness of online and manual searches the comparison to be fair can only drawn for those searches that are judged appropriate in the first place for an online search. There is widespread agreement that for the less intricate everyday and background searches, for exhaustive searches covering many years, and for browsing, manual methods are not only more economical but also more effective. Experience has shown that it is usually misguided to embark on an online search with a vague or imperfectly-formulated question.

A number of much more fundamental probelms stem from the fact that many databases were not created primarily.for online searching : they usually originated as by-products of a publication system, consequent to computerization. On one

matter there does seem to be no doubt: online searching does save time. Many searches can be carried out either way, some must be undertaken using both methods. Even when the decision has been taken to search online, many would still agree with the conclusions of a team of lubrication engineers who compared CA CONDENSATES and ASCA : 'One cannot totally dispense with some hand searching and following-up references to be reasonably sure of good coverage'.

15.10 INFORMATION NETWORKS

It seemed logical to many that linking information users and all the various information providers (database producers, suppliers, brokers, etc.) in an online network would be an obvious next step, certainly quite feasible with current technology. The aim would be to make the information in any one system available to as large a group of users as possible. Such a development is very much in line with the objectives of UNISIST.

For some countries of Western Europe such a data transmission network has been established under the direct sponorship of the commission of the European Communities, which stated that its policy was to incorporate in the European network all information centres, systems or other useful institutions, which exist or are being set up in the Member States and link them together'. Agreement was reached in 1976 by the postal and telecommunication authorities (PTTOS) on the nine EEC countries on the establishment of EURONET, the actual telecommunication network. The ensemble of information services available to users via this network has itself been christened DIANE (Direct Information access network for Europe) and was opened in 1980. The President of the Commission, Roy Jenkins described it as 'a new highroad on which to transport a key resource—information.'

At the early phase of consortium or cooperative networks were planned, designed and operational dependig on the network membership of particular region. The network structures were based on usualy the following types :

- Libraries of similar types like Research Libraries Group.
- Libraries of different kinds in a particular geographical area or region, for example NELINET, the New England Library Network.
- Libraries which required particular function or service for hardware and software consultancy.

The primary objective of most early networks was creation and maintenance of computerized union catalogue basically for the following purposes :

1 To support interlibrary loan services, and

145

2 Shared cataloguing on cooperative basis in some sort of standardized format mostly to share the exhorbitant and repetitive cataloguing costs and other management expenses.

To achieve primary objective all the libraries got the union catalogue, larger database and database management system required for the member libraries. The system was known as cataloguing support system. It was the beginning of standardized catalogue format within the network system. The system eradicated the necessary and inherently evil problem backlogs of the member libraries. There are a number of information networks (online) and many of them are international in their scope and services. Some of them are discussed below :

(a) Online Computer Library Centre (OCLC)

OCLC, formerly known as Ohio College Library Centre was founded in 1967 by University Presidents to share library resources and reduce library costs. OCLC introduced online cataloguing system as early as 1971 for libaries and now it is used by libraries around the world. The inter library loan service was introduced in 1979 and since them it has been used for 110 million loans among 6,600 libraries around the world. OCLC is a nonprofit organization serving more than 40,000 libraries in 76 countries around the world. The public purpose is to further access to the world's information and to reduce costs by offering services for libraries and their users. OCLC membership is a unique cooperative venture giving global access to all the services and database including World Cat.

OCLC libraries also offer the OCLC First Search Service, which delivers oline reference information through a rich collection of databases with links to online full text, electronic journals, web resources, library holdings, interlibrary loan and document delivery. It provides information on Electronic collections Online services, Site Search software and Contents Alert service.

The OCLC MARC Record Service (MARS) is a complete, comprehensive database preparation and authority control service that provides high-quality, accurate, standardized bibliographic and authority data functions for libraries and research institutions. This service provides authority control, customised record processing, bibliographic record updating, smart barcode number generation, manual review, ongoing authority updating and notification services, now bibliographic record processing and TOC MARC Enrichment.

The future programmes of OCLC are to transform Worl Cat from a bibliographic database and online union catalogue to a globally networked information resource of text, graphics, sound and motion. This enhanced version of World Cat will include a shared knowledge base supported by a set of integrated, Web-based tools and services that facilitate contribution, discovery, exchange, delivery, and preservation of knowledge objects and shared expertise of participating institutions.

(b) Research Libraries Information Network (RLIN)

The Research Libraries Group (RLG) was established in 1974 by Harvard, Yale, Columbia University and the New York Public Library. RLG acquired the BALLOTS bibliographic data system of Stanford University and started its own bibliographic utilities known as the Research Libraries Information Network (RLIN) in 1978.

The prime reason for the establishment of the RLIN was the need of researches for specialised research materials which could not be provided by a general database, even as large as that of OCLC. With only 159 resource sharing members, RLIN database has a record count of some 63 million, and a database focused on scholarly materials. But because RLIN allows for multiple item entries and higher quality cataloguing, this database is enriched by more than 170 million catalogue records.

RLIN is now an internationally available bibliographic information system used with RLG's Library resources. For RLIN's cataloguing, archival control, and interlibrary loan facilities RLIN Terminal for Windows software and an internet connection is needed. This software and connection also support searching in Arabic, Chinese, Cyrillic, Hibrew, Japanese and Korean.

The resources of Research Library Group are a set of online catalogues that offer reference libraries, archivists, cataloguers, bibliographers, scholars and other researchers million of records describing materials created around the world. The RLG union catalogue comprises eight bibliographic files. The RLG's EUREKA search system presents them as one file, as well as the RLIN technical processing interface presents them separately.

(c) WLN

Washington Library Network (WLN) was first operated by Washington State Library with its juristdiction within the state. It was relatively a small library network. But the software development for its regional database which was developed since the late 1960's made the WLN software a very important one. The computerized bibliographic databse was established in 1972 with the cooperation of the Washington's Libraries. The online system was introduced in 1975. More than 80 larger libraries or library systems in the six states became online participants in the Washington Library Network. As the area of operation was extended beyond Washington state to six adjacent states, it was renamed as Western Library Network keeping the same abbreviation, WLN.

WLN provides a broad range of innovative, high quality technical and database services to public libraries, university, college, corporate, legal, medical and other libraries throughout North America and abroad. WLN's union catalogue contains 15 million bibliographic records and over 30 million local library holdings.

With effect from 1st January, 1999, WLN, a non-profit corporation serving over 600 libraries in The Pacific Northwest region of the USA and Canada, merged with OCLC, having its headquarters in Lacey, Washington. OCLC and WLN believe the synergy created by the merger will allow the organization to more effectively meet a wide range of information needs of libraries and the end-users. Working together, OCLC and WLN eliminate duplicate services, introduce new and better products at lower costs for member libraries.

OCLC, RLIN and WLN were established as non-profit organizations supported and governed by the member libraries. There are no commercial considerations, whether for the use of databases or for technical innovations in bibliographic services.

(d) UTLAS

The University of Toronto Library Automation Systems (UTLAS) in Canada is a regional library network created on commercial basis. The UTLAS network is diverse in the types of libraries—academic, public, government, special, etc. It has no relationship with the University of Toronto, Canada. It has made an integrated approach to library automation based on the distributed processing network. During early 1980's the users of UTLAS had access to a database of over 6 million records growing at the rate of over 2.5 million records per year. The database included source files from the Library of Congress, the National Library of Canada, the Bibliotheque Nationale du Quebec, and the records of the National Library of Medicine. Bibliographic records are available for monographs, serials, audiovisual materials, music, maps, manuscripts. UTLAS has changed its name to Utlas International.

In addition to the national source files, there are users-created files. The Catalogue Support System of UTLAS (CATSS) supported both external databases and member-created databases.

15.11 ONLINE INFORMATION SYSTEMS AND NETWORKS IN INDIA

During the last sixty years the process of modernisation of library and the establishment of networks in India has not been encouraging. Although India has good expertise in the technologies of computers and communication technologies, their applications to online bibliographic databases or networks are sketchy. In the 1980s organised efforts were made to collect and disseminate information. The 1983 Technology information base. The 1983 Technology Policy Statement put stress on the need for a technology information base. The National Policy on Library and Information System submitted in 1988 recommended, among many other

recommendations, using of information technology on a national level. However, the National Information System for Science and Technology (NISSAT) in 1986 initiated the establishment of CALIBNET (Calcutta Library Network), and supported the establishment of DELNET (Delhi Library Network) in Delhi in 1988, PUNENET in Pune in 1992, ADINET in Ahmedabad in 1993 and BONET in Mumbai in 1994. The then INSDOC supported the formation of MALIBNET in Chennai in 1993. The UGC (University Grants Commission) established INFLIBNET (Information and Library Network) in 1988. However, this scenario of networks does not ensure the growth library networks in India.

It is worth to refer to the report of the Working Group of the Planning Commission on Libraries and Informaties for the ninth five year plan (1997-2002). The report includes the following major recommendations for the networking and modernisation of libraries.

1. Special attention should be given to all libraries in the domain of Humanities with particular reference to Arts.

2. There should be a National Library System (NLS) comprising the National Library, Kolkata, National Depository Libraries in Delhi, Mumbai, and Chennai, National Subject Libraries such as National Science Library, National Medical Library, etc. and National Documentation Centres such as DESI DOC, NISCAIR (then INSDOC), National Social Science Documentation Centre (NASSDOC), etc. and such other libraries of national importance. These should form part of one cohesive integrated system.

3. The automation and modernisation of university and college libraries should be accelerated. The databases in these libraries should be created using intermational standards.

4. The Information and Library Network (INFLIBNET) programme of the UGC, and Information Centres at Baroda, Bangalore and Mumbai should be made fully operational.

5. Among the city networks, it has been found that the DELNET has emerged as an operational library network in India with 103 libraries as its members. It is recommended that DELNET be supported to create National Database and develop on the OCLC pattern covering all subjects. It is also recommended that CALIBNET, MALIBNET, etc. be financially supported to undertake creation of databases as state and city levels.

6. INFLIBNET should coordinate with the existing networks in institution so that duplication in various categories may be avoided.

INFLIBNET began its operations in 1991. For promoting resource sharing MALIBNET in Chennai has created database of current serials in 50 libraries. It may be noted that BONET, MYLIBNET in Mysore, PUNENET, BALNET and ADINET have not yet created their value added databases. As DELNET has been

regularly increasing its services, the membership growth has been positive DELNET's membership outside Delhi is increasing phenomenally because DELNET databases can be accessed by users through internet. DELNET is a growing network.

15.12 SUMMARY

In this unit we have discussed technological development, online searching along with its functions, online service suppliers, online search service brokers and end-user access. We have noted the problems of online searching. We have also described some of the well-known information networks functioning in the USA, Canada and the UK. India's attempts to build up online information systems and networks have been highlighted.

15.13 EXERCISE

1. How would you define information networks? Discuss at least four information networks in the world.
2. Discuss the problems in online searching.
3. Who are online search service brokers? Who are end-users? Who are online service suppliers? Explain.
4. Describe the functions of online services.
5. Write a note on online searching and key components of online systems.

15.14 REFERENCES AND FURTHER READING

1. Grogan, D : Science and technology. An introduction to the literature, 4th ed. Clive Bingley, 1982.
2. Kaul, H. K : Library networks : An Indian experience. New Delhi, Virgo, 1992.
3. Kaul, H. K.: Library resource sharing and networks. New Delhi, Virgo, 1999.
4. Mahapatra, P. K. and Chakrabarti B : Knowledge management in libraries. ESS ESS, 2002.
5. Mitra, A. C. ; "Calibnet on stream". DESIDOC *Bull, of inf. Tech.* 1996, 16(2), 35-40.
6. Murthy, S. S. : "Library networks in India : An overview". DESIDOC *Bulletin of Information Technology* 1996, 16(2).

Post-Graduate : Library and Information Science [MLIS]

Paper - V

Management of Library and Information Centres

Modules : 1 – 4

MODULE - 1

Unit 1 ❑ Principles of Library Management

Structure

1.1   Introduction

1.2   Administration and Management

1.3   Management Principles of Henri Fayol

1.4   Management Functions

1.5   Exercise

1.6   Reading List

1.1   Introduction

The concept of library in the traditional sense, has become changed in the modern society. The library is not just a collection of printed materials with reading and lending facilities. It has become a complex institution in its aims and objectives, collections, organisational procedures, service patterns, communication to the users and social responsibilities. A library has to play all the roles; a library an information centre, documentation centre, a resource centre, a referral centre and social institution beyond its location. Such situation claims manifold activities, particularly in service areas for storage, organisation and dissemination of information. Such situation requires varied types of materials, complex organisation of documents in various formats, multiple sources of information, coordination of resources, coordinated man power planning and effective management policies.

The management of the library obviously requires some basic skill and efficiency having the knowledge of management concepts, theories, principles and techniques as in other types of organisations and institutions. But in library situation these things must be considered as applied to the library as an institution of its own kind. The aims and objectives of a library, methods of achieving such objectives, service

patterns in a library, the changing needs of the users, modern library operations and multiple channels of information flow give the library a unique character of its own.

The term, management is mostly used very widely in case of profit making organisations. Rising indication of profit shows the success of the management. But in a library, which is a non-profit-making organisation, no such concrete parameter is there. The inefficiency in management slowly affects the institution in its operations and services. Good management results in efficiency through value judgement of the users.

The particular nature of libraries is indicated in services rendered, organisational set up and educational orientation. Usually the clientele or the recipient of service in a library does not pay for the services he gets but he should be a member of the library. Another feature is that every library is established as a part of a parent organisation. A University library is a department of a University, a college library is a part of a college, a public library is a part of a public library system, a special library is a section of a research institution. This particular character of a library must be taken care of while planning the administration and management of a library situation.

Every library operates in its own environmental condition both internal and external. The internal environment indicates the physical facilities offered, the services rendered and the internal atmosphere of the library. The external environment indicates primarily the relationship between the library and the parent organisation, and its relationship with other libraries of the same kind as well as other libraries in a particular region. The internal environment of a library is reflected by the collection, services offered and the methods of result-oriented service to the users.

There are three elements in a library and all the activities of a library are performed with these three elements. These are the library materials, the users and the library staff. The planning, organisation, administration and management of a library are concerned with these three elements. A library has certain resources. Broadly speaking, the resources are of three types :

1. **Financial resources**

   Financial resources are of three types —

   a) Fixed resources or assets, such as, land, building and other immovable properties.

   b) Movable resources, such as furniture and fittings, lighting and ventilation equipment, machinaries, computers, xerox machine, library equipments, etc.

   c) Financial resources which may be recurring and non-recurring in form of grants, fund allocation from parent institution and other financial sources.

2. **Intellectual resources**

   Intellectual resources are the library materials, printed and non-printed, graphic, audio-visual, micrographic, electronic and other types of materials. There are books, periodicals, maps, conference proceedings, seminar reports, manuscripts etc which are the sources of information.

3. **Human resources**

   Human resources are the library personnel consisting of administrative, technical and non-technical staff. The librarian and the supervisory staff are in leadership in their respective administrative areas. The library personnel are responsible for all operational work. Practically the efficiency of the library management depends entirely on the library personnel and their performance. From the management point of view, the library personnel does not mean the individuals employed in the library, but the educational background, professional training and expertise, technical knowledge for specific jobs, motivation and self-development of every individual working in the library

1.2 Administration and Management

The administration and management of a library are concerned with the formulation of methods and procedures and their implementation for performing the activities of the library and proper functioning of the same to achieve the aims and objectives of the library. The main purpose of the management function is to yield the optimal result of offering library services by using the resources at hand. The available resources may not be sufficient in a library but the management policy attempts to get the best results in a given situation. The availability of more

resources does not mean better result in all the cases, but the management of the resources matters in any particular situation. Library management makes the high result and it makes the job more effective, meaningful and significant.

The terms 'administration' and 'management' are not just synonymous, although these two terms are used generally as interchangeable. Administration is a generic term, whereas management is a specific term to denote a particular area of administration. Administration is the working force to implement the organisational model already thought about and to perform a set of jobs in chains for getting the desired results in a given situation with certain resources. Management is the predetermined force to execute specific jobs which are sharply result-oriented and directed to get the jobs done in a good administrative environment.

In administration the fundamental patterns and goals are established for the operational routine work. While such jobs are being performed, the administration looks over the jobs and assesses the working. Management is involved to carry out the specific directions in an administrative set up either in parts or in whole. The administrators may not be directly involved in management in library situation, but the management personnel is directly involved in it. Since a library is a part of larger organisation or a parent body, the administrative authority is vested in the administrative body of the parent organisation which is usually the library authority. A library is administered by a library committee, which is the source of library administration. The administrative body holds the administration with the librarian and his staff. The librarian and the staff work under the administrative control of the library Committee.

In a library situation the aims and objectives, guidelines, policies, rules and regulations, procedures, etc. emanate from the administrative body. The librarian and his supervisory colleagues inherit the administrative policies and administer the library. In that sense librarian is responsible for the library administration. This is routine administrative work complied with the administrative policies he inherits. This is a structured pattern in any library set up. In any functioning situation the librarian and the administrative body work with mutual cooperation and trust.

Then comes the management part of the library. In the actual library situation the librarian with his supervisory colleagues is responsible for proper functioning

of the library within a given library environment, with limited resources, having certain constraints, financial or otherwise, and with a group of persons working in the library. The management part of the library administration is not related to the functioning of the library very closely, it is concerned with the result oriented performance. Having the existing resources, intellectual, financial and human, the management will attempt to get better result by redesigning the workflow, functioning, manpower planning, service patterns or introduction of new methods and machines, technology, new working relationship and the like.

Theories of Management

The concept of administration as a discipline was first designated by famous French industrialist Henri Fayol as early in 1916. It is known as classical theory. It was widely accepted by the organisations. According to Fayol all the activities in any organisation can be divided in six categories. These six categories can also be applied to the library situation.

1. *Techincal activities*

    It may refer to the technical work done in the library as classification, catalogning, preparation of bibliographies, generation and dissemination of information and the like.

2. *Commercial activities*

    The commercial aspect of a library cannot be ignored since it is a method to save maney and minimise expenditure. A major part of fund is used for purchasing library materials. Books can be purchased with highest commission. Burgain may be in setting the exchange rate of foreign currency. Cooprative acquisition can be planned for expensive serials. Financial administration of the library may be taken on commercial basis.

3. *Financial activities*

    A library is financially supported by grants and allotment of fund from the parent organisation. Besides these fund a library can seek grant from other sources, such as governments, educational trusts and other agencies in cash or in kind as donations.

4. *Security activities*

A library is a repositary of the recorded documents of human culture and civilisation in various physical formats. Many precious, invaluable and irreplaceable are kept in the libraries. Adequate preservation methods and techniques must be followed in the library for preserving the materials for the posterity. Proper security measures must be taken against human vandalism and natural calamities.

5. *Accounting activities*

In any financial year a library gets the fund as receipts under various budget heads. It also incurs the expenditure under many heads. Every year the expenditue increases for new appointments, salary, allowances, increments, etc. for library personnel, increased expenditure for purchase of library materials, equipments, machines, furniture and fittings, etc. Sometimes budget heads are earmarked but reallocation of budget is necessary. For all financial matters porper accounts must be kept and accounting must be made.

6. *Managerial activities*

Managerial activities recognise the administration and management of each and every organisation. Such activities indentify various areas of administration and management and give emphasis on them. In clear terms Fayol gave prime importance on administration and management of an organisation in all its aspects.

1.3 Management Principles of Henri Fayol

Recognising Managerial activities as the guiding force of any organisation Fayol formulated the following fourteen management principles. These are the first categorised principles on management and these have not lost their relevance in modern management policy. These are the basic management principles.

1. Division of work or specialisation

A library is involved in both administrative and technical jobs. All the technical jobs are not of the same kind. A person can be specialised in a specific job. A person specialised in catalogning can do his job efficiently with most technical

literature encountered with the complex cataloguing problems. A person in the reference counter may work efficiently with wide and varied reference sources and tools having capability to meet people in all situations. If both these persons interchange their duties they may not feel efficient in other's field. Likewise small units can be entrusted with particular jobs and these units can achieve the expertise and proficiency. Such division of work and specialisation help the library management.

2. *Authority and responsibility*

While the responsibility is delegated to a person, he must get the authority. Otherwise there will be a lack of confidence in him. Responsibility without authority does not encourage motivation and it impairs the efficiency of performance and erodes self-confidence. The librarian should be conscious while he assigns responsibilities to his subordinates.

3. *Discipline*

In any work environment discipline is a must. In library environment it is more important because the library works as a system and human behaviour matters particularly at service points. Discipline must be enforced in the library and it must come from one's self.

4. *Unity of Command*

The command should come from one end usually the immediate superior, who will get command from his immediate superior. A system can function only in such a designed set up. Otherwise there will be misunderstanding and confusion.

5. *Unity of direction*

In a planned administrative set up direction should come from one end and one person should be responsible for similar type of jobs. Overlapping directions may cause double standards and affect uniformity and consistency.

6. *Subordination of individual to general interest*

Where there is a conflict of general interest with individual interest, general interest should get the priority over the individual interest. It is desirable in any social order.

7. *Remuneration*

Remuneration should be reasonable and should commensurate to qualifications, experience, technical knowledge, seniority, performance and such other factors.

8. *Centralisation*

The concept of centralisation is most modern concept in management. It has tremendous impact over the management concept, decision making, economy, financial control, management control and many other aspects of management. The methods, procedures, decisions, working modules, etc. many be discussed at any level or within any group but once all these things are settled these are to be controlled and directed by centralisation of management. The duplication of work and expenditure or repetitive jobs performed at various sections can be avoided very easily. Thus the management can be streamlined, coherent and properly guided making economy in terms of manhour, money and time, which are very important in library. Particularly after the computerisation of libraries the same format is being used for many purposes and catalogning work is done by a central body.

9. *Lines of command or scalar chain*

The guidance, direction and authority percolate from the top in any organisation. The authority of the top administration comes down in an hierarchical order through immediate subordinates and the work performed and responsibility go up in the same order through immediate superiors. This line of command clearly indicates the division of work and responsibilities in respective areas. This chain of command and the necessary feedback help the organisation to be properly managed and administered.

10. *Order*

In any organisation order should be maintained in both ways. The hierarchical order in the vertical way and the horizontal order in mutual relationship and work divisions. Order indicates the disciplined flow of discharging the respective duties and the systematic organisation of workflow.

11. *Equity*

Equity is the propagation of self respect in every one in the organisation from top to bottom level. Everybody should be taken in confidence for performance of his own work in the respective field. It indicates the mutual trust and cooperation among the employees of the library, whoever he may be, a senior officer or a junior employee. Everybody should be respected for his job. Such situation encourages motivation, inspiration for work, sincerity in duties and sense of responsibility at every sphere of activities.

12. *Stability of tenure*

Stability of tenure indicates a longer service period of an employee and uninterrupted working period. It assures better service, steady growth and systematic planning of work sehedules. Whenever the stability is broken, it leads to impairing the services, irksome dislocation of work schedules, downfall of efficiency, wastage of time and poor services.

The stability can be affected by three ways, First, the resignation of an employee, it takes time and requires formalities of get new person employed. Moreover, additional time is required to guide and train him for desired job to be performed by him. Thus, the workflow is suspended for a considerable period. Secondaly, if an exployee takes long leave without proper justification or keeps him absent frequently, it impairs the services of the library. While the work in the library is in a chain system this situation not only affects the work of a particular individual, it also affects the work schedule of others and the library service as a whole. Thirdly, if the employees come to the library but do not work on this or that pretext, misuse time for personal convenience, indulge in gossiping and create an atmosphere of non-working, the library connot function. The management must look over the stability of tenure.

13. *Initiative*

Initiative not only indicates personal eagerness to do the job carefully, but the drive to improve the output. It comes from one's personal involvement in the work and further self-improvement continuously. One should not only do his

161

11

job assigned to him but he should also feel inspired to perform his duties. In working situation anybody may have suggestions for improvement and better work or redesigning the work schedule for better result, all these suggestions should be taken with trust by the management. Due attention and proper consideration should be given to them. This will inspire the persons working with initiative and ultimately institution willl get better result.

14. *Esprit de corps*

It means the sense of belonging of everybody in the organisation. All the employees do not feel as an assemblage of individuals but recognise their identity with the institution. Thus a sense of cooperation, a sense of belonging, a feeling of identification with the institution, a corporate sense over self, a team spirit, a feeling of unity make the institution as a organic whole. Any institution can grow, develop, flourish and socially meaningful by such involvement of the employees.

It may be observed that Fayol described all the aspects of modern management, administrative, financial, personnel and social. He emphasised on human behaviour, which is the most modern concept of management. In his discussion both the aspects of management have been given due importance, the functional aspects and the behavioral aspects. The management concept of Henri Fayol influenced very largely the management scientists.

1.4 Management Functions

The management functions of an organisation were described by L. Gulick and L. Urwick in papers on the Science of Administration (1937) as follows —

Planning

Planning is a mental process. Before performing any job one has to think about the job first, why the particular job is necessary, advantages of doing the job, alternatives to that job, how the job will be done, and all other aspects of the job. In a library situation before opening any new section, amalgamating two or more sections, introducing new services, taking any administrative decision, re-designing

service pattern, taking new steps, reorganisation of sections, or for any job to be done in future, the librarian or the library administration has to make the planning. Assessment of existing situation, visualising the further action, result of the change and effects thereof, consideration of the alternatiives, evaluation of the action and the future consequences, arrangment of the resources, thinking over the implementation and taking care of all other considerations must be made. An overview of all these situations come under planning.

Organising

Like the planning organisation is also a mental process but in more concrete terms. In the planning it is stated what to do and in organising it is found how to do. When planning has been made for a specific job organising sets the structural pattern to devise methods and work-out programmes to create the situation in performing the job. At this stage the objectives are set, methods are formulated, processes of implementation are fixed, papers are ready, decision for doing the job is taken and all necessary steps are taken to perform the job.

Staffing

Staffing refers to the human resource already existing in the organisation and the new recruitments. In any library situation there are inanimate resource and animate resource. The former is the library materials which are to be served, and the latter is the library personnel who will serve. The two factors in the library are equally important. The librarian should assess the existing man-hour and the capabilities of the existing persons employed in the library. If required, their duties may be reorganised for yielding better service. They should have in-service training and continuing education to improve the capability and expertise. The right person should be in the right place with the right job. When required new persons should be recruited for the jobs specified having desired academic background and adequate training with proper aptitude and motivation. To get the best results the library environment should be congenial.

Directing

Directing is the administrative command over the affairs of the library. After taking any administrative decision the librarian enforces the decision to be implemented. These decisions are not isolated decisions to be implemented

fragmentarily. Directing involves overall administrative control. All the jobs performed in a library and works done in a library are interrelated. In this sense directing is taking the leadership over all the matters as a whole for the present as well as for the future. Directing does not mean just to issue the order, but to motivate the staff to get the best results and to see that the library may offer the best services to its clientele.

Coordinating

Usually, the organisational structure of a library is like a pyramid. At the top there is the librarian, then the deputies, and assistant librarians. In this way the administrative authority comes down to the supervisory staff level. Both for administrative works and technical jobs a number of staff is responsible to their immediate superiors. Thus the division of work is distributed in a library. At every stage a person is responsible to somebody for his performance and jobs to be done by him. There are various work units, sections and divisions for respective responsibilities. All these individual units are interrelated and works are done in a chain system one after another. If there is break at any point or work is delayed the whole process will be affected. Therefore, coordination in work is very much vital in a library situation. All the jobs in a library must be performed in a coordinated way, periodical assessment should be done for all the works at all the stages and efforts should be made for synchronising the work points for best services.

Reporting

Reporting is the preparation of factual data of the work done in an unit or section. These unit or section reports are amalgamated to prepare the full report of the working of the library for a given period. The report is then transmitted to the top administrative body. The report contains the works done in various units, any progress made, constraints felt and the suggestions to overcome these, and back log in work and reasons therof, actual work done with statistical figures, and the like. The report in itself will speak the working situation of a library and the top administrative body will understand and assess the working of the library. The reporting will help the librarian in checking the performance and making self-assessment.

Budgeting

Budgeting is the preparation of financial estimate for the next financial year, anticipate allotment for the present financial year and showing the actual expenditure incurred in the previous financial year. It involves both receipts and expenditure as well as accounting, financial control and financial planning. Since any library is a non-profit organisation and derives money from the parent organisation the financial responsibility is muc¹ ore important. The good performance of a library and the success of a library cannot be judged in financial terms, it can only be judged by the services rendered and the role of he library in a society. Therefore, it is very difficult to convince the library authority regarding the increasing expenditure in the library. The librarian, in the preparation of the budget should keep this point in mind and in preparation of the budget he should give emphasis on the better services of the library for the benefit of the clientele.

1.5 Exercise

1. Discuss the activities of an organisation as described by Henri Fayol.
2. What are the principles of library management?
3. Discuss the relationship between administration and management.
4. What is the importance of planning in library management?
5. What is meant by directing?

1.6 Reading List

1. Lock, R. : N Manual of Library Economy, 1977.
2. Dale, E : Management; Theory and Practice, 1978.
3. Narayana, G. J. : Library and Information Management, 1991
4. Drucker, P. : Management, 1974.
5. Buckland, M. K. : Redesigning Library Services : a manifesto, 1992.

Unit 2 ❏ Management Policies, Techniques and Procedures

Structure

2.1   Introduction

The library administration and management have been greatly influenced by the management concept applied to industry, business and other productive human endeavours. The management principles formulated, experimented, modified and applied in other spheres have been applied to library situation. Like other management areas library administration and management also have developed through certain changes and transitions.

Traditional Administration

Traditional Administration policy had been associated with the library administration from the ancient period down to fourth decade of the twentieth century. The library authority was the king, chief of the church, vihara or temple. The head of the educational institution, and the like, who were the head of the parent organisation. The librarian or head of the library was appointed by him.

166

The librarian with his staff administered the library with the methodology formulated by themsleves. The administration was to a great extent authoritarian and the approach was traditional and for this reason conservative. The librarian took all the decisions and issued directions. The whole administration was based on individual's understanding, capability, farsight and judgement. The administrative procedures were limited to individual libraries.

Radical changes came in the twentieth century. Henri Fayol established administration as a discipline known as classical theory.

2.2 Scientific Administration

After the World War II there was a flux all over the world in the publication world. The Scientific inventions and discoveries and fast progress in technology opened new vistas in scientific researches and their application in industries, business, communication, agriculture, medicine, transport, communications, daily life, and all aspects of human activities. In one hand, there were enormous number of publications in the libraries, a large number of printed and non-printed materials in various physical forms, on the other hand mechanical devices had their way in libraries. The problems became acute regarding the organisation of materials in the libraries, preparation of records in such enormous number of documents, changes in readers approach to libraries, increase in size of libraries, increasing number of users and their manifold requirements, and the like. The traditional approach library adminisration could not cope with the new situations.

An enlightened society, inquisitive users, thirst for knowledge and demand for information changed the face of the library, all these situations made it inevitable to employ more persons in the libraries. The persons employed in the libraries had to be trained and they needed specialised training and professional education in performing their jobs. Not only the number of materials and staff increased in the libraries, in the changed situation, changed social context, proliferation of education, necessity for storage, retrieval and dissemination of information, the concept of library service changed altogether.

Many new services were introduced in the libraries. It was found that library situations in all the libraries were the same, the problems of administration were

identical, the problems of personnel management were of the same type. All these situations necessitated administrative and management principles and procedures to be standardised, uniform and applicable to all library situations. Thus the management concepts and principles applied to other spheres of human acivities were felt useful in library situation. During 1940's and 1950's these management principles and procedures found their place in library environment.

2.3 Modern Management Policy

During 1960's the library management entered into a new era. The changes came in two directions. First, modern managment principles and procedures which were established in industries, business and other fast developing areas and found their way in libraries in previous two decades became established in the library situation. The structured pattern of modern management influenced the administrative set up of the libraries. The modern concept of library management having both functional aspect and behavioural aspect practised in libraries. Secondly, new electronic technology was introduced in libraries. Thus, the work schedules, service patterns, technical processes, information storage and retrieval and many other jobs came under drastic change. There were complete reallocation of administrative and management procedures.

A radical change came to library environment during 1970's with the introduction of online computer system used in libraries. During 1960's semi-mechanical devices and mechanical machines were used in libraries. In small number of libraries off line computers were used for the library operations. During 1970's major central online computer systems started operations and participated in centralised cataloguing system, bibliographic databases and cooperative management.

The basic principles of modern management involve the following points :

1. Management is a mental process, a way of thinking for planning and designing some activities which are to be implemented at the least possible cost.

2. The plan of actions should be drawn in such a way so that the activities will be in systematic order.

3. The decisions should be made to facilitate the decisions to be taken in future.

4. An environment should be created for improving performance in achieving the objectives and goals of the organisation.

5. One should look ahead towards new direction for development as well as anticipated increased demands.

6. There are alternate ways for each activity and problem solving, therefore, the best way should be chosen in a given situation, which is the best to accomplice the desired objectives or improvements.

7. There is always a scope for improvement and study should be made in this direction.

8. Planning and designing should be made for promoting new development and innovation.

9. A work culture should be established with proper communication among the staff members by creating a climate of team work.

Every library has its own objectives and goals depending upon the library collection, users and their requirements, services they require and functioning of the library as a whole. The library management deploys the resources for the achievement of these objectives and goals — finance, materials, equipment, accommodation and the human resource. The management should monitor the operations of the activities, function of the system and should evaluate each stage of achievement against the objectives set.

2.4 Techniques and Procedures

The library management techniques and procedures have been standardised, rather like a discipline. These can be applied in a library situation. Now the principles and procedures have been formalised, that can be applied to all libraries. But one thing should be remembered that the nature and character of the library vary from one library to another library. There are different kinds of libraries, academic, public, special, government, etc. Each kind of library has its own kind of library

169

materials, own kind of catalogue procedures, particular type of users and their needs, special service points, particular types of services, special classes of members and users, specific information requirements, and the like.

Libraries of a particular kind are not also identical. They vary in their size, subject specialisation, service patterns, awareness of users, organisational set up, storage or service orientation, allotment of fund, facilities, and the like. University library management and college library management must be of different nature. A university library having humanities bias, another having science and technology bias, another with agriculture and applied science bias cannot be identical. A large public library in a city and a small library in a rural area must possess different character. An industrial library, a science research library, an archival library, a government departmental library must have different library situations. The management principles and procedures should be applied to a library considering the very nature and character of the library, kinds of library materials and their organisation, methods of technical jobs, categories of users and their specific needs, service points and service patterns, library personnel and library services. Another very important consideration is whether the library follows closed access or open access system. In that case the total library situation must be very different.

There are the general management principles and procedures. But these are to be applied considering the suitability of such principle and procedures in a particular library situation. For library management the librarian must know the personnel, various departments, the work schedules, the technical processes used and as a whole the library enviornment of his own library. The study of library environment should be in the words of Beverly lynch, "1. The nature of the library environment itself; 2. The relationship among the libraries within a set of organizations; 3. The characteristics of the exchanges that take place among libraries; 4. The impact that the environment has upon the libraries' internal structure and operations."

Usually the organisational and administrative set up of a library depict the organisation hierarchy. The library authority and the library committee are the policy making bodies which do not come to the scene within the library. The library as an organisation is headed by the librarian, chief librarian or director of

the library, whatever may be the nomenclature. He is the top man of the library and the authority in person. Next to him there is a second line of authority as deputy librarians and assistant librarians representing respective areas of authority. Next to them the workforce, the senior and junior library assistants who are technically qualified. Under them there are non-technical staff. Usually this is the hierarchical position of the library personnel.

In the library situation the librarian or the top man must be technically qualified and competent. The library job is both a technical job and professional job. The technical competence is required for having command over technical work. The librarian should be professionally competent and this is required for services to users as well as to interact with the users in all library affairs. Libraries are also information centres. Technical and professional skills are required to know the information sources and services for generation, storage, retrieval and dissemination of information. In the electronic age knowledge of information technology, communication technology and computer application are essential. The secord line of authority should have the same qualifications and compelence in there respective fields. In the hierarchical order the administrative or management cadre is in three tiers :

The librarian or Chief Librarian or director (one), Deputy Librarian (one or more) and Assistant Librarians (several).

Librarian acts as the *ex-officio* secretary to library committee. He is the liason between the head of the parent organisation and the library authority. The relationship between the head of the parent organisation and the librarian is reciprocal. The librarian derives power and authority from the head of the parent organisation. It is fact that the librarian has statutory power and authority as well as enactment on behalf of the head of the institution or the library authority. The prime source of authority, can be made only with a good rapport with the head of the institution. The head of the institution and the librarian must have mutual respect, trust and confidence. Such mutual relationship cause the derivation of power and authority from the head of the institution. Where, even *post facto* approvals are possible.

As the librarian derives the authority from the superior, the head of the institution also gets the technical and professional awareness from the librarian. The librarian advises him in all the affairs of the library, such as the aims and objectives of the

library, methods of achieving the objectives, changing concept of library services and techniques, future planning of the library, expansion and introducing new services, departmental reorganisation, financial matters, personnel affairs, all administrative and management policies and implementation of such policies and procedures, and the like. The head of the institution can get proper orientation and understand the situation rightly and to take any decision promptly so that the library affair does not hamper. Such mutual relationship facilitate proper management of the library.

The library authority and the library committee are the policy making body. Obviously the library committee is really responsible for policy making. It recommends all the policies, principles, procedures, decision on routine administrative matters, financial and personnel affairs to the library authority for approval. The librarian, as the secretary of the library committee with his technical knowledge and professional competence as well as being the leader of the library team, plays a vital role in placing the matters to the library committee advising the members on all library matters and to make the committee convinced regarding the requirements of the library in all spheres.

Within the library, as an institution, the librarian is the chief of administration and management. He is also responsible for the planning and organisation of the library as a continuing process. He has to work in two broad areas, first, the planning of any job, service, department, manpower use, and any other step for better managment and the organisational set up required for implementation of such steps and changes, secondly, while implemented the administration and management of all library affairs with a view to providing efficient, meaningful and result-oriented service. The librarian has to work simultaneously in these two broad areas and there is no end to this situation.

H. Mintzberg in his *The Nature of Managerial work* (1973) described the following roles to be played by the top man in the management.

1. Figurehead
2. Leader
3. Liaison
4. Monitor

172

5. Disseminator
6. Spokesman
7. Entreprencur
8. Disturbance handler
9. Resource allocator
10. Negotiator

Usually conventional approach to library management functions within a hierarchical set up. In his book Management Techniques for librarians (1983) G. Edward Evans described that "There are four fundamental characteristics,

1. The functions of management, such as planning, organizing, motivating, and communicating, can be defined, emphasized, and studied;

2. Principles of fundamental truths exist concerning organization and management, and they are very important in clarifying the study of managment and in improving managerial practice;

3. Principles derived from the study of management should be the starting point for research and should produce even more useful managerial theory; and

4. Management to a great degree an art concerned with the application of certain principles that are only to a certain degree susceptible to scientific study."

The library management is based on experience and the situations interfaced, and it can be applied to any work environment.

Human Relation and Participation Approach

Human relation and participation approach to library management is based on mutual relationships between the authority and the staff. Such Human relationships work among all the members of the staff both in vertical position between superior and junior as well as in the horizontal position between two members of the same cadre. By this approach the conflicts of ideas, personalities, procedural methods, division of work allotment of work schedules, financial considerations, period of duties, overlapping of schedules and such other things can be avoided and settled

173

in mutual understanding. This approach eliminates administrative bottlenecks at any point. Mutual dependency, personal respect and trust giving value to others opinions, individual tolerance, etc. do not allow to grow troubles and conflicts and eliminate the threats to make a small trouble as a great problem.

While each member of the staff gets a chance and a role in participation of library affairs, it inspire him and motivates him to take active part in management in his own sphere. When he feels that his opinions and sentiments are honoured, he feels himself an integral part of the institution. This psychological approach makes the management more effective, well-organised and result - oriented. This approach encourages individual participation and greater involvement in all spheres of library activities. It also indicates ways and means to solve all internal conflicts and problems within the organisation. the practicability of this approach obviously depends on the human element and human behavior withing the organisation.

Power, Authority and Delegation

As library is a part of parent organisation, the power and authority of the library are derived from the parent body. Public libraries derive the power and authority from the government under library act and related regulation. Academic libraries derive the power and authority from the academic institution they are attached to. The university library gets them from the university authority, the syndicate or Executive Council. College Library gets them from the governing body of the college. Special library gets the power and authority from the organisation it is related to. More or less the administrative pattern is the same in all the libraries of a category.

Power is the general administrative power including management and financial power within one's jurisdiction. Inheritence of power is not the end, one must have the capability to use the power properly. Authority signifies the right to take a decision and to enact it. Power and authority is not synonymous but closely related. Power or authority, as such, has no status unless these are acted upon or enforced. Naturally it depends entirely on the individual who will act upon or enforce, and obviously to what extent. Therefore, the consequences are the basic elements in using the power and authority. So, the subjective part of it cannot be ignored. Although the social environment and hierarchical relationships are also

considerable factors.

Some attributes are associated with power. These are ability to give rewards, inflict punishment, censor subordinates, use commands, and the like. Authority is the sanction given by the statutory provision and the parent body. Both power and authority are given to librarian by the competent authority for administration and management of the library. By this the librarian is empowered to take decision, implement it, assign work to subordinates, review and assess their performance, take steps if performance does not come to desired level and to act accordingly whenever situation arises. Like power authority is also dependent on one's persond capability.

The librarian cannot himself supervise all the works of the library at all levels. He cannot make everybody responsible for work and performance of all the employees in the library. Therefore, he has to delegate the power and authority he has inherited. In the hierarchical structure the librarian delegates the power and responsibilites to his subordinates next in command. The next subordinate may be one person or a number of persons in the line. Usually the librarian devides his power and responsibilities among persons in the next line to make the work more effective and result-oriented. The work of the library is divided in several departments each having several sections. The delegation of power and responsibilities is divided usually department-wise so that somebody can be responsible for the respective area on the performance of the concerned department. The assignment of work, its feedback and the overalll control over the department will show the effectiveness of delegation.

2.5 Decision Making

Decision making is a vital job in library management. It is to be done everyday, every time, every point. Decision making is associated with problems, difficult situations, conflicts, alternatives followed by administrative situations. It is fact that the efficiency of management depends upon taking right farsighted decision. Decision making is the most most important process and an essential element in every other activity of management as well as very important at every level of management. The success and failure of the individuals at the top position as well

as efficiency of the organisation depend very much upon taking right and wise decisions.

Decision making is more or less a lengthy process depending on consideration of many related factors and choice of the best among several alternatives. As described by Louis Allen, decision making is *'an intellectual end-point* - the culminatioon of a series of mental activities that lead to a conclusion or judgement. this may take place consciously or unconsciously; it may or may not result in action'. But this has tremendous impact over all the activities of the organisation.

Beatrice V. Simonsum marised the mental process of decision making in the following way :

1. Identification of the real problem to be faced, or the end to be accomplished.

2. Accumulation of the facts relevant to the problem.

3. Classification, arrangement and assessment of these facts.

4. Formulation of alternate courses of action.

5. Choice from among the alternatives of what appears to be the best or more workable solution in the particular circumstances.

The right and wise decision can only be taken while all the relevant facts of a particular situation have been collected and assessed as well as the vital information are recognised. It is a fact that taking no decision is bad but worse is taking bad decision.

In the decision making, it is most important to consider the consequences of decisions and these should never be overlooked. According to B. V. Simon "it is well to remember that a decision which appears to benefit one department greatly may, inadvertently bring about problems in another department which far outweigh any beneficial results in the first department". Therefore, before making a decision to change an established procedure one must consider the possible effects of that decision on the organisation as a whole. This is very true in the library situation where decisions made, arbitrarity, in the catalogning department have often created unfortunate difficulties in the service departments. One of the most important factors in creating a well-motivated organisation is to make sure that one's decisions will be accepted. The way to accomplish this is to invite participation in the

decision making process. And that is the very essence of decision making skill. The best way of decision making is the participation of all concerned persons and after considering all the factors taking one decision.

2.6 Planning

It is a fact that "Planning is a critical element in the success of any person on organisation." The objectives of planning is the channelisation and direction of library activities in a coordinated way with a view to achieve the aims and objectives of the library. Planning provides the ideal situation by directing library activities to an end so that the programmes of the library can be successfully implemented. In the planning certain factors are to be considered. These are objectives, policies, procedures, rules, programmes and budget.

As the library is a division of the parent organisation, in planning the library the aims, objectives and goals of the parent organisation should be considered along with the aims, objectives and goals of the library. Once objectives are recognised the required policy decisions should be taken. In policy decisions the scope of the activities, services be rendered, ways and methods of works to be done, etc., should be considered. Procedures concern the actual implementation of the jobs in various departments and implementations of the jobs in various departments and translation of the policy decisions into activities. The procedures should be adhered to. Programmes are the activities of the library subject to the modifications for betterment and improvement. All the activities of the library as a whole are controlled by the financial support. The library budget should be planned and prepared for both ongoing programmes of the library and development plans. All these activities depend on the proper planning.

Planning in library management is a continuous process. While a particular phase of planning is implemented, planning should be made for the next phase and next programme. The main purposes of planning are to achieve optimal efficiency, constant improvement and steady development at the least possible cost. It means the utilisation of all types of resources — financial, personnel, mechanical,

equipment, accommodation, etc., through systematic approach. Therefore, the planning process involves setting up of goals to achieve taking policy decisions, decision making at each point required, establishment of procedures, system analysis, organisation of activities, allocation of resources, etc. for the present need and future development. Planning makes the structural pattern for result-oriented activities.

Planning may be divided into three kinds as follows :

1. **Organisational Planning**

   It initiates a new programme, project or activity. It includes the formulation of aims and objectives or goals of a particular programme as a whole by taking policy decisions regarding the form and structure to be set up for implementation.

2. **Management Planning**

   It is concerned with developing the policy decisions and looking over their implementation in various divisions or depatments in the library as an integrated whole to achieve the predetermined objectives. It also includes periodical monitoring and assessment of activities to note their success and limitations. It involves all managerial activities and operational jobs and the total output of the work done. this is the major part of the library management.

3. **Development Planning**

   It concerns with the ways and means, procedures and methods as well as evaluation and assessment of the existing activities and planning for improving the performances and for increasing the efficiency. It also includes the planning for the future development in all spheres of activities in the library. It should be a continuing process.

   Development planning is a process which depends on the management planning. Management planning, both policy and implementation depends on organisational planning. In library management these three kinds of planning should be considered with much importance.

   While we are concerned with the planning in library management the starting point should be the organisation planning. In this respect the comments of R.

L. Harshey may be considered. He writes "All human organisations have three essential features. First, they have an objective - a result to be achieved. Second, there are people to implement by which the organization gets its work done and produces the results which are the reason for its existence. Third, there is the str ture, the way the people are placed in working relationship with each other. For greatest effectiveness, both people and the structure of an organisation must be well tuned to its objectives. The people will need to have whatever special skills are required, and the structure must bring the people together in a way which stimulates maximum use of those skills on the essentials of the jobs to be done. Proper structure provides for doing those things necessary to attain the objectives, and at the same time, firmly excludes the doing of those things which are unnecessary. ...while some kinds of organization find it unnecessary to adjust their structural arrangements from time to time, and may for years have unaltered objectives, business organization will neglect the matter of re-examining objectives and altering structures only at great peril."

There have been major changes in library situations in last few decades. The holding-oriented concept of library has been changed to service-oriented concept. Library services cannot be insulated to the holdings of a particular library and traditional services. Libraries should act as information centres. The information sources are not only restricted to the printed materials. The users' requirement are the latest information in any physical form. Users should be made aware and motivated to utilise the library resources. Library co-operation has become a necessity since no library can hold all the materials and information the users need in a particular library. For the changing role of the library in the social context the planning has become an essential and prime factor in library management. Library automation, because of the technological development, has also great impact over library management.

2.7 Management Procedures

The management procedures should be adoped in the library for effective and

efficient result in all spheres of library activities. This must be a continuous process. The modern concept of management has been described by professor John F. Mee. In his words the management process is a 'flow-process for setting and achieving predetermined objectives in an environment by the intelligent use of human effort and facilitating resources'. The management process should comprise the following factors:

1. Established and accepted objectives for achievement by group efforts.

2. A process based on logical and effective thinking for guidance to achieve the objectives, and

3. Organised human effort, facilitated by other resources, to be utilised in the process to achieve the objectives which have been established.

Since this is a continuous process in the library which Professor Mee described as 'flow-process', he identified seven essential steps to make the process continuously result-oriented. These are :

1. The decision-making process
2. The policy-making process
3. The planning process
4. The organizing process
5. The motivating or directing process
6. The controlling or measuring process, and
7. The innovating process

There may be a consideration whether decesion making process and policy-making process should be included in the planning process. But Professor Mee is of opinion that it is quite possible to make a decision without planning, but it is impossible to plan without reaching a decision to do so. Therefore, he places decision-making as the very first step in the 'flow-process' and the first decision is that which sets the aims and objcective to be achieved.

The second step in the management process is to formulate the general policies that are to serve as guidelines in planning. General policies are not the rules or procedures. Policy decides what rules are to be adopted and what procedures are to be established.

The third step is the planning process which he described as 'to develoop courses of action to achieve the predetermined goals in accordance with the general policies formulated.' It is the designing of the overall organisational structure considering the timebound targets to be achieved and methods of implementation of activities.

The organising process is the actual implementation of the programmes recognised in the planning process in actual activities. In his words it is 'the vehicle to release and channel human effort with technological aids in effecting the plans to achieve the goals established'. Routine management is very much concerned with this process.

The activities of the library are to be performed very effectively and efficiently and human effort only can 'effect the plans to arrive at the goals set within the policy framework'. Therefore, the motivating or directing process is essential for generating inspiration among the library personnel and for guiding them to get the optimal performance.

The controlling or measuring process is put into operation 'to enable the actual performance to motivated and directed people in the organisation to accomplish the desired goals in conformance with predetermined plans and policies'. The controlling or measuring process include monitoring process also by which the evaluation and assessment of each of the activities can be done. It may indicate the weakness or limitations of the procedures adopted as well as modifications for improvement and development.

According to Professor Mee the innovative process is 'to improve performance, reduce costs and achieve greater human satisfaction.' This process involves research and development, and generates new proposals for future actions from which management again reaches the point where choices from among alternate courses of action must be made, and the whole flow-process in set in motion once more. At every level of management this flow-process never ceases as library is a dynamic organisation.

Ross Shimmon made very important comments on library management procedures. He suggests that "Management is not a skill which is exercised only by the senior professionals. It must be appreciated and exercised at all levels.

Everyone has to take decision which have a bearing on the efficiency and the effectiveness of the library. A generalization might be that staff with less responsibility are concerned with decision about efficiency, and that, as staff gain more responsibility they take decisions about the effectiveness of the library... It is very important that staff in libraries are able to identify and define the problems that really matter, and that they are able to discuss these problems intelligibly with management experts. The often quoted 'interest in books and people' is obviously a central requirement for anyone working in a library, but this statement leaves out an equally important phrase : a desire to bring the two together. In a soft area like the library service, this is not as easy as it looks."

He also comments that "The essence of management is a conscious and systematic attempt to organise the resources available to achieve the goals desired. In a library, as in any organisation, the goals are not always what they seem to be. They conflict, some are accepted by one part of the organisation and not by the remainder. Management decisions in a library have to take into account all the people involved and their value systems in an attempt to produce the services which are possible within the real (not imagined) constraints. These services must be demonstrably of value to the users and potential users, and it must be judged cost effective for the particular library to supply these services."

The managerial tasks, as a whole, include the co-ordination of human resource at various levels, technical resource, financial resource and service management towards accomplishing institutional objectives and goals from planning to actual implementation of service points and to keep the workflow ongoing keeping adjustments with current situations as required.

Managers operate in three levels usually in the library based upon their activities and skills and their place in the hierarchical order. The levels are top level, mid-level and first line managers.

Top level management is responsible for planning for the future developments of the library, keeping liaison with the authority of the parent body, identifying potential changes, to relate the institution to social environment, strategic planning, holistic approach to organisational system. They should obtain information from their next level or mid-level management. They must know the policies of the parent body as well as, they should know the actual work situation of the library

as a whole and should identify the goals to be achieved by their subordinates.

Mid-level management coordinate internal activities of the library, translate policies into practices, prepare reports in respective areas, keeping top management aware about limitations, if any, overviewing respective work situation and suggestions to top level management.

First line management look after the technical operations, communication with library users and others coming to library for any assistance, supervise operational functions, maintain quality control, handle staff grievances, supervise day to day activities, accomplish objectives efficiently and effectively. They require strong technical and interpersonal skills. They deal with thair subordinate work force and clientele. Their jobs include problem solving and communicating with their immediate supervisory persons.

2.8 Exercise

1. What are the modern management techniques and procedures?
2. Discuss the role of librarian in the library system.
3. What is Human Relation and Participation Approach?
4. Discuss the characteristics of Power and Delegation.
5. Define Decision Making.

2.9 Reading List

1. Mintzberg, H. : The Nature of Managerial Work, 1973.
2. Buckland, Michael K. : Redesigning Library Services : A Manifesto, 1992.
3. Evans, G. E. : Management Techniques for Librarians, 1983.
4. Albritton, Rosie L. : Developing Leadership Skills : a sourcebook for librarians, 1990.
5. Narayana, G. J. : Library and Information Management, 1991.

MODULE - 2

Unit 3 ❑ Library Management Records and Processes

Structure

3.1 Introduction

Library is a social institution and supported by public fund. The performance of the library both achievement and limitations, should be revealed to the parent organisation and public in general. The management records must reveal the day to day routine jobs as well as the performance of the library as a whole during a period of time. The term record implies to note the relevant information, instructions and directions in the manner prescribed by the library management as more or less permanent documents which must be available whenever required.

The activities of the library are of continuing nature. Every activity is done and each step is taken depending on the previous activity and step taken previously. Unless the previous activity and step is recorded it will be difficult to take step in future. The library activities are guided by the instructions, directions, decisions and orders of the management. All these things must be recorded as guiding force, otherwise the direction will be lost. The records are very important for taking decisions, justification of the decisions taken, directives and orders of the top management, instructions of the superiors in the scaler chain of management, justifications and agreements for any activity performed or step taken, assigning jobs to particular person and the output, evaluation of performance of various departments and sections and understanding the performance and shortcomings of the library functions in limited areas or as a whole. These records are guides for future activities. The library management depends on these records for taking decisions to be implemented in future.

The library management records are of four categories. These are :

1. Records of the library collection in different physical formats,
2. Financial and Accounts records,
3. Users service records, and
4. Administrative records of the library.

There are various kinds of records under each of the category mentioned above. It is not the fact that all the libraries keep all the types of records under each of the

category. The kind of library, size of the library, number of users, services rendered, holding in various physical formats, number of library staff, departments and sections, system of keeping records and such other factors are to be considered to decide number of records. Usually the four categories of records are to be kept in each library.

3.2 Records of Library Collection

The major constituent in library collection is book. The activities relating to books are that books are selected, orders are placed to vendors, books are received and accessioned, classified, catalogued and kept in stack areas. The records required are publishers' list, vendor's list with subject interest and business terms, order slips, Invoice Register, Bill Register, diary to record progress of work.. Important records are Accession Register, Withdrawal Register, Misplacement Register, Replacement Register, Donation Register and related records.

In technical or processing department the vital record is the Authority File to record all the decisions regarding classification and cataloguing. Library catalogue is the essential record to be used by the users to explore the resources of the library. The official record for library holding is Shelf list. Bindery Register is required for book binding record. In the Periodicals department vendors or suppliers list are to be kept. Register should be kept for non-receipt of issues and record of reminders sent. Binding register should be kept for binding of volumes of periodicals.

Accession record and catalogue are to be kept for cartographic materials, printed and nonprinted non-book materials, audio cassettes and discs, visual transparencies, vedio cassettes, film and film strips and other special materials. It is better to keep separate accession registers, catalogue and issue registers for each kind of nonbook materials.

Financial and Accounts Records

Financial records are of three kinds, the funds received as grants from various sources and their allocation, the budget estimates and revenue generated in the library. Various sources of getting fund for sustenance of the library are the library fund received from the parent body, U.G.C., Central Government, State Government,

book grant for undertaking research projects, and other sources. Utilisation certificates are required for certain specified grants. Seperate records of grants or income should be kept for each of the sources of fund. If the funds are granted for specific purpose, it should be noted in the record. Expenditure record should be noted against each head of the funds received. Allocation register should be maintained for allotment of fund to each section or subject. The allocation of fund limits expendiure of the concerned section. The budget is the vital record in the library. It includes the actual expenditure of the previous financial year, both actual and estimated expenditure of the current financial year and estimate of expenditure for the following financial year. It records both receipt and expenditure aspects. It is the record of the total performance of the library.

The account records are mainly the expenditure records under each head of expenditure incurred in the library for various purposes. The expenditure under each head or item for an activity or job indicates the cost of each of them. This information is important for cost analysis to know whether a particular expenditure is necessary or not. The cost-benefit analysis is an important tool for financial management. The library budget can be redesigned on such analysis.

In academic libraries, research libraries and other large libraries receiving funds from Central or State Governments or both, the funds are released under two major heads - plan allocation and non-plan allocation. The plan allocation is for a particular period of time usually based on Five-year plan. The expenditure must be made within the stipulated period. The expenditure is not of permanent nature. In case of non-plan allocation, the fund is more or less of permanent nature and to be continued. Usually the routine and permanent expenditure falls under non-plan allocation. Developmental programmes are undertaken with the financial support of plan allocation. The records of allocation and expenditure under plan and non-plan heads are to be kept separately.

Whether under plan head or non-plan head, the mode of expenditure is of two types - non - recurring and recurring. Non-recurring expenditure is some sort of capital expenditure for a particular purpose not to be continued in the following financial year, for example, purchase of equipment, furniture, machines, etc.

Recurring expenditure is of continuing nature to be made over the years basically for maintenance and sustenance of the library, such as, salary of the staff, electricity and telephone bills, maintenance of the building, book binding, regular purchase of books and periodicals, etc. The records of expenditure under these two heads must be kept separately. The heads of all the accounts and records of accounts should be separately maintained.

3.3 Users' Service Records

Library user is a broader term which includes both members of the library and non-members. Library services are organised basically for the members. The essential office records for the members are primarily membership application form, membership register, membership cards and other records of identity of the members including date of membership for admission and date of expiry of membership or extension of membership.

In a library there must be certain essential services and some additional services for the members. The essential services are reading room facility, lending facility and reference services. For reading room facility statistical figures should be kept. In reference section the record of reference queries should be maintained. Detailed records are to be kept in the circulation section for lending facility. The requisition slips, reservation requests, statistics of books borrowed and returned, records of outstanding books not returned, record of sending reminders and notices, book issuing records, discharging records, renewal records should be kept properly. Records of additional user services like current awareness service, bibliographic service, information service, copying service, and the like, are to be kept separately. Records of users' services for non-book materials departments, such as, periodicals, cartographic materials, audio-visual materials and other materials should be kept in respective departments. Records must be kept for interlibrary loan.

3.4 Administrative Records

Every institution is governed by the management. It has two tiers. The first tier consists of the body of management, a committee or board having the advisory

and supervisory power. The management committee is usually the library committee. It considers, guides and takes decision on all matters concerning administrative, financial and planning affairs. The second tier is the librarian, Director or chief library officer with administrative control over all the library affairs. He is assisted by a number of officers in the administrative scalar chain. Administrative records are to be generated and maintained for both the tiers of management.

Administrative records relating to the library Committee are the agenda papers prepared for library Committee meetings and resolutions of the meetings. all 'the resolutions of all the meetings, held are to be kept as official records. Records of actions taken also are to be kept. Necessary instructions and office orders must be kept as guidelines of management. All the administrative records are to be interlinked form Library Committee resolutions to implementation activities at different stages.

The administrative records of the library for general administration and management of the library are to be prepared and maintained. The records relating to the library personnel are the total number of posts, persons employed in the posts, vacant posts, recruitment rules, biodata of persons employed, employment procedures, records of promotion and retirement, job specifications, job analysis, duty charts. Acquittance Register, Salary Register, Leave Register, Daily Attendance Register, Service Records, and such other official records related to library staff. A Gradation list is to be kept in the library by updating the list at any time of change. It should contain the designation of an incumbent with grade of salary strictly according to the organisational chart and scalar chain prevailing in the library to ascertain the seniority of the staff members.

Records should be maintained on purchase of stalionaries and contingency expenditure. Stock Registers should be kept for each and every item purchased and these should be entered in the stock register. Before payment of every bill the page number of stock register must be mentioned. In case of bulk purchases for furniture, equipment etc., the list of vendors or suppliers, quotations, records of accepting a particular rate, placement of orders, contract or agreement for purchase and such other relevant records are to be kept.

Essential records are staff manual, job routines, job diaries, records of

performance of each staff member, decisions taken in the meetings, cash book, service book, building maintenance record, statistical records, inward registers, register of despatch of letters, duty allocation and shift duty chart, chronological record files, store register, inventory register, Admission for members and such other records as required in the library.

3.5 Library Rules and Regulations

A library must have the management policies by which the daily work and routine jobs are performed. These policies guide the library staff as well as the users to know their respective responsibilities. The management policies are implemented to activities through the procedures, rules and regulations. The procedures establish the methods by which the chain of jobs are done. Procedures make the workflow running to get the best results. Every user must have the rights and privileges in getting the library services. There must be some regulatory measures to define the rights and privileges of the users in all the areas of services offered as well as the powers and duties of the library staff concerned.

Library rules and regulations are to be formulated as an aid for the users in understanding the procedures of the library and to provide them guidance and direction in using the library resources and services. The rules and regulations enforce the discipline in the work environment both for the users and the staff. Those should be authoritative in nature and expression. The rules and regulations perscribe a specific action for a given situation and ensure uniformity and consistency of actions. Rules and regulations direct the limits of actions of the users understand what to do, what not to do, and the extent of rights and privileges.

There must be certain restrictive and controlling factors in them, but such control does not restrict the use of the library, it facilitates the use of the library in a judicious manner, so that all the individual numbers can get equitable service in all respects meant for the members. These rules and regulations are codes of conduct in using the library materials during the stipulated hours of the library within the administrative framework of the library. Rules and regulations may vary according to kind and size of library but the fundamental principles and the spirit of the rules are identical. Rules and regulations ensure the use of library materials

in the proper way and control the misuse and mutilation of materials. Library Committee makes the rules and regulations on the suggestions of the librarian as administrative measures. Every user must have the identity card.

The rules and regulations should cover all the affairs of the users. If there be any discrimination in membership structure, use of various kinds of library materials in different physical forms, number of books to be taken for home use, reading facilities in the library, stipulated period for returning the books, categories of membership, and the like, all these must be specifically mentioned in the rules and regulations. These are enforced in the library as the administrative measures and management responsibilities. These are the guiding as well as controlling force in the library.

3.5.1 Functions

Rules act as the guides, instructions and directives to the users and other persons concerned. They follow the rules as library management enforce them. These are a set of course of actions established and authoritative by nature. The regulations regulate such course of actions and further stipulate punitive measures in case of any violation of the rules. Rules are formulated with regulations so that no deviation rules is done. In case of deviation or violation of rules the provision of regulations enforces the authoritative measures by some setps taken against the offender. The rules and the regulations act jointly as administrative measure.

General functions of the library rules and regulations are stated below :

1. These provide guidance and directives to the members of the library as well as non-members at the discretion of the library management.

2. These make the members aware regarding their rights and previleges in the library and their limitations too.

3. These facilitate the use of library materials by every individual member.

4. These give protection to all kinds of library materials against misuse, mutilation, damage and loss.

5. These ensure the library services to all the members according to their requirements.

6. These provide authoritative course of actions in specific case and code of conduct for the members and thus, uniformity of actions is ensured in similar cases.

7. These stipulate the behaviour of the library staff and services to be rendered by them.

8. These provide the use of resources facilities and services of the library to its users.

9. These regulate the operations of activities in the library.

10. These empower the library management to enforce the rules and regulations.

11. These give the librarian certain discretionary powers to fulfil the aims and objectives of the library.

3.5.2 General Structure

The rules and regulations are formulated for each library considering the kind of library, size of the library kinds of library materials, intellectual level of the users, services offered and such other factors. Each library must have separate set of rules and regulations. These should follow the general structure of rules and regulations. These are :

1. Name, address and telephone no. of the library.

2. Working days in a week.

3. Working hours in the working days and closing time of the public counter.

4. Rules governing the eligibility of membership and the categories of membership.

5. Right and previleges of members.

6. Restrictions and control imposed on the members for using the library materials in different physical forms.

7. Penal measures for violating the rules and regulations such as, delay in returning books beyond stipulated date, damage, mutilation and loss of books and other materials.

8. Rules governing the reading room facilities.

9. Rules governing the circulation of books and use of other library materials.

10. Rules regarding books to be used only in the library premises.

11. Personal conduct and discipline to be maintained in the library.

12. Undertaking to be given by a member of the library.

13. Number of books to be taken by a member and the period of loan.

14. The prerogative of the librarian in certain cases.

15. Any other administrative matter as stipulated by library authority.

3.6 Application of the Rules and Regulations

The general structure of the library rules and regulations are almost similar to all libraries but each library should formulate its own rules and regulations according to its own requirements. Two major factors should be considered in formulation of the rules and regulations. The first factor is the size of the library. In large libraries the number of rules and regulations will be many to cover all the aspects of the library services and activities. In smaller libraries the number will be less depending on the basic library services. The second factor is more important. It is the particular kind of the library because the service factor depends primarily on the kind of the library and the categories of uses it serves.

The rules and regulations are formulated mainly for the members for the library and these are extended to non-members and casual users. In the modern library situation access to information and documents is of prime importance whether these are available in the library or not. The members must have such access beyond the library holdings. Sometimes non-members may come to library with special interest for the documents or information not available in other libraries. Each library should serve the users if they require. Rules and regulations are formulated primarily for the services the library offers. So, the service pattern should be incorporated with all details.

193

13

The variation in framing the rules and regulations in different kinds of libraries generally depend on the following :

1. Membership structure.
2. Working hours of the library.
3. Reading room and lending facilities.
4. Access to different kinds of documents, and
5. Library services rendered to the users.

Public library services are rendered to the community the library serves. The users come to the library for recreational purpose. Community information, awareness regarding current affairs, occupational and professional requirements, and the like. Mobile library service may be required for the users residing far away, disabled persons and children. The membership structure may general, working hours may be in the afternoon and evenings, reading room facilities may be less, lending facilities may be for a short period and library services should cover extension work. More users services will be required in large public libraries like state central libraries and Metropolitan Libraries. The rules and regulations should be formulated accordingly.

College and Institutional libraries generally serve two categories of users, the teachers and the students. All the teachers and students are the members of the library. They require adequate reading room facilities and lending facilities. Usually, they do not require specialised services. The require longer working hours, reference and information services. The rules and regulations should support all these.

The University libraries are larger libaries with a wide variety of materials, many categories of users, longest working hours and a number of specialised users' services. Adequate reading facilities for the teachers, research scholars and the students, a wide range of information, interlibrary loan service and such other services are required in university libraries. General reading rooms for students, carrels for research scholars and special reading enclave for the teachers are essential, Bibliographic search service, current awareness service, referral service, copying service, fee-based electronic information service, and the like, are required to support the research work and doctoral programmes. An elaborate set of rules and regulations should be formulated in university libraries. Rules should vary according to category of users and services rendered to them.

In special and research libraries the user groups are almost homogeneous. All the members of the parent organisation and research staff may ask for equal privileges. The library facilities are restricted to members only. More emphasis is given on non-book materials and audio-visual materials. Computer service with internet connectivity is essential. All these matters should be kept in mind while formulating the rules and regulations.

Since all the libraries are subordinate to respective parent organisations the rules and regulations should be formulated in conformity to the procedures, rules and regulations of the parent organisations.

3.7 Library Statistics

Statistics, as a branch of applied science, is a body of methods for collection and analysis of numerical data. The foundation of basic sciences is built up on hypotheses whose validity are established by repeated observations and experiments yielding the same result. Statistics is not the science in strict sense of the term but as a scientific descipline it formulates methods for verification of hypotheses which could be established by observation and experiment. It is a quantitative method of scientific investigation.

Statistics, in the plural form, means the numerical data available from a number of a activities or conditions created by chance, conditions as they are and facts as they occur. Statistics cannot control the conditions but can keep quantitaive data of these conditions as they appear to be. Statistics, in the singular form, denotes the scientific methods, known as statistical methods. These methods include the collection, analysis and interpretation of numerical data resulting some hypothesis by observation. The results are derived from application of the statistical methods. Statistics is concerned with group characteristics of numerical data relating to human activities, on which the investigations are conducted. While the quantitative methods are applied to the characteristies of a group, the differences in between the individuals are inherent and, as such, a degree of variation is inevitable. The extent of variation and probability for forecasting coming out of manipulation of numerical data under a fixed system of causes and occurances makes the study of statistics a discipline of scientific observation. In statisties, the inferences are drawn by studying

the numerical data for the larger group from those of parts within analogous to inferences in Inductive logic. But in statistics the variable areas are taken into account and the results are drawn within a probabilistic framework.

Since statistics is the study of numerical data, the first step of the statistical method is the collection of relevant numerical data. There are two types of numerical data , primary and secondary. While the numerical data are prepared and collected from time to time by governments, organisations or any agency for the purpose of any statistical enquiry to be made in future, these data are known as primary data. Primary data may also be prepared and collected by the enquirer individually or by setting a mechanism directly from the field of enquiry deciding upon the coverage, reliability, sources and usefulness of the data. In those cases, where the primary numerical data are available from some sources or existing records the enquirer uses the primary data to derive the results though statistical methods and models, these data are known as secondary data. Obviously, the accuracy of the results of secondary data depends mostly on the coverage, items, sources and reliability of primary data.

3.7.1 Functions of library statistics

Library statistics is an integral part of the library management. Library management has two broad areas, the planning process and its implementation in library activities. In the planning process the objectives of the library are determined, the goals are set, the programmes are designed, policies are made and decisions are taken. All these are done to identify the courses of actions to be taken for the progress and development of the library in the existing framework. This is a continuing process of the library while the planning process is over the programmes are implemented through actions taken in library activities providing the organisational infrastructure.

The effective planning process must be substantiated by systematic collection of data and analysis of those data concerning the library operations, activities, jobs done, use of library materials, services rendered to users at a given time and over a given period. The activities depend on availability of resources and utilisation of resources.

The end-product is the services rendered to the users. The input measures are infrastructural facilities, availability of resources - physical, financial and human, collection development, technical processing and the output measures are reading room facilities, circulation work, reference and information services and other services based on users requirements.

All the activities performed in the library and all the services rendered to the users must be measured, monitored and evaluated. Therefore, the most important factor is the keeping of accourate records of all the jobs done. Without the factual records the output in terms of activities and services rendered connot be measured objectively. It is also very difficult to assess the actual performance and to what extent it deviates from planned performance. It is essential to make periodic monitoring and evaluation of all the library activities. The monitoring and evaluation processes imply factual data about past performances and their use in future actions.

The results of performances of the activities in the library are either the effectiveness and efficiency to implement the objectives or the weakness in terms of failure to perform the jobs and inefficiency in service. All these situations cannot be understood properly unless statistical records of all the jobs done are kept from time to time. It also helps to take remedial measures to overcome the weaknesses. The librarian has to monitor and evaluate the performances of all the library activities continuously. The descriptive details and mass of information about the working of each of the departments, as a whole, each section and every individual are to be kept in facts and figures. The facts and figures are supported by the numerical data kept continuously in the departments. A meaningful and accurate evaluation is possible only by comparison of various activities with those of the past years or a specified period. An assessment has also to be made whether the declared targets of the work performance have been fulfilled or not. Library statistics is the only medium to show the progress and regress of a library. The annual performance of the library is recorded in the annual report.

In the library situation both the primary data and secondary data are prepared, collected, analysed and the final results are drawn. Both primary and secondary data

197

are used in each of the departments of the library and the final result shows the state - of - the - art situation of the library. Therefore, an effective mechanism should be created in each department of the library for collection of statistical data continuously. the mechanism should be created in such a way so that the statistical data can reflect the aggregate of facts under a number of causes and forces operating together, the purpose of preparation of data is clearly defined, a reasonable standard of accuracy is maintained, and the data are collected in a consistent and systematic manner.

3.7.2 Compilation of library statistics

The numerical data relating to the resources and various acitities of the library should be compiled regularly. the compilation of data and the analysis in various projections should guide the collection development policy and procedures, should measure the efficiency as well as drawbacks of different sections of the library, should measure the output and performance of every member of the library staff, should assess the users services of all kinds, should reflect the progress and regress of the library, as a whole, and should reflect an overall picture of the library. A library can keep the statistical records according to its own situation considering the number of departments and sections, number and kinds of the intake of library materials, jobs performed in the technical sections, activities of other departments, the kinds of users' services offered, allotment of funds in a financial year and total activities of the library.

The statistical records are kept in numerical data. so, a format with necessary data elements must be kept at every point of collection of data. The person concerned should fill up the format whenever required. The points of collection of data may vary from library to library but the basic units are almost similar in every library. The methods of compilation of library statistics depend on the kind of library, departmentalisation in the library, kinds of library materials, size of the library, total holding and annual intake of various kinds of library materials, services offered in the library, nature of the services offered, membership pattern, frequency of using the library materials, financial allotment under various heads and such other factors as the librarian deems fit.

Several specimens of the format of statistical data are given below :

1. Acquisition Department

   (a) Growth of Library Collection

Reading materials	2002-03	2003-04	2004-05	2005-06	Average Annual Growth
Book					
Pamphlets					
Reports					
Annual Reports etc.					
Patents					
Slandards					
Conference papers					
Seminar Proceeding					
Theses					
Surveys					
Other					

   (b) Annual Growth by Subjects in the year.....

	000	100	200	300	400	500	600	700	800	900
Books										

   (c) Non-book Materials

Kinds of materials	2002-03	2003-04	2004-05	2005-06
Maps				
Graphic materials				
Audio cassettes				
Audio visuals				
Films and film strips				

Microfilm

Microfich

Manuscripts

Archival documents

(d) Collection of books in the year.........

Purchased

By Gift

By exchange

Total Collection in the year.........

(e) Books accessioned in the year........

Jan Feb Mar April May June July Aug Sep Oct Nov Dec Total

---

2. Processing or Technical Department

(a) Classification of Books

Statistical data should be made on daily basis

Month............. Year...............

Date...............

Name of Classifier Books Received Books Classified Arrear Signature

---

(b) Cataloguing of Books

Statistical data should be made on daily basis

Month............. Year...............

Date...............

Name of Cataloguer (i) Books Received Books Catalogued Arrear Signature

(ii) Sheft list card prepared

(c) Books prepared for Shelving

Month............. Year...............
Date...............

Name of person	No of volumes received	No. of volumes sent	Signature

(d) Total Number of Books Processed

	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
000													
100													
200													
300													
400													
500													
600													
700													
800													
900													

Grand Total

3. Circulation Department

(a) Books Issued in Reading rooms

Date	000	100	200	300	400	500	600	700	800	900	Total
Mon											
Tues											
Wed											
Thu											
Fri											
Sat											
Sun											

Weekly Total...........

(b) Books on Lending

Date	.000	100	200	300	400	500	600	700	800	900	Total
Mon											
Tues											
Wed											
Thu											
Fri											
Sat											
Sun											

(c) Membership

Date	Current Membership	New Members Enrolled	Membership Withdrawn	Existing Membership

(d) Categories of Membership and Number

(University library)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Teachers													
Researchers													
Students													
Officers													
Office Staff													
Others													

4. Periodicals Department

(a) Acquisition of Periodicals

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Monthly													
Quarterly													
Fortnightly													
Others													

Grand Total

(b) Numbers of Periodicals (Current list)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Purchased (Indian)													
Purchased (Foreign)													
Gift (Indian)													
Gift (Foreign)													
Exchange (Indian)													
Exchange (Foreign)													
												Grand Total	

The Specimens of the formats to keep the statistical data as suggested above may generate the numerical data as primary data. A library can prepare and use formats according to its own requirements for maintaining library statisties. These primary data should be complied weekly, monthly, quarterly and annually. While the primary data are collected, statistical methods should be applied to generate the secondary data. After analysing the secondary data the inferences will be drawn and final result will be available. On one hand the final results will reflect the progress and regress of the library as a whole, and on the other hand these will guide the authority for policy making, decision taking and taking steps for better management.

3.7.3 Limitations

Library statistics is based on numerical data and quantititive analysis. Therefore, qualitative assessment is not possible by this method. The statistical analysis gives the result in aggregate or on average. If all the factors governing a particular situation are not considered, all the facts are not counted and appropriate data are not taken, the final result will be misleading. Statistical analysis should be made by experts in the field.

3.8 Annual Report

The Annual Report is the official document of the library for exposition of the Library activities in totality. It is the statement of assessment and evaluation of all the departments of the library. This document portrays the achievements and limitations both to the library authority and the public. Every library is a subordinate body of the parent instituion. Although a library has its own aims and objectives, it is established to support the aims and objectives as well as programme implementation of the parent institution. A public library is not an independent instituion but it is a part of the public library system established and maintained under the library legislation. The responsibilities are assigned to the library by the parent organisaion and library must act accordingly in all its activities and services. As a non-profit organisation a library is funded by public money. The justification of spending public money should be made by the public library in its performance. The report of the performance of the library in a particular year is the annual report.

Reporting has been identified as one of the seven elements of management system : planning, organising, staffing, directing, coordinating, reporting and budgeting. Reporting is the act of keeping the superior informed to whom one is responsible. Reporting is to be made when a job is done or an assignment is complete by a person whom the authority entrusted for it. If the job is not done it has also to be reported showing the reasons which stood in the way of doing that. In library situation regular monitoring is done by library administration to know the status of activities and state of the affairs from time to time. A mechanism is also created in the library to make the reports as a routine matter continuously. This is doen by library statistics.

The factual report of objective type are maintained in various departments of the library by way of primary statistical data recorded form time to time. The reports of subjective type are submitted to the senior officers in the library in form of note sheets or other written records. The reports can also be communicated to senior officer verbally. The senior officers an their part can ask for reports at the time of monitoring, assessment and evaluation of jobs, which should be done continuously. By these ways every officer of the library in the hierarchical positions, by which each position is

controlled by a higher one, keeps himself informed about the affairs of the activities he is concerned with. Such reporting process makes all the library personnel aware about the progress of work and shortcomings of performance of jobs within the library. They must discharge the duties and take responsibilities assigned to them. They are responsible to the librarian or the Director of the library, who is responsible to lead the whole team.

Functions of the Annual Report

The librarian as head of the library is responsible to the Library Committee, Library Authority and the Executive Board of the parent organisation. The funding bodies and executive committees have the right to know all the affairs of the library. The annual report is the official document prepared by the librarian to manifest the objective situation of the library. The higher authorities as well as the members of the library and general public are informed about the working of the library during the preceding year, usually the financial year. The performance of the library, its achievements and shortcomings, success in certain areas of activities, impediments and constraints encountered, implementation of objectives and all other affairs are reveabled in the annual report.

The annual report should be objective in nature, honest in exposure and meticulons in description. It acts as a survey of all the activities and services of the library. annual report is not only a statement of routine jobs in the library, it also contains the future programmes. The library planning is a continuing process incorporating short term, medium term and long term programmes. At any point of time something is implemented and some are not implemented and some programmes are ongoing. The annual report is only one year's reflection of library activities. So, the achievements and shortcomings of the previous years, lessons learned and difficulties faced in he last year and actions taken to overcome such problems should be included in the annual report. New programmes undertaken, new services offered and developmental activities performed during the year under review should be described in detail. the programmes to be undertaken or implemented in future should be stated in the annual report with adequate justifications, so that the total work of the library is understood.

205

The annual report helps the management in the following ways :

1. The librarian reports the library authorities regarding the activities and services of the libraries. He can justify the expenditure for the library with the achievements made. In cases of shortcoming he can state the reasons for such conditions and can suggest ways and means to overcome such situations. The authorities are informed about the activities, achievements, failures and causes for such failures.

2. The annual report contains the financial condition of the library both the revenue aspect and expenditure aspect. It shows whether the funds available for the library are adequate or not. If it is found that adequate work could not be done due to constraint of fund, the librarian can make argument for adequate fund for specific purposes.

3. While the annual report is made in an objective manner the assessment will expose the inefficiency, limitations and shortcomings. There may be various causes for there such as, lack of infrastructural facilities, organisational problems, lack of adequate fund, lack of communication, problems regarding library staff, management problems and others. Understanding all these situations the library management can take appropriate steps and measures to overcome the problems, which could have been otherwise unnoticed.

4. If it is found that adequate facilities are not provided in the library as regards physical facilities, manpower, machinaries, financial resources, adequate accommodation, reading and non-reading materials and others, the librarian can ask for additional support from the authorities.

5. The annual report can be used as good publicity material to motivate the users, make the users aware about the new services to be offered and can stimulate the potential users.

6. Annual reports of a library can be the primary source materials to know the history and development of the library.

3.8.1 Contents of the Annual Report

Annual report is the statement of the progress and limitations of the previous year of the annual report concerned, detailed progress report of the year under review

and programmes to be undertaken during next years under review. The introductory chapter deals with the report of the previous year and the last chapter indicates the furture programmes. The annual report of the year of review is described in between these two chapters. Usually the annual report is prepared in two parts, the descriptive part and the statistical part. In large libraries the annual report is written in two parts but in smaller libraries the two parts may be merged and the descriptive part may be supported by the statistical part whenever required. The contents of the annual report may also vary from library to library depending on the size of the library, kind of the library, services offered in the library, departmentalisation of the library, and the like. The nature and extent of the annual report may also vary. But the annual report must be factual, objective and based on the statistical data and reporting of the internal administraion regarding the activities performed. Usually the descriptive part of the annual reporrt contains the following heads of information.

PART I

1. Preamble
2. Library holdings and Collection Development
3. Processing Department
4. Circulation and Reading Room Facilities
5. Users' Services
6. Library Personnel
7. Library Budget and Utilisation of Fund
8. Library Building, Fixtures and Furniture
9. Equipment and Machineries
10. Conservation Activities
11. Periodicals Department
12. Audio visual and Special Materials
13. Activities of Branch or Departmental Libraries

14. C A S and Publication Programmes

15. Library Automation State-of-the-art Situation

16. Information Services, both electronic and manual

17. Miscellaneous

18. Programmes of the Future

PART II

Statistical Data in forms of tables, graphs, etc

Part I of the Annual Report

1. Preamble

   It is the introductory part of preliminary statement. It includes short history of the library and its parent organisation. The achievements and shortcomings with the causes may be stated in a summary. The objectives and organisational structure for implementation should be narrated. A description should be given on the various departments, activities, services offered, users facilities and other information. General administration policies and their implementation should also be given.

2. Library holdings and Collection Development

   The specialisation of the collection, rare books holdings, richness of the holdings, strength of the holding under different subject areas, collection development policies, acquisition during the year and all related information should be given in detail.

3. Processing Department

   Information regarding classification scheme used and its edition, reclassification, if any, catalogue code used, number of books accessioned, classified and catalogued, arrears in the department, if any, status of shelf list and other information should be given.

4. Circulation and Reading Room Facilities

   Categories of members and membership structure, charging system followed, total

number of books issued and returned, total number of books used in reading rooms by different categories of members and other users, Inter-library loans, number of users visiting the library for a specified period, and such other information should be stated.

5. Users Services

These should include reference services, users guidance, copying facilities, document support services, referral service, academic assistance to faculty members, researchers, students both members and non-members, and other personalised services.

6. Library Personnel

A statement should be given on the organisation, staff pattern under different categories in hierarchical order and their pay scale with allowances, sanctioned strength of staff, positions held and positions vacant, new recruitments, retirement, resignation, promotion of higher posts, training of staff, conferences and seminers attended, papers contributed, and all other matters relating to the library personnel.

7. Library Budget and Utilisation of Fund

Financial condition of the library should be mentioned. It should include short summary of last three years' budget. For the year of the annual report there should be three major heads of financial description. First, the head of revenue side consisting of sub-heads of revenue such as, fund sanctioned by the parent organisation, State Government, central Government / UGC, other funding sources, etc. should be given. Secondly, the sub-heads for expenditure, Plan and Non-plan under capital, non-recurring and recurring expenditure with detailed expenditure for acquisition, salaries, equipment, maintenance, stationaries, contingencies and other expenditure should be stated. Thirdly, Expenditure made for the development programmes, advance payment, etc. may be given. A review of the financial condition of the library, whether the funds available are adequate or not, and the results of financial constraints should be stated.

8. Library Building, Fixtures and Furniture

The accommodation available in the library building whether adequate or not,

accommodation of library holding consisting of various physical forms, accommodation for users services, accommodation for new service areas and departments and other space requirements should be described. It should include the maintenance work done, repairs and changes made and other essential items of building, fixtures and furniture.

9. Equipment and Machineries

It should include a statement of existing equipment and machineries, new addition, changes, withdrawals, justification for newly acquired equipments and machineries, and the like.

10. Conservation Activities

A detailed statement of perventive preservation measures should be given. If a preservation section is there in the library, all the activities and methods of preservation of different kinds of materials should be stated.

11. Periodicals Department

The report includes the acquisition of periodicals by purchase, gift or exchange, periodicals subscribed both Indian and foreign, non-receipt of issues and reminders sent, methods of acquiring periodicals, use of periodicals by members and non-members, binding of periodicals, and all other activities.

12. Audio visual and Special Materials

the statement consists of the acquisition of maps, graphic materials, audio and video cassettes, film and film strips, transperencies, manuscripts, archival materials, musical scores, microfilm and microfiches and other special materials, acquisition of the equipments to use them, classification and catalogning, storage and preservation of these materials, the use in the library and other information.

13. Activities of Branch or Departmental Libraries

If the library is a central library with branches or departmental libraries within the campus or outside the campus, the report of the activities of all the branches or the departmental libraries should be incorporated in the annual report. The

210

relationship between the central library and the branch or departmental libraries should clearly be stated in the annual report regarding acquisition policies, classification and catalogning, shelf list, financial affairs and other aspects.

14. Information Services, both electronic and mannual

The library should offer information services, such as, bibliographic service, indexing and abstracting service, document delivery service, access to information sources both Indian and foreign, CD-ROM and online services, the report should contain all information in detail. This will guide the users to avail of these services.

15. C A S and Publication Programmes

Each library should publish current awareness bulletins for the recently acquisitioned book, currently received periodicals and other kinds of materials to make the users aware of such materials.

The library may publish bibliographies index to periodical articles, information sources and services, library brochures, and the like. The report should contain all these information

16. Miscellaneous

This report includes any significant information not covered in the items mentioned above such as, general administration of the library, lectures, exhibition, seminars held, visit of dignitories, and other important events. A report on papers presented in seminars and conferences by the library staff should be mentioned.

17. Programmes of the Future

Planning and implementation of short-term, medium-term and long-term programmes, modernisation of library activities, library automation programmes, membership of information network, CD-ROM resource facilities, online access to foreign databases, INTERNET connectivity, and other programmes to be undertaken should be indicated in this section

PART II OF THE ANNUAL REPORT

This part is based on the library statistics of various departments. It will show the primary data, secondary data and the statistical methods applied. These are

basically numerical data with explanations as and when required. The statistical data should be presented in tables, graphs and other models. The statistical data should be compiled from various aspects to show or study a particular case. All the factual and objective statements made in PART I must be supported by adequate statistical data. Library statistics and Annual Report are complimentary to each other for all practical purpose.

Appendices may also be added to the Annual Report, if so desired. These may include the following or any additional information.

a) Names of the members of the Library Authority.
b) Names of the members of the Library Committee.
c) Names of the officers of the Library.
d) Locations of the Branch or Departmental Libraries in case of Central Library.
e) Names and address of Donors

Compilation and Presentation

Usually the Annual Report covers the financial year. All the heads of the departments or sections should be asked to keep and maintain the statistical data in standard format or proforma. The statistical data should be cumulated weekly, monthly, quarterly and finally annually. On the basis of the primary data secondary data are prepared and results are finalised. A senior officer of the library is entrusted to compile the Annual Report. During the last month of the reporting year two copies of proforma with requisite questionnair and items of reporting are sent to each section of the library. On the basis of reporting made through the proformas and the cummulation of statisical data a draft annual report is prepared. The draft is studied by the librarian carefully and, if required there may be modificatin, addition and standardisation. The final draft of annual report should be submitted before the library committee. While approved, the Annual Report is ready for publication.

The report should be well-organised and well-arranged under proper headings and subheadings. The language of the annual report should be lucid, readable and easily understandable, so that anybody may be attracted to read it. The statements should be described with necessary charts, diagrams, tables etc. to clarify the situation. Annual Report should preferably be printed and should be made available

to the users, members of the library authorities, other organisations, institutions and interested individuals.

3.9 Administrative Department

The fifth law of Dr. S. R. Ranganathan is library is a growing organism. This law indicates two situations in a library. First, library is an organism and secondly it is a growing organism. Organism is a living structure or organic structure of a body comprising serveral organs which grow, develop and function as an organic whole with mutual relationships. Every organ of a living body performs its own function different from other organs, but all the functions performed by all the organs make the composite result by which the organism grows, develops and functions as a whole. The functions of the individual organs are revealed in the activities of the organism. If a particular organ fails to function the organism becomes sick and connot function properly. The concept of organism is very aptly and suitably applicable to the library. As the library grows steadily, it is a growing organism.

Organs are the parts of a body fitted for carrying on a natural or vital operation by means of communication or conveying information through functional operations. Similarly a library is divided into sevral divisions or departments. Each individual department performs its own functions diffcrent from other departments, but the composite result indicates the functioning of the library as a whole. A library may also be compared with a complicated machine with many precision parts. Different component parts having various sections of their own units may be considered as modules. Each module of a machine performs the jobs assigned to it and when the jobs are performed by the preceeding module, the jobs are taken over and performed by the next successive module in continuation. In this way when all the modules finish their jobs the end-products are prepared. If, for some reason, some jobs are not done in a particular module or there is time-lag or arrear at a particular point, the end-products will not be available and, as a result, the working of the machine will be hampered and the efficiency will be impaired.

This particular point of working in an organic body or a machine should be considered as top priority in library administration and management. In a library

the total work is done in a systematic way in a continuous chain system by finishing jobs of one department to other in a successive manner. Thus, finally the end-results come—the prompt, efficient and effective library service to individual users according to their individual requirements. The divisions or departments of a library are similar to the modules of a machine which work continuously and successively to complete the cycle of performance.

In a library there are two broad work areas, one is for the reader's services exposed to the users of the library and another for the work of background preparation and maintenance jobs aimed at users' services not exposed to users. Works of both the areas are performed simultaneously and continuously in a chain system of continuous cycle. Obviously, if a job is not done in a particular department or there is a time-lag, the work of the library will be hampered and library service will not be efficient and effective because prompt and immediate service is also a factor in the library. The users require the service in least possible time. The management should look after two situations, first, the jobs are being done in successive order, and secondly these are done in least possibe time. The whole administrative set up should be created and made functional to achieve the goals.

The workflow in a library is very complex, ever continuous, mutually related and interdependent. The failure or non-compliance of a particular job affects very badly the total work schedule of the library. Therefore, it is important to supervise each and every job in the library. The users want the document or information immediately they require and these must be served quickly. Service delayed is service denied. There are many jobs is the library which are repetitions. In these cases mechanical gadgets should be used for speed and accuracy in the work as far as practicable.

The department of a library shlould be created, organised or reorganised keeping in mind the work schedules, effective implementation of such work schedules, works to be performed in a particular department and coordination of all the works performed in all the departments and other administrative matters. When the departments of a library are organised for administrative purposes, two important aspects should be considered carefully. These are first, the number of departments, size of each department, locations and arrangements for the departments and their interrrelationship. The second aspect is the fixation of work schedules, job

specifications of individual staff members, arrignment of responsibilities of individuals, sections of a department and subsections according to allocation of jobs.

In designing the departments of a library on administrative grounds both the external and internal factors are to be considered carefully. The external factors are the total accommodation available, size and locations of the rooms, spatial relationship of the whole accommodation, physical facilities available, environmental, light, ventilation, how the total accommodation can be divided according to suitability of the location and interrelationship of various departments, how the work area and users area can be arranged and other physical considerations. The internal factors are organisational design of the departments. Total workflow and its various aspects, number of staff required for each of the departments, efficient implementation of the work schedules of the library and above all administrative control and management functions are to be considered. The departmentalisation of a library is made on administrative grounds. Therefore, the number of departments, methods of departmentalisation, division of work among the departments as well as section and their interrelationships, etc. should be decided and worked out according to the administrative design of a particular library.

The basic administrative principles and procedures are almost similar in all the libraries. But when administration and management is concerned it relates to a particular library. It is not the fact that ideal condition prevails in a library. Practically no library in its own setting gets the ideal condition. the librarian should consider all the internal and external factors and particularly the financial and human resources for making the departmental design.

Departmentalisation means the creation of different departments in a library situated in particular location for performing stipulated jobs to implement the work schedule of individual departments. Job schedules are specified for each department and these are subdivided under sections and subsections as required. Each staff member is assigned with his jobs. Every department is headed by an officer. He is responsible for looking after the works of his department. The work schedules and duties are specified under administrative instructions for a particular department.

Each department is identified by the objectives of the department, specified job schedules, methods of work, location, works done or services rendered in the department.

Although the librarian is the chief executive officer and head of the library as an institution, it is not possible for him to look after every detail of all work schedules of the library. He delegates the power to his subordinate officers who are the heads of the respective departments. The heads of the departments of a library delegate the power to respective section in-charge who superviser the work of the section under his own jurisdiction. In this way the powers and duties are delegated downwards departmentwise. The head or in charge of a department is responsible to the librarian, the section in-charge is responsible to head of the department and the staff members are responsible to the section in charge. In the administrative set up the power and duties are delegated downwards and the responsibilities move upwards. Each person is responsible to his immediate superior. Departmentalisation divides the work and responsibility properly and sets the administration in order.

Location of the departments is very important and more important is the interrelationship of the departments. Because the work flow moves from one department to another, it is the administrative decision whether a number of work schedules will be grouped under one department or more than one. If required, a department may be divided because of the load of work and efficient functioning. Administrative decision should be taken on the basis of concerned factors. There factors are mentioned below :

1. Kind of library

The kind of the particular library determines the nature and character of the library. It also indicates particular types of jobs to be done and particular kinds of services to be rendered in addition to the basic library services. Particular kind of library determines the group of users and their specific requirements. It also determines the kinds of library materials to be collected and preserved. Materials, users and services are not identical in public, academic and special libraries. Special libraries

are of various nature. Besides these libraries there are government libraries, departmental libraries attached to different organisations and the like. Library situations vary from one kind of library to another kind of library.

2. Size of the Library

Partically size of the library determines the number of departments to be organised and administered. In a large library the total workload is also large and there are many work schedules interwoven in a complex way. For efficient administration more workload needs more departments, more people, more space and equipment as well as different types of library materials and various types of services. For these reasons number of departments increases, sections in a department grow and subsections under sections are required to be organised for specific types of jobs. More library staff are required.

Whereas in a medium-sized library several departments with sections under respective heads can run the administration. In small libraries the librarian himself can run the administration without delegating power and duties to anybody else.

3. Financial resource

Financial resource is the most important factor which must be adequate. Since no library is profit-making instituion, it survives on the financial grant of the parent organisation and other agencies for recurring and non-recurring expenditure. More financial resource encourages expansion and development in all its spheres of activities in building the collection, speedy library work with mechanical gadgets and equipment, congenial environmental condition and prompt, varied and efficient library services to users.

4. Personnel resource

All the activities are performed by library personnel. Members of staff in a library, their qualifications and educational background, professional efficiency, expertise in performing jobs, motivation in work, efficiency to maintain work schedules, leadership and dynamic view in achieving goals are the real assets in a library situation.

5. Physical facilities

A library functions in a particular physical set up. The library building, adequate accommodation for smooth running of library activities, environmental condition within the building, adequate floor area for the storage of library materials, provision for location of departments and work units, administrative areas, users services areas for various purposes ensure efficient administration and well-organised users services.

Generally all the activities of the library may be divided in six broad groups or categories. Considering the factors discussed above number of groups can be increased in large libraries and decreased in medium sized and small libraries. These six group of activities may be placed under six departments or more according to requirement. Each of the departments may be subdivided under sections according to subgroups of activities. These sections may further subdivided into subsections considersing the importance of job requirements. The six departments are as follows :

1. Acquisition
2. Technical or Processing
3. Stack or Storage
4. Readers Services
5. Preservation
6. General Administration

Acquisition Department

Acquisition department is concerned with the functions relating to the acquisition of materials in the library and collection development. Collection development depends on the kind of the library, nature and intellectual level of the users, users' needs, requirements and objectives of the library. The functions of the department are selection, procurement and accessioning of the documents. Books constitue the major part of the library holding and the basic needs of the users are mostly served by books. There are other materials also in the library such as, periodicals, printed and non-printed non-book reading materials, graphic materials, audio-visual materials,

microforms etc. The acquisition of all such materials are done in the respective sections of special materials.

Most of the procured books are purchased, though books may be procured by exchange or gift. The acquisition of books is done in three stages in three sections of the acquisition department - selection purchase and accession. The selection of books for collection development is done considering collection development policy of the library, suggestions of various segments of users, availability of books and obviously financial resource at the disposal of the library.

Ultimately, library collection reveals the richness of the library as human intellectual endeavour and its usefulness to the users. All the library activities and services are organised and managed to explore and utilise the library collection to its optimum limit. So, the acquisition activities are crucial in the library, The management must organise all the required resources, infrastructural, human and financial, for building up the collection in the most efficient and economic way. The right reader must get the right book at the least cost.

The activities of this department may be divided in the following three groups :

a)   Selection of books

     Selection should be done on the basis of the collection development policy of the library. In book selection there are three factors : demand, supply and fund.

     Demand for books depends on the needs and requirement of the users. So, their demand should be ascertained. The demand may be expressed and unexpressed, the users may be existing and potential. All these factors should be considered by the management. Demand may be ascertained in the following methods :

     Statistics of the circulation and reference section

     Suggestions from various categories of members

     Special requirements of researchers, faculty members and project leaders in case of university library

     Suggestions from library staff working at service departments.

     Courses of studies in academic library

219

Librarians selection on the basis of existing collection development policy.

Information about books to be selected and availability of books should be in the know of the acquisition staff. The book selection tools are trade catalogues, announcements of publishers, book reviews, book trade and book review journal, syllabi of academic courses, bibliographies, Books in Print, union catalogues, etc. Books in stock of the vendors are usually submitted to library for inspection. Visit to book fairs is helpful for selection of books. Book selection should be a continuing job in the library during the whole year.

Financial resource is an important factor in book selection. The librarian should anticipate the demand and required allocation for book purchase should be incorporated in the budget under different heads. If fund is not adquate reallocation of fund and economy measures should be taken. It the book purchase is done during whole of the year the fund allocation can be distributed and at end of the year fund position may be assessed and administrative measures may be taken.

(b) Book ordering

While books are selected from time to time orders may be placed to the booksellers accordingly. Before placing the orders a checking should be made whether the books is in the stock or not, and if in stock how many copies are there and whether more copies should be purchased or not. Then the order list may be prepared finally. In placing order bibliographic information of each books should be recorded and vendor should be identified.

Choice of vendor is a crucial factor in supply of books, regarding availability, timeliness, foreign book supply and cost considerations. Books may be purchased through the following methods.

Quotation method

Standing vendor method

Books on approval method

Open purchase

Direct order to publishers

No single method will be convenient for the library. A combination of all the methods or some of the methods will be useful. While placing orders the following considerations should be made.

Supply within date stipulated by the library

Trade discounts

Conversion rate of foreign currencies

Other conditions like packing, forwarding, freight, postal charges, etc.

(c) Accessioning Procedures

When the books are received in the library the following jobs are involved

Checking the books having good condition and verifying with the order slip ·

Arrangement of books vis a vis the bills

Making entry in the accession register

Noting the accession number in each book

Certifying the bills

Sending books for processing to the technical section

Sending the bills to be passed

Keeping records of the jobs

Technical or Processing Department

In this department the technical jobs of classification and Cataloguing are done and the books are processed for circulation. so, it is known as technical or processing or cataloguing department. The objective of the department is to facilitate the use of books by the users by identifying each book and by keeping records of the books for access to the documents. The functions of the department are methodical organisation of books on the shelves through cataloguing, maintenance of the library catalogue, preparation of sheft list and its maintenance, and preparation of books for the stack room for circulation.

The activities of this department are vital to library management. Readers' service cannot be done properly unless information about the documents are not available to users and books are not supplied when asked for. The library collection is built up by Acquisition department but the collection is organised and put to order by this department. Well-trained experienced persons with sound professional knowledge should be posted in this department. The jobs are of repititive nature. So, job routines and procedures should be followed under specific instructions. But the jobs must be well-planned, well organised and methodical in nature. The decisions taken in this department cannot be changed or modified easily and any decision has far-reaching effects. Library management should give special attention to this department.

3.10 Activities of the Department

The activities and routine jobs may be summarised in the following way :

1. Classification of the books and assigning call number to each book classified with the help of classification schedule of the classification scheme adopted in the library and by adding the author number.

2. Preparation of main entries, added entries and subject entries for each book catalogued and making the reference cards as required.

3. Making the tracing on the verso of the main entry.

4. Preparation of shelf list card for each book. If it is a subsequent copy the accession number must be noted on the existing shelf list card.

5. Filing of catalogue entries in their order of arrangement in the library catalogue.

6. Filing the shelf list entry cards in the shelf list according to call numbers.

7. Preparation of the books for the shelves by copying the call number and accession number in various pages of each book according to method followed in the library, stamping on the pages, pasting book pocket, date label, book plate etc. as required by the charging system of the library. A book tag, usually round, must be pasted on the spine of each book at about 1 inch high from the bottom.

8. Sending the books to the stack rooms or other destinations.

9. Keeping records of all these jobs.

10. Preparation of statistical data of the activities in the department.

The abovementioned activities are performed daily. The following activities are to be performed from time to time.

1. If required, entries should be rewritten and rearranged while there is any change in heading, subject heading term or otherwise. In that case old cards will be replaced by new cards.

2. Withdrawal of catalogue entries for books withdrawn, weeded out and lost.

3. Maintenance of the catalogue.

4. Maintenance of the shelf list.

5. Keeping coordination with other departments like stack rooms, circulation, reference, bibliography and information, and others.

6. Preparation of authority files and keeping them updated.

7. Preparation of weekly report of the progress of work in this department, shortcoming, problems faced, suggested solutions recommendations for improvement of work and objective evaluation of the activities performed.

Stack or Storage Department

In a closed access library the book stack or the library collection is kept in a remote place of the library and the users have no access to the collection. The users get books through the circulation counter. Therefore, speedy and effective transportation system, both horizontal and vertical, is essential in between the stack rooms and circulation counter. Books are kept on the shelves for a long time so long the library exists. The preservaion aspects must be considered carefully. The material used for shelving, stack types section length, shelf depth, aisle widths and range lengths, height of shelving, stack lighting, gangways, movement facilities etc. should be decided after careful consideration, shelving should be arranged in such a way that shelf rectification and stock verification jobs can be done conveniently. Stack guides, shelf guides and other accessories should be placed properly.

While the books are processed and get ready for the shelves, these are sent to the stack section. It is an on-going process. The tasks and jobs of the stack or storage department are usually roution jobs but the workflow should be continuing. In planning the library, the stack area should be carefully laid out. the shelving pattern and stacking methods may be in various ways. Some of them are given below :

1. Double rows on fixed shelving
2. Hinged stacks for compact shelving
3. Bracket shelving
4. Mutitier stacks
5. Rolling stacks
6. Compact storage

The compact storage system is prescribed for libraries facing acute space problems. Considering all the aspects adjustable steel double-faced shelves are recommeded for the stack area.

Shelving Methods

Proper shelving of library materials ensures efficient service to library users. Some of the methods are noted below :

In classifed arrangemen the library materials are arranged according to the order of the scheme of classification used in the library. The books are arranged from 000-999 onwards according to dewey Decimal Classification.

While the arrangement of books deviates from the arrangement of its chosen classification scheme, the order of arrangement is known as broken order. Some Special kinds of materials such as, reference books, over-sized books, books on art and architecture, children's books are generally arranged separately in special sequances or broken order, sometimes, most frequently used books such as, textbooks in academic libraries or fictions in public libraries are kept in separate sequence behind the circulation counter for immediate charging to members.

A library sometimes adopts more than one sequence for non-fiction collection. The reference collection is normally kept separate from the lending stock and the oversized books are shelved separately from the normal sized books. However, all these books are classified in the usual manner but this situation will give rise to two parallel sequences to the main collection.

Activities of the Stack Department

The jobs of the stack or storage department should be done daily as a routine. If the work is slow or not done immediately the users will be deprived of the books they require at that point of time. The jobs are described below :

1. Shelving the books received from Pocessing department.

2. Receiving requisition slips from circulation department, finding out the books from the shelves and to send them immediately to the circulation department.

3. Replacing the books on their locations whenever returned back from the circulation department.

4. Preparation and maintenance of shelf guides and shelf range guides.

5. Shelf rectification and shelf verification.

6. Checking the physical condition of the books and keeping the damaged and mutilated books out of circulation for binding.

7. Dusting and cleaning of the shelves.

8. Taking preventive preservation measures for the books on the shelves.

9. Sorting out the books requiring curative preservation measures.

10. Overall jobs of stack maintenance.

3.11 Readers' Services Department

All the activities of the library are assessed and evaluated by the readers' services. The extent of the fulfilment of the aims and objectives of the library, evaluation of achieving the set goals of the library, efficiency of the library, assessment of academic support to the parent organisation — all these are manifested in the services rendered to the users of the library. The users must have access to

documents and information resources. Arrangements should be made in the library to facilitate such access.

Readers' Guidance

There should be a counter or desk with a knowledgeable person to guide and assist the readers in using the library resources. A new member may not be acquainted with the library services or an old member may require certain information. This unit should guide them. The unit should be equipped with library guides, library bulletins, current accession lists, library rules and regulations, lists of periodicals subscribed, services offered and such other basic information sources.

Circulation work

The circulation staff are responsible for issuing books either to read in the reading room or for taking books on loan for home study. The arrangement for reservation of books not available right now should be there. This section deals with the availability of documents kept in the library as well as books from outside libraries on interlibrary loan.

Reading room facilities

Every library must have reading room facilities for its users to read and consult books within the library premises, carrels should be arranged for specialised readers. During the working hours the reading rooms should be open to readers. The area should be quiet well-ventilated and well-lighted with natural and artificial lighting. Reading room facilities should be made according to category of users.

Reference Section

Reference section should be equipped with all kinds of reference tools to satisfy all the short-range and long-range questions.

Bibliographic and information services

This section should help the users with techniques of information search, acquaintance with documentary sources, national and international databases, information packages, biblographic services, electronic data search and other services for access to information.

Copying services

The library should make arrangement for copying services for copying of documents as and when required. Sometimes this service helps preventing mutilation of books and journals.

Preservation department

All large libraries with old and rare materials should have a preservation department. The activities of this department are concerned with keeping the documents in good condition so that these can be kept physically fit for a long period for the use of the users. The jobs are noted below :

1. To take prventive measurs so that the documents in the storage are not affected even in hostile condition.
2. Fumigation of documents affected by insects and damage caused to them.
3. Reparing and strengthening of documents.
4. Taking adequate measures against physical, chemical and biological deterioration and damage.
5. Deacidification and lamination.
6. Taking any other conservation method as preventive and curative measures.

General administration department

The adove mentioned departments are related to library affairs. The general administration department creates and maintains the necessary infrastructure for all the library operations concerned with materials, users and staff. The department should have the following sections.

1. Librarians office, letters, correspondences, notices and circulars, in-house committee meetings, monitoring, keeping files, records, etc.
2. Library committee meetings, agenda, resolutions, communications library authorities.
3. Finance and budget.

4. Accounts, tenders, purchases, etc.

5. Establishment, salary, wages, leave records, etc.

6. Personnel management, appointments, promotion, retirement, service books, in house training, monitoring of work, departmental transfer, reporting, disciplinary affairs, etc.

7. Stores, stationary, furniture, equipment, machinaries.

8. Building and maintenance, repairing, etc.

9. Routine administration, daily duty roster, Job specifications, leave vacancy arrangements, library statistics, annual report etc.

10. Caretaker and security, firefighting, conservancy, etc.

All these sections may be kept separate in large libraries but in medium-sized and small libraries sections may be amalgamated according to workload and number of staff.

3.12 Exercise

1. What are the library management records? Discuss their utilities.

2. Discuss the importance of library statistics. How it can be used as management tool?

3. What are the administrative departments in a large academic library? Illustrate your answer.

4. Do you think annual report is an essential tool? State the reasons.

5. What is the role of rules and regulations?

3.13 Reading List

1. Evance G. Edward : Management Techniques for Librarians, 1983.

2. Hendrickson, Kent, ed. : Creative Planning for library Administration, 1991.

3. Sheldon, Brooke E. : Leaders in Libraries : Style and Strategies for success, 1991.

4. Rowley, Jenny E. : Operation Research : a tool for library management, 1981.

5. Stueart, Robert D. and Moran, Barbara B. : Library and Information Centre Management, 1993.

Unit 4 ☐ Financial Management

Structure

4.1　Introduction

Financial resources are indispensable and essential for any organisation and so also for the library. The library has certain aims and objectives which are to be fulfilled and the set goals which have to be achieved. For all these reasons the library must have a rich collection of library materials in various physical formats, must have adequate physical infrastructure to store the collection and performing library activities, must have trained workforce to operate the programmes, must have trained workforce to operate the programmes, must have enough accommodation, furniture and equipment for users' services. Financial resources are required for all activities and operations in terms of both non-recurring and recurring expenditure. Since library is a growing organism more financial resources are required each year to come.

Adequate fund is required for capital expenditure like building and its fixtures, furniture, equipment machinaries, purchase of library materials and other assets, recurring expenditure like salary, maintenance of building and other services, stationaries, contingencies, conservation of materials and other expenditure. Fund is also required for developmental programmes for the future and to make the services more effective, efficient and meaningful. Library is not a revenue earning body. Since it is a social institution the expenditure in met by public fund in form of grants.

Every library is a branch or department of a parent organisation. The parent body or the library authority is responsible for the library fund. The parent body sanctions the fund for the library from its own resources as well as fund may be available from other resources. Sometimes libraries get fund from outside agencies through the parent body earmarked for the library as library grant. The University Grants Commission gives fund to universities and colleges. Central and State Governments also give fund to libraries. Whatever may be the source of fund, the amount is sanctioned and given by the library authority. The library is solely dependent on the parent organisation for its financial resources.

4.2　Financial Control

As head of the library financial management is an important job of the librarian. It deals with the problems of acquiring, allotment, distribution and utilisation of

funds, balancing between receipt and expenditure, financial control and evaluation of financial affairs. The library management is responsible for estimating its own financial requirements, preparation of budget estimates for its own functioning, activities and programmes, management of funds appropriated and making expenditure within the stipulated period, maintenance of accounts and preparation of records for audit.

The librarian has to decide the heads of receipts and expenditure and to make financial control over the expenditure. He has to make financial planning for expenditure which is essential, cutting or decreasing unnecessary expenditure, identifying priority fields for essential expenditure, providing funds for developmental programmes and introducing new services. Therefore, finance and budget are the very important aspects of library management. Financial planning and financial control are the keys to effective and efficient library management.

Financial control, an important aspect of financial management implies the productive use of fund and channelisation of fund for result-oriented activities by which maximum result is yielded by spending minimum resource. Another important aspect is time-bound programming. Budget estimates are to be done within a specified period to submit before the library authority for approval.

These jobs should be done within the library within stipulated date at different levels. Sometimes expensive books are sold at a low cost at pre-publication price. Such opportunities should be availed. Periodicals' subscriptions have to be paid in advance. Last date of such payment, should be adhered to. Books should be purchased all over the year and should not be purchased at a time at the end of the financial year. For limited availability foreign books should be purchased whenever available in the market. The collection development programmes may be affected by unawareness of the book market. Economy is the key word in financial control. It implies that all unnecessary expenditure should be avoided and wasteful expenditure should not be made. The value of money and its ultimate return makes the purchase economic. The financial programme should be flexible. If required, fund specified for a purpose may be utilised for other item. It should be done only on cost-benefit consideration.

Capital fund is required for non-recurring expenditure during each year in a large library. But the library authority may not grant the fund for the same head in consecutive year. In such situation, a medium-term or long-term programme should be taken by the librarian spreading over a number of years. In each year different heads of capital expenditure can be made so that the activities and operations in the library can be smooth running without hindrance.

Collection development is to be made every year and books and journals are to be purchased. This makes a financial crisis to the library because of two reasons. Books and periodicals grant are kept almost the same in the next year or slightly increased. Sometimes the grants are reduced because of the financial condition of the parent organisation. The growing needs of the users and the demands they place cannot be satisfied if the grants are not sufficently increased. The second reason is the spiralling prices of books and periodicals. Less number of books and periodicals can be purchased with the same amount of fund or slightly increased fund in the following years. The crisis becomes acute because the foreign exchange rate is always increasing in terms of rupee. The ultimate result is that the interest of the users is not served because of financial constraints. Such phenomena are found in each library.

The users' services are to be performed in a continuing manner. Service once offered cannot be discontinued. Not only that, the users always demand for new services and more efficient services whatever may be the shape of financial resource the users' services are to be provided. Users are not concerned with the financial condition of the library. All librarians are confronting such situations all the times. The librarian can solve financial problems to some extent if he makes the financial control. Financial management requires skill, far-sightedness, ability for good planning, knowledge of financial affairs and leadership quality.

Library finance has two aspects - the financial resources or the revenue aspect and the expenditure aspect. As library is a part of parent body and it is organised and managed to support the aims and objectives of the parent organisation, the library has obligation to the parent body and it organises and manages the activities and services of the library as an integral part of the organisation. The parent body

supports the library with the fund required. It is the revenue aspect of the library. The library may be supported also with fund from external sources. The financial requirements, both non-recurring and recurring are granted by the parent organisation. The capital expenditure, fund for activities and library services are the expenditure aspect. Both the revenue aspect and expenditure aspect are estimated much ahead of the current financial year.

In the library situation the estimation of expenditure to be incurred in a particular financial year should be prepared a few months before the financial year begins in April. The end will be March next year. During the few months time the estimated expenditure with the estimated revenue aspect should be prepared. The estimated revenue is calculated on the basis of the estimated expenditure.

Estimated expenditure should include capital or non-recurring heads like building fittings and fixtures, shelving, furniture, equipment, machinaries etc. as well as annual expenditure for books, journals and other materials. A large amount of fund will be required for recurring expenditure. It includes salary and wages, forms and stationaries, electricity, postage, telephone, contingencies, etc.

4.3   Library Finance : Sources

The funding sources vary according to the particular kind of library. The activities of parent bodies also differ in different kinds of libraries. Obviously the parent body is mostly responsible for library finance but there may be other financial sources also.

A.   Academic Libraries

Academic libraries are attached to the academic institutions. There are four categories of academic libraries, university library, college library, libraries attached to teaching institutions and school library.

4.3.1   University Library

University libraries get their fund from universities from their own fund. In the university budget a provision is kept for university library based on the budget estimates prepared by the librarian for the library. A major part of the revenue is

sanctioned by the university, mainly for books, periodicals and other library materials as well as non-recurring expenditure on equipment, machinaries, furniture etc. The recurring expenditue is usually met by the university fund. Fund for large amount of capital expenditure is usually received from the UGC and State Government. All these funds are received through the university. While research projects are approved by UGC, Government departments like DST, CSIR, Planning Commission, etc. or other organisations like ICSSR, ICHR, ICPR, etc. a part of the research grant is kept for books and journals, which after completion of the project are to be deposited in the university library. At the time of admission to courses library fee is collected from the students.

4.3.2 College Library

The main source of financial aid of college libraries is the college management. The colleges are affiliated to a university for undergraduate and, in special cases, post-graduate education. In government colleges full financial support is received from government through the college governing body. In non-government colleges capital grants for building, equipment, books and journals are received from UGC. Library fees are charged at the time of admission.

4.3.3 Teaching Institution Library

There are many teaching institutions for imparting education on special subject areas having their own administrative set up. In some cases these are affiliated to universities and in some cases these are independent. They have their own academic programmes on specialised subject areas and libraries are managed for adequate academic support.

4.3.4 School Library

School libraries are fully financed by the school management. A library fee is collected from students. Sometimes donations are received from endowments, individuals, municipal and local bodies.

4.3.5 Public Library

There is a confusion regarding the meaning of the term 'Public' to mean public library. In defining public library the UNESCO Manifesto (1972) states "The

public library should be established under the clear mandate of Law, so framed as to ensure nation-wide provision of public library service." UNESCO Public Library Manifesto-1994 declares "The public library shall in principle be free of charge. The public library is the responsibility of local and national authorities. It must be supported by specific legislation and financed by national and local governments. It has to be an essential component of any long-term strategy for culture, information provision, literacy and education." If we mean a public library in the true sense of the term, it must be fully financed by the government under appropriate legislation.

4.3.6 Special Library

The special libraries are organised and managed by the parent organisations. These may be for special types of materials, special types of users or on special subject areas having special purpose. The examples are the libraries attached to research institutions, learned bodies, scientific institutions, industries, commercial organisations, and the like. Since special libraries give full support to achieve the goals of the parent bodies, these are fully financed by the parent organisations.

4.4 Library Expenditure

As an institution under the parent organisation the library has no source of revenue of its own except collection of fines and services offered to persons and organisations for specific purpose like bibliographic and information services. Practically such libraries are spending institutions.

The libraries have to make capital expenditure for physical infrastructure and other infrastructural facilities, building of collection of books, non-book and special types of materials, databases, information infrastructure, personnel and equipment, machinaries, etc. Because of the support service the expenditure is ever-increasing. Unless an expenditure policy is formulated the total expenditure will not be able to cope with the financial resources available. The library expenditure should be planned in advance and proper financial estimate has to be prepared on various heads and sub-heads of expenditure. The principle of expenditure should be made on equitable allocation of funds and judicious priority identification. The principle of economy should be followed for each item of expenditure.

4.4.1 Financial Estimation

Proper financing policies depend upon practical, correct and effective financial estimation. The financial estimation is made for the next financial year, so it should be based upon the current financial year as well as expenditure trends of past years. Although the financial estimates are made for one year, the librarian should keep in mind that library is a growing organism and a continuing body. The overall planning should be made on short-term, medium-term and long-term range spreading over years and decades. The financial estimation should be based on some method to make it practical and result-oriented.

There are three methods for financial estimation, per capita method, proportional method and method of details.

1. Per capita method

In per capita method estimation is based on per head appropriation for the members of the library for library materials and overall expenditure for maintenance of the library. The overall expenditure is calculated considering the average cost of materials, salary of library staff and average cost of maintenance. The UGC Library Committee (1956) recommended that a university should provide Rs. 15.00 per student and Rs. 200 per teacher for acquisition of library materials, Kothari Education Commission (1966) recommended that Rs. 25.00 for each student and Rs. 300.00 for each teacher should be spent. Dr. S. R. Ranganathan suggested Re. 0.50 per user should be spent for public libraries in 1950. The estimation is made per unit as a basis of calculation.

2. Proportional method

This method implies that the library authority or the parent organisation should provide a segment of its total budget expenditure for the library and the minumum percentage should be fixed. the Univeristy Education Commission recommended that 6.5 to 10 per cent of the total university budget should be spent for university library. Dr. S. R. Ranganathan suggested that 6 per cent of the education budget of the government should be spent for public libraries. This estimation is based on the total budget estimate of the parent organisation and an earmarked part of it for the library expenditure.

3. Method of details

All the items of expenditure of a library under various heads and subheads in detail are calculated in this method. The expenditure should be estimated under capital or non-recurring expenditure and recurring expenditure. For the utilisation of government fund the financial estimation should further be subdivided under non-plan expenditure and plan expenditure in relation to Fiver Year Plans as sanctioned under a particular Five Year Plan.

4.5 Library Budget

The total requirement of expenditure is prepared by the financial estimation adopting a method. The general principle is that the total expenditure should not exceed the estimated revenue and these two items should tally with each other. Then a statement should be prepared comprising the revenue aspect and the expenditure aspect for submission to the library authority through the library committee for approval. This statement is known as library budget. The financial management of the library is reflected in the budget.

Librarian is responsible for preparation of the library budget. He gets all the feedbacks from his staff working in different departments and sections. The financial requirements of various departments and sections are cumulated and finally the library budget is prepared. Library budget is the reflection of the current and future activities as well as the performance record of the library management. Budget should be prepared systematically with practical approach so that is can reveal the different activities and operations in the library during the current financial year and the same in the next financial year.

The library budget is not only a financial plan that estimates the revenue and expentiture of the library but it is a very important device for control, coordination, communication, performance evaluation and motiviation. It indicates the methods, activities and operations of the library during the current year and suggests for the next year. Therefore, the library budget should be a guiding force for all the library activities. Budget controls the library in the sense that it channelises the expenditure according to set rules and regulations of the parent body. In coordinates the library activities by sharing the common expenditure for many activities and

services. Budget communicates the proposed activities and operations in the library with financial provision and allocation of funds to the heads of various departments and sections and regulates the expenditure. The performance evaluation is made through the utilisation of allotted funds for the activities and operations within the stipulated period. It motivates the staff for performing better because the allocated fund will inspire them to work more efficiently.

4.6 Methods of Budget Preparation

The preparation of library budget should follow a particular method. There are some traditional methods as well as innovative methods recently found out. The method followed in library, budget preparation should not go far from the method adopted in preparation of budget of the parent organisation. The librarian with the assistance with the senior staff should prepare the library budget according to the budgetary norms issued by the library authority.

There are several methods for the preparation of budget. These are noted below :

1. Line-Item method
2. Formula method
3. Programme method
4. Performance method
5. Planning Programming Budgeting System (PPBS)
6. Zero-Based Budgeting (ZBB) method

Line-Item method and Formula method are traditional methods for preparation of budget and the others are new concepts in budgetary methods. The librarian can adopt any one of these methods considering its suitability in library budgeting.

4.6.1 Line-Item method

It is a common type of budgetary method. It divides the items of expenditure line by line and item by item into broad categories such as, non-recurring and recurring

and under non-recurring building, equipment, furniture etc. and under recurring books, journals, salaries, materials, contingencies, etc. with further subdivisions within these categories. It is easy to prepare budget by this method. It is done by projecting current expenditures to the next year adding the increase of cost. This method envisages that all current expenditures are reasonable and justified. The budget allocation is easy to understand. But this type of budget is not flexible and funds earmarked for a particular item cannot be reallocated. It does not reveal the performance of activities and services. It does not consider the future developments.

4.6.2 Formula method

In this method predetermined standards for allocation of financial resources are considered. The allocation of fund is made by the parent body and communicated to the library. The formula is usually expressed in terms of percentage of the total institutional cost and fund is given for expenditure. This is practically a lump-sum approach. The activities and operations of the library do not get much importance and the performance is not evaluated.

4.6.3 Programme method

It is a relatively new concept of budgeting in which the activities and programmes of the library are considered mostly. It does not take into account the expenditure to be made on individual items, but it gives emphasis on the activities and programmes. The funds are earmarked for the services and facilities the library plans to provide. The budget is prepared on the programme cost and the library can consider whether the programme will continue or not. The budget is prepared on the basis of programmes undertaken by the library in a particular year. Funding provision is made for various activities of each department.

4.6.4 Performance method

This method is similar to programme but the emphasis is given on performance of the programme and not programme itself. The fund allotment is based on the performance of the activities and operational efficiency is given priority. This method requires careful collection of quantitative data over a period of time for the evaluation. Cost-benefit techniques are required for analysing the performance and establish norms. Performance budgeting measures quantity rather than quality of service.

4.6.5 Planning Programming Budgeting System (PPBS)

The method is a combination of both the programme method and performance method. In this method emphasis is given on planning of the total system. It begins with the identification of objectives and goals of the library and ends with the performance of the implementation and achievements. The controlling aspects of measurement, as in performance budgeting are the evaluation criteria. It improves the decision-making process of budgeting because alternative ways of meeting objectives are there. PPBS emphasises the selection of appropriate criteria for evaluating the alternatives to achieve the goals. It combines the planning, implementation of planning through activities and services, evaluation of the services rendered and the final results through cost-benefit analysis. The financial requirements are presented in budgetary terms.

4.6.6 Zero-Based Budgeting (ZBB) methods

In this method budget estimates are prepared each year without referring to the activities in the previous year. The entire budget is prepared from zero point. Therefore, pervious activities are not considered and all the programmes and activities are not considered and all the programmes and activities are not considered and all the programmes and activities are planned for the year of budget estimate.

The first step is to divide the total library programmes and activities into working packages. Such packages will be lowest units of operation. Each activity within the package should be described. The description should mention the goals to achieve, the justification for the activity, statement of alternatives in decision making, justification of the package, detailed measurement of performance and the cost of the activities within the package. Ranking of the packages should be done by identifying the priorities. It should provide the real cost of various library activities.

Preparation of Library Budget

In Indian situation the financial estimation is done by following methods of details. The budgetary method adopted is either line-item method or formula method.

241

16

Usually budget estimates for the next financial year is notified by the parent body during the middle of the current financial year. The librarian perpares the budget estimates for the next financial year and submit the revised estimates for the current financial year at this point of time. Generally, the parent body supplies the budget proforma for budget estimates. The librarian has to fill in the proforma as suggested. In budget estimation the librarian should consider the increased cost factor for the materials to be purchased because of the escalation of prices. Provision for expenditure for new posts, increase in salary and allowances of the staff members retirement benefits to persons retiring and other expenditure for staff should be calculated.

In the budget there are two major heads, receipts and expenditure. These two heads are divided in many subheads as reqiured in the library. These two major heads are divided in two categories, non-recurring expenditure or capital and recurring or maintenance. Non-recurring expenditure is one-time or capital expenditure for a particular purpose under the selected head. Recurring expenditure is the administrative cost under routine heads. Capital expenditure, sometimes, becomes the cause of recurring expenditure. For example, expenditure incurred to purchase a xerox machine is capital expenditure but the maintenance cost of Xerox machine and the cost of stationary required for the machine are recurring expenditure. There should be proportionate fund both for non-recurring and recurring expenditure.

The non-recurring or capital expenditure head is meant for the financing of major capital expenditure such as, new building, extension of existing building, purchase of expensive equipment and machinaries, major bulk furniture and book shelves purchased in a lot and other expensive items. The recurring head covers routine annual expenditure such as, salary to staff, fund for books, journals etc., other library materials, electricity and other changes, stationaries, printing, contingencies and other running costs.

The items in non-recurring heads and recurring heads vary from library to library according to the kind, size, services rendered, financial resources, etc. But the basic items are almost the same in all libraries. When the budget is approved and financial grant is received, it is the responsibility of the library staff to utilise the amount within the stipulated financial year. It is the responsibility of the librarian to take all administrative measures so that the funds available under

respective heads are spent and utilised in proper way. For this reason administrative steps must be taken much before the end of the financial year. For books to be purchased in a financial year the work should begin much ahead of time. Activities such as, the selection of books, placing orders for those books; sending reminders for non-supply of books, receiving and checking of books and corresponding bills should be completed within the stipulated period. Otherwise, the bills will not be passed in due time and sanctioned fund will be lapsed. The general administration and financial administration are closely related. These steps will facilitate to show the actual expenditure for the first half of the current financial year and to place revised estimate for the second half of the current financial year.

In the preparation of the budget fund should be provided for each budget head and details of items under heads and subheads. Usually; the amount earmarked for a particular budget head should not be spent for items under another head without proper justification and fund reallocation. The management should see that the budget heads are spent properly and only for the particular purpose for which these are estimated. Under special circumstances and with proper justification budget head may be reallocated by administrative order. Some flexibility should be provided.

In the library budget the following five heads must be mentioned :

1. Actual expenditure of previous financial year
2. Financial estimate for the current financial year
3. Actual expenditure for the first half of current year
4. Revised expenditure for the second half of current year
5. Financial estimates for the next financial year

The budget head for the receipts and expenditure may be divided in the following subheads depending on the individual library and its budget pattern.

Receipts

Fund available from the parent body

Grant from central Government or UGC

Grant from State Government

Annual grant from other sources

Membership fees, fines, service charges, grants and any other income

These heads should be divided as non-plan and plan and under each head—non-recurring and recurring.

The budget head under expenditure should be divided as mentioned above and each of the heads should be subdivided in various groups as required in the library. These may be as follows :

Expenditure

Capital or non-recurring

(items should be mentioned with estimated expenditure)

Recurring

(details of budget heads, sub-heads and items should be given)

Salary and allowances

Contribution to Provident fund

Payments for retirement benefits

Purchase of books

Purchase of journals

Purchase of other library materials

Maintenance cost of building, equipment machinaries etc.

Preservation and book binding

Repairing cost of equipment, machinaries, etc.

Stationary and Printing

Postage

Contengencies

Other expenditure

Estimate for Future Programmes

All the new schemes, new services to be rendered, new programmes to be undertaken, future planning of library activities, computer application, database services, printed

and electronic information services and any other programme. All these should be mentioned with estimated expenditure.

The library budget indicates not only the activities and progress of the library but also its shortcomings. The management should supervise that all expenditures are made properly and in regular manner following the financial rules. For all expenditure concerned bills, vouchers and other official documents must be kept properly. The accounts of the library must be audited annually. It is a check and control over the financial irregularities and library activities.

The Format of Budget

Title page indicating the budget estimates for the year.....

Part I Contents

Introduction

Synopsis of Budget

Objectives and goals of the library

Objective assessment of all the activities during previous year

Summary of activities and services during next year as proposed future programmes

Part II Budgetary Estimates : a summary

Detailed estimates

Receipts

Expenditure

Proposed programmes

Tables and graphs, if any

Conclusion

4.8   Exercise

1.   Discuss the methods of preparation of library budget.

2.   What is meant by financial management?

3.   What are the methods of financial estimation?

4. State the heads of library expenditure.

5. Define capital fund.

4.9 Reading List

1. Narayana, G. J. : Library and Information management, 1991.

2. Roberts, S. A. : Cost Management for Library Information Services, 1985.

3. Trumpeter, M. C. and Rounds, R. S. : Basic Budgeting Practice, 1985.

4. Chen, C. : Zero-based budgeting in Library Management, 1980

5. Jurow, Susan and Barnard S. B. : Integrated Total Quality Management in a library setting, 1993.

MODULE - 3

Unit 5 ❑ Human Resource Principles and Processes

Structure

5.1 Introduction

Human resource management is a vital area in libraries. Human resource has never been so necessary as key resource. The challenges facing modern library and information services demand learning, information systems and services, speed responsiveness and capability. The demands can be fulfilled only by persons with good academic background, professional skills, expertise, leadership for accomplishment of the library activities and operations. The united efforts of the workforce can fulfil the objectives of the library and achieve the goals of the organisation. The individuals with the teamwork can accomplish what is meant to

247

do, in short, organisational capabilities. Human resource management is uniquely positioned to deliver organisational capabilities in the era of technological innovations by assuming an entirely new role and developing a new agenda.

Personnel management and human resource management are not synonymous. Human resource management is a concept and approach to shape the organisational work culture, and in libraries it is service oriented. Human resource management is basically the development and administration of personnel policies and procedures, but managing people also entails proper understanding of the psychological and sociological forces that affect the attitudes and performances of individuals as well as the groups as workforce. the library personnel are heterogeneous, consisting of individuals of varying ages, levels of education, areas of expertise, differing motivation, personal characteristics, aspirations, needs and personalities. The library management must understand how these factors interact in work environment.

Library management should consider the factors which improve the functional aspects and develop personal qualities for best personal contribution. The purpose of human resource management is to motivate, train, guide, educate and encourge the library personnel for accomplishment of the goals of the organisation. It is also important to judge and evaluate every person regarding one's inherent qualities and performance to attain the desired levels of capabilities.

All the library activities, functions and operations are done by the people whether these are manual or in the electronic system. Behind all the planning, designing, implementation and performing results the prime force is the human resource. The human resource managers must understand each person as individual, his attitude, motivation, skill, knowledge, proficiency, expertise and even liking. The basic principles are to motivate people, to get the best contribution, to initiate them to achieve success, to make them feel home with the organisation and to create a sense of belonging to the library.

The individuals make the difference. The role of the library and the fulfilment of obligations depend very much on the role and performace of the library personnel. Individual employee performs particular tasks or activities. Accomplishment of one's tasks is not only the responsibility of one individual, but it also support the activities of the library as an organisation. If an individual does not perform his tasks, it is not only the failure of the individual, it affects activities of the library. At the same time, it affects the job performance of other individuals also. On the other hand, if an employee is motivated, takes the job performance as a challenge

and his attitude is positive, he can be a source of inspiration to other co-workers. Library operations are done in a linear order following a chain system. Therefore, individual's performance affects the work schedule of other individuals as well as the library.

An organisation runs with the people involved in the organisational set up and the persons involved are not only individuals units performing their jobs in social isolation. Individuals in an organisation create social clusters within which professional and social support develop. People work in a cohesive manner with proper cooperation and coordination. In libraries the employees are part of a complex network of interrelated functions to achieve the goals of the organisation. The motivation and positive role of the employees are the foundation stone of the library's success. It has also an environmental impact. Performance of the human resource of a library creates its image in the society.

Human resource is vital and crucial because all othr resources in the library cannot be acquired and utilised without human resource. The employees of the library, existing or new entrants, should be turned as assets and all kinds of resources should be utilised to the optimum level. The management of human resource takes care of the enhancement of capabilities of every individual employee as well as utilisation of the potentialities of individuals. Individual employees have their own roles and they should have their group roles. The functions of human resource management include enhancement of capabilities of individuals required to perform individual tasks, placement of individual employees in the right positions and development of organisational culture through interpersonal relationships, hierarchical and lateral. Development of human resource should be done through guidance, counselling, training, performance appraisal, organisational development, career development and exploring personal potentialities.

5.2 Human Resource Development Climate

The human resource development climate of the library plays a vital role in ensuring the competency, motivation and development of the employees. the term 'climate' is used to designate the quality of the work environment in cooperation, development of individual, dedication and commitment of the individuals to organisational goals, and the efficiency with which the goals are achieved. Such climate can be created not only by formal control system but also through informal

intrapersonal relationships. Both the formal and informal structures of human resource management create the organisational climate. It such condition individuals assist, help, judge reward, restrain, guide, counsel and feel each other. The climate influences attitudes and morale of individuals towards their activities and work environment

D. Hellriegel and J. W. Slocum define organisational climate as a "set of attributes which can be perceived about a particular organisation and / or its subsystems, deal with their members and environment." Another definition has been given by B. Schneider as "Climate perceptions are psychologically meaningful molar descriptions that people can agree characterize a system's practices and procedures. By its practices and procedures a system may create many climates. People perceive climates because the mololar perceptions function as frames of reference for the attainment of some congruity between behaviour and the system's practice and procedures. However, if the climate is which rewards and supports individual differences, people in the same system will not behave similarly. Further, because satisfaction is a personal evaluation of a system's practices and procedures, people in the system tend to agree less on their satisfaction than on their description of the system's climate."

Human resource development climate is an integral part of organisational culture. The employees should have a developmental environment in the organisation. The elements of human resource devlopment climate are given below :
1. All the library personnel should be treated as the most important resource,
2. Competence of the employees must be developed.
3. There should be free communication, discussion and exchange of opinion and ideas,
4. Efforts should be made to help employees recognise their strengths and weaknesses through feedback.
5. There should be trust in the capabilities, of the employees that they can accquire new competence at any stage of service period,
6. There should be environment of cooperation, collaboration and cohesiveness,
7. Team spirit should be the guiding force,
8. Acceptance of modern technology in library operations,
9. Stereotype jobs and favouritism should be discuraged,
10. Human resource development services should be a continuing process such as job-rotation, assignment planning, reward management, performance evaluation, training, etc.

A supportive climate is essential for human resource development if has to be implemented effectively. Top management to immediate supervisors should have the commitment for positive attitudes towards development. Human resource development climate creates the organisational work culture.

There should be openness so that all the library personnel can feel free to discuss, exchange and communicate their ideas, feelings and activities with each other. Whenever there is any problems, it should be confronted and solved, and should not be kept shelved. Mutual trust should be there in working relationships for the benefit of the library. Persons should be allowed to work independently with responsibility and the results should be monitored. Initiative should be encouraged. In the situations where teamwork is necessary, collaborative efforts should be taken.

5.3 Planning and Implementation

Planning and implementation of human resource management are essential for acquiring and improving capabilities required to perform various functions for the present and also for the future. Planning should be made to develop individual capabilities and discover inner potentiality for personal and organisational improvement. By this way the organisational culture can be created and maintained through interpersonal relationships at various levels, collaboration, professional experties and human resource climate. Library personnel should be supported to acquire new competencies through a process of performance planning, periodic review of performance, monitoring, assessment of development needs and creation of development opportunities through assignment responsibilities, training, rewarding and such other mechanisms.

Performance competencies, knowledge, attitudes and values, skills and expertise are needed to achieve the best results. Higher degree of performing tasks and better quality of results require higher level or degree skills and expertise as well as utilisation of human resource in the most effective way. Properly motivated, competent and responsible employees are the assets of the organisation for organisational survival, growth and excellence. Proper utilisation of human resource can overcome the constraints of all other kinds of resources.

Human resource development must be a continuing process in the libraries. Planning and implementation of the human resource development are activated by human resource development mechanisms, climate and processes leading to the

outcomes and best results. The mechanism, climate and processes create more competent and committed persons who would make the library grow by contributing their best to the library. Human resource management influences very much the organisational effectiveness.

Human resource development mechanisms are the planning the human resource management, assessment of existing positions or posts, identification of vacant and new positions with requirements to perform the tasks, reorganisation positions and demand for intake, system analysis and flow charts, tasks identification and job descriptions, role analysis exercise, potential development exercises, communication policies, organisational development exercises, job-enriched programmes, job rotation, and other mechanisms. Human resource development processes include planning for development by every employee, awareness of competencies required for job performance, proactive orientation, collaboration and teamwork, mutual trust, authenticity in attitudes and activities, openness, motivation to take challenge, value generation, fulfilment of objectives, completion of jobs and tasks within stipulated time frame, efficiency in job performance, work motivation, better generation of internal resources, job involvement and higher work commitment more team work, team performance, and the like.

Individuals

The major objective of human resource management is to increase the individual employee's effectiveness with additional objectives which will give each employee an increased sense of personal motivation and satisfaction in the work and work environment. The most important point that has to be considered in dealing with the personnel is how they feel about in dealing with the personnel is how they feel about their work, their co-workers, their supervisors, and the organisation for which they work. The principles of human resource management should be implemented for the fulfilment of this end. Management must provide the leadership which will create effective coordination and utilisation of both human and other resources towards the achievements of the goals of the library. Organisation and motivation of personnel, is the control function of human resource management. It is important how the employees are viewed by their superiors the way they are dealt with, the way in which they perceive their own roles, and the way in which they relate to co-workers as well as users of the library.

In case of new positions careful personnel selection using every device and technique should be made. It is to be ensured that each person selected is suited to the position for the work to be assigned immediately as well as for the future. The devise and techniques utilized to accomplish good selection include carefully prepared job descriptions, appropriate tests, interviews, well-developed application, evalution of experience evaluation, educational qualifications, assessment of skills and expertise in specific areas required.

Job descriptions and specifications are an absolute necessity to get best results. If the job requires a particular personality or set of psychological traits, such factors must be considered during selection process. Evaluation of prospective employees is indispensable in making sure that they are physically, mentally and temperamentally suited to the job they will do. There should not be any confusion as to assignments and responsibilities. The person who clearly understand an assignment is the right person. Persons must have responsibility for doing something in the work process. They should have single accountability to provide functional responsibility.

Human resource can be best utilised by appreciation of the indivudual for the result oriented performance. If a person feels that his contribution is significant and his efficiency and productivity is acknowledged, he will be motivated to perform his jobs in a better way with right attitude and dedication. Such positive attitude brings a sense of worthiness to the work. The supervisors must encourage and inspire the staff to show initiative in thinking and executing plans. Subordinates should be allowed to exercise initiative within the limits provided by their job assignments and responsibilities.

The employees should have pride in their accomplishments. If they feel a sense of pride in objective. Methods, and accomplishments, better performance can be expected and a reasonable degree of dedication will prevail. the supervisors should follow the principle of clearly defining objectives and outcomes expected, communicating these to the staff, and recognising achievements when achievements are well done. supervisors should use praise as a tool of motivation. Good performance and sincerity should be rewarded with praise.

The employees need to have information on programmes, events, and actions affecting them or in which they have an interest. Good support and high motivation can be assured by making certain that all employees are adequately informed about the matters concerned. Information sharing can be an effective means of staff

motivation. Management must give careful and thoughtful consideration to the administrative steps to be taken and their effect on the feelings and performance of staff members. This is especially true when considering changes in procedures, programmes, activities and services.

Participation in the planning, organising, and implementing decisions can be a strong tool of motivation. It creates better relationships with and among employees. The greater employee participation in decision-making and policy development help the management in many ways. The employees will follow instructions from higher authority and accept them more readily when they have contributed to the decisions and policy statements upon which such instructions are based.

The physical facilities, communication system, quality of equipment, infrastructural facilities and working conditions provided for an employee on the job are highly important factors in achieving efficiency and high productivity. Better working conditions, both physical and psychological, ensure more efficiency and more productivity with the same amount of human effort.

5.3.1 Human resource planning

Effective human resource planning is a crucial job in the library system. The planning should consider both the existing staff as well as new intake. A clear understanding of the objectives, quantification of the performance of jobs, job specification job analysis and agreement over the minimum deployment of staffing consistent with the desired and planned work situation are involved in the staffing pattern of the library. The collection of data for job specification and job analysis, preparation of flow charting for various operations, system analysis for the library operations at various stages, their subsequent interpretation, quantification and translating into manpower requirement are extremely difficult in library situation. In case of certain library operations, such as, accessioning, classification, cataloguing, circulation of books, and the like can be made by quantification and measurement. But reference services, readers' guidance, maintenance of catalogue and databases, shelf rectification, current awareness services, information services, referral services, and the like, cannot be measured by time and job specification. In different kinds of libraries the work situation may vary and norms for measurement cannot be applied in the same way. In such situations the objectives and goals of the library and the performances to achieve these through implementation of services should be considered.

In any changed situation, particularly under library automation programmes all the conventional library departments have to be reconstituted, all the activities have to be redesigned and all the activities have to be redesigned and all the library operations have to be reorganised. Library automation system requires totally new job specification and job analysis, new work situations, electronic environment, new operational procedures and new techniques of management and communication. The work environment requires a new generation of library personnel, whether in-service or new recruits, dedicated to achieve the goals. Motivation to acept the challenges in library operations is the guiding force to success.

In staff participation the manager concerned must be in full control of all the jobs and he must be fully prepared for all the activities of his unit. His involvement will inspire the commitment of the subordinates and it must be self-generated. It will grow, as the programmes for activities are implemented. At every stage of implementation upward consultation will be required in which both the parties are motivated. Thus, the subordinate is motivated to make the job done properly and the manager is motivated to develop the participation involved.

Staff participation may be achieved by the management technique of Management by Objectives (MbO). In this particular technique the departmental and unit objectives are to be established as the first step. These will be done by the management at the top level. At the same time the key areas of activities are to be undertaken and the methods of implementation should be considered. The steps in the system may be described as follows :

1. Fact finding, review of the existing situation and identifying the weakness of operation in case of unit working, or fact finding and justification of establishing a new unit for activity.

2. Setting objectives and planning for the organisation.

3. Setting objectives of the department or unit.

4. Blending Long-term and short-term plans.

5. Identifying key areas of activity

6. Operating and imporvement planning.

7. Development of criteria to judge performance.

8. Creating enthusiasm and participation in achieving results.

9. Removing obstacles, revising programme when necessary.

255

10. Regular review of progress and performance.

11. Involvement of all the individuals in the activity and end-result.

12. Review of total result for all the staff. At every step there must be action review, control and monitoring over all the operational activities. All these should be done in cooperation with the employees and with their active participation. It is essential at all the stages of activity and the progress should be measured in a continuing manner.

B. G. Dutton, has described some criteria to measure the progress. These are :

"1. Adoption of individual targets - deep knowledge of areas of technology, information services, languages, etc.

2. Definition of training needs - having established individual objectives, staff were encouraged to select meeting, courses, etc, to promote relevant expertise and subsequently to pass on information gained at in-house seminars. This proved a good taste of their understanding.

3. Extent to which all aspects of work are subject to self-examination.

4. Openess in discussing and solving problems.

5. Elimination of unnecessary work, e.g., by identification and justification of the least important tasks done, Excessive checking is often detected here.

6. Acceptance of more exacting work - shortening lines of communications through effective delegations with decision taking nearer the sources of information and action.

7. More optimal use of mechanized methods."

On one hand, there are increasing financial constraints, limitation of physical resources, exorbitant price rise for books and journals, enhancement of cost of equipmnt and furniture, non-availability of adequate number of posts required for ever-increasing workload, and on the other hand, increasing number of users, a wide variety of materials they require, changing patterns of their needs and requirements, various types of new services to be introduced in the library, ever-increasing demanding nature of users requirements, impact of technological innoations in modern library stituation - all these conditions have put the library management in a very different and challenging situation. The librarian can overcome such situations by proper library planning, taking result-oriented programmes, efficient financial control, and above all meaningful human resource planning and management. Every person in the library must be motivated, dedicated and efficient

in job performance. Manpower planning and human resource management are essential elements to achieve the goals.

5.4 Library Personnel

There are three factors in any library. These are the materials, users and library personnel. Library materials are there for the users. The library personnel are responsible for organisation and arrangement of the library materials as well as for users services. Therefore, the operational activities of the flibrary personnel are vital in the library. A library must have required number of competent, well-trained, qualified and motivated professionals and supporting staff according to the particular kind and size of the library.

Library is basically a repository of knowledge and store house of information as recorded in various types of library materials and information sources. The users require the information or the document according to their intellectual standard and capability in any branch of knowledge. The library personnel should have good academic background, knowledge, professional qualifications, awareness of information sources and technology, competence and an attitude to render service. The staffing pattern of a library depends very much on the particular kind of the library, size of the library concerning the library holdings having various types of documents and the number of users. The staffing framework whould be planned and designed in a library on the basis of job analysis for smooth workflow, job description of individuals and positions, activity analysis of each section or unit as well as activities of coordination, supervision and control. The total workload, the nature of jobs to be done, the services to be performed, the development programmes to be undertaken and other related matters, should be considered while designing the staffing framework and organisational chart.

The nature and quality of service of a library depend largely on the activities of library personnal. The wise collection development, proper organisation of knowledge and information sources by efficient technical processing, storage and retrieval of information, immediate availability of documents whenever asked for, reference and information services, bibliographical service, current awareness service, readers guidance - all these are parformed by the workforce in the library. Currently known as human resource. Only professional or technical training will not yield

257

17

the best result unless the persons have the intellectual capability and sound academic knowledge with awareness of comprehensive information resources.

The library personnel should know the changing patterns of modern documentary sources in different physical formats, the nature of exponential growth of literature, the trends of development of various branches of knowledge, ramifications of the wide body of knowledge, ramifications of the wide body of knowledge, emerging new subject areas, evaluation of appropriate information sources and changing needs and requirements of the users for very specific and highly specialised information. They must know also communication channels of information transfer, location of various types of databases and their availability, new technologies applied in library and information field and global information resources.

Properly selected persons having sound academic knowledge, technical and professional experties and motivation for library service having adequate experience only can perform the jobs rightly. The right persons for proper positions should be selected. If required, they should go through orientation programmes and intensive in-service training to develop themselves to cope with the responsibilities assigned to them. In any library, continuing education should be the essential programme to keep the library personnel updated with latest developments in the profession and to acquire new expertise, particularly in the field of automation and networking.

The basic activities of the library are making the documents accessible and available to users providing a wide range of library and information services. There are also very different types of activities not actually service to users but essentially supporting service to keep the library service on-going. These are reprography, micrography, management of audio-visuals, binding, conservation of library materials, computerised services, preparation of budget accounts, convening meetings and keeping records, organisation and maintenance of office records, routine jobs of office administration and the like. Persons having qualification and experience of performing such activities should be employed and trained in the library. Therefore, various types of persons should be there in different types of posts and positions.

The library personnel can be grouped in the following categories for various kinds of activities and job requirements :

1. Professionals of different grades for management and professional activities.
2. Semi-professionals for routine jobs.
3. Supporting staff for specified activities.

4. Staff for routine jobs in administration, financial work and accounts and other supporting services.

5.5 Professionals

Professionals include persons employed at top level, higher level and middle level responsible for administrative, managerial, professional and technical activities placed at supervisory positions. According to the organisational chart of a library the professionals are placed at various levels in the hierarchical order from top management level down to operation level upto a certain stage. Usually the librarian, deputy librarians, assistant librarians and senior library assistants, whatever may be the disignations, are included in this category. The senior professionals at top management level must have scholarship, comprehensive academic interest, adequate professional knowledge, technical expertise, knowledge of latest developments in the field and adequate experience. They will be responsible for identification of needs, analysis of problems, organisation of activities and operations, implementation of such works, inter-personal and inter-institutional communication and administering the affairs of the library. They will be responsible for setting the goals, defining the objective, planning, programming and making creative solutions. They must have leadership role, must know motivation techniques and must be capable for directing the departments, divisions, personnel and the library as a whole.

5.5.1 Semi-Professionals

The persons are placed at lower level in the hierarchical order. They usually perform the routine professional and technical jobs. They should have qualifications in library and information science. They may be promoted to professional level after acquiring necessary qualification and experience. Their jobs include book ordering, accessioning preparation of books for the shelves, physical verification of books, filing catalogue and shelf list cards, maintenance of catalogue and shelf list, circulation work, stock verification and rectification, keeping periodicals records and many other routine jobs. Their designations may be library assistants, technical assistant, professional or information assistant, and the like.

5.6 Supporting Staff

The supporting staff include the persons with a wide range of skills from paraprofessional to administrative staff. A large number of routine and essential

jobs are done by these staff. These jobs include many routine jobs, reprography and micrography, handling and maintenance of audiovisual and other non-book materials, operaton of various types of equipment, preparation of accession list, stack room maintenance, jobs for preservation of library materials, repairing and restoration of damaged books, maintenance of fumigation chamber, de-acidification, lamination, and many other jobs. They must have minimum qulification and the most important factor is professional and technical skill, adequate experience in doing particular trade or jobs.

5.7 Administrative and Accounts Staff

Adequate number of staff is required in a library for non-professional jobs. They keep and maintain the infrastructural framework of the library. They also do a wide and varied kinds of jobs not necessarily related to each other. The jobs include routine jobs relating to clerical works for appointment, retirement, salary bills, leave records, keeping records of meeting, inviting tenders, purchase, stores, supply, keeping correspondence records, various types of registers, receiving and despatch, security and other essential services.. Persons should be in the library for accounts, budget, holding of cash, maintaining accounts for audit and other jobs. The posts may be designated as administrative offier, finance officer, superintendent, accounts officer, section officer, etc.

5.8 Job Analysis

Job is a piece of work or may be pieces of work to be done by an individual, which while finished, lead to a result and become a part or activity. A job is the smallest unit of a planned network of activities. It is assigned to a particular person be done within a stipulated time, Naturally, jobs should be carefully designed in order to get maximum organisational effectiveness. The library managment is responsible to identify the task which should be included in the job. Jobs are the integral parts of a single function, process or activity. Therefore, the principle of job design should be closely related to perform the particular function, process or activity.

There are certain jobs which are fixed and also certain jobs which are dynamic. Some jobs should be done as a routine matter and repetitively and some jobs are

performed by changed methods as required by the changing needs of the users as well as for use of technology in library activities. The management can get the idea and information regarding the tasks actually being done by an individual employee holding specific job only through the job analysis. In job analysis the assignment of responsibility is most important. Every individual with a particular job on task is responsible to the next higher rank supervising the work. Jobs are done by every individual as assigned to him. The results of jobs may be tangible and intangible. At the operational level the result may be tangible but in the management level the results are intangible. Everything can be assessed by the effects of the result. The performance of every job can be done by an individual having good education, professional expertise, technical skill and adequate experience. All these should be considered in job analysis.

While the jobs, tasks, works and activities are analysed, they provide very important indicators to assess the entire operational process in the library. Job analysis helps to understand the step by step procedure of each operation, time required for each job, professional skill and experience needed for each job and the workflow in the library. If there is any bottleneck, it can be identified, located and rectified. It also helps to understand and fix up the academic qualifications, professional training and expertise for creation of the posts and selection of the persons for appointment. It ensures performance ratings of the library personnel to use modern management techniques like time and motion study, programme evaluation and review teachniques (PERT) and operation research. Job description can be prepared by the analysis and staff mannuals can be prepared to make the employees know their jobs and responsibilities. This is essential for computer application in library particularly for the preparation of workflow chart.

5.9 Job Description

Job description should be a formal document in the library describing duties and responsibilities of the library personnel. The job description document establishes standards for accomplishing tasks, so it can serve as a performance evaluation tool. It also facilitates the job-audit process to evaluate the progress or regress of the library activities as a whole as well as it evauates personal performance of individual employees. Each job or work unit should be identified and determined and the job description should be written. It will specify the task and duties associated with

that particular job, relationship of the job with other jobs in the units of the library and personal qualities required to perform the job such as, educational qualifications, professional skills and experience. Specified job descriptions are very important for administration and personnal management. The management of the library may assess the prospective person for assignment. If required, proper orientation and training can be given to the person who has been newly appointed.

The job descriptions may vary from library to library considering the kind of the library, size of the library, number of users, nature of users services, total collection or holding in different physical formats, methods followed in technical processing, circulation per day, users services rendered in the library, infrastructural facilities and resources of the library. Generally the following items should be incorporated in the job description record :

1. The job title.

2. The purpose of the job and its relation to other jobs in the unit.

3. Job activities and procdedures including a description of the tasks to be performed and the time limit specified.

4. The duties and responsibilities of the incumbent with some flexibility, if required, The enumeration of tasks and procedures are very important part of the job description.

5. Title of the person to whom the incumbent will report after completion of the job or any problem relating to the job performance.

6. Salary scale of the incumbent.

7. Academic and professional qualifications required.

8. Experience or training required.

9. Promotion to next higher position.

10. Methods of performance rating.

Selection

The library is an organised environment created for the activities to be performed in an atmosphere of cooperation and dynamic interaction. the library personnel are relient upon each other for activities done by the individuals as well as activities performed for the organisation as a whole to achieve the goals of the library. Human relationship is an important factor in any organisation. All the organisations are short of resources at any point of time both for maintenance and developmental

work. Even if resources are there, all kinds of resources accumulated cannot be effective if human resource is not properly planned, designed, well-organised and motivated for the jobs to be performed and targets to be reached within the time schedule. The work situation in the library depends very much on the nature of the work to be performed, the procedures adopted, the policy framework performed, the procedures adopted, the policy framework chosen, principles agreed, structure of organisation determined, code of conduct followed and working environment motivated.

Therefore, the suitability of the individual in the particular library for the immediate post and for promotion thereafter as well as the attitude of the person to adjust with the work environment of the library is very important. In a library there is a number of personnel of various categories, which constitute the basic workforce. Selection of persons as new entrants in crucially important for basic reasons. First, the person has to perform some jobs and has to be assigned certain responsibilities for the time being and for the future in various capacities. Secondly, the person has to accept the work environment with all motivation and must have psychological attachment to the library, the sense of belonging, motivation and identity with the library can be beneficial both to the individual and the library. In selecting a new candidate to a vacant post, both task abilities and social abilities should be considered.

In selection of candidates for recruitment usually two kinds of requirements are considered. The essential on basic qualifications, usually academic qualifications, professional qualifications and working experience for some period. For a particular position all the applicants possess the essential qualifications. Therefore, more emphasis must be given on desirable qualifications which may be of various sorts according to the requirement of the particular library. The work environment, job description, expertise required, experience of performing some specific jobs, etc. may differ from library to library. The management of a library has to choose the particular person most suitable for the vacant position.

The key predictor of the candidate's ability to fit into the particular working environment, is the interview method, It is possible to examine the academic backgroud, knowledge of subjects, general awareness, professional skill, area of expertise, personality, aptitude, leadership, general understanding, intelligence, knowledge of modern technoloogical development, latest trends of profession within the country and abroad and other qualities. The interview board can also assess

263

personal relation style, motivation, attitude, mode of thinking, ability to adjust with change, awareness in technological advancement, sense of cooperation, capability to accept challenges and efficiency of the candidates.

There may be two kinds of posts in the library, the existing posts, now vacant for retirement or resignation, and the new posts created for specific job requirements. All the formalities must be completed for the creation of the new post before the publication of the advertisement asking applications for appointment. The advertisement should contain job specification, position and responsibilities, work environment and personality along with basic qualifications required. The new posts must be justified by workload and demand of the library. The librarian must consult the competent authority regarding scale of pay, position, job descriptions, essential and desirable qualifications. All the requirements should be reflected in the advertisement for appointment.

Selection of a candidate refers to the process of actually choosing the individual who will be capable to perform successfully in a job. The basic goal of selection is to achieve a good fit between the qualifications of the applicant and the requirement to the position. The successful matching of an applicant to a position is crucial because a wrong person will be a liability not only for himself but to the organisation as a whole for a long time. If the right person is not selected, the result will be :

1. Wastage of resources of the organisation.
2. Decreasing in the quality of service to users.
3. Wastage of man-hour and non-performace of jobs.
4. Reducing staff morale.
5. Wastage of time and energy of the supervision.
6. Activities of library not performed to the expectation.
7. Disruption of work environment.

The right person will be really the human resource. The person must have appropriate knowledge, professional skill, expertise and capability to perform the assignments from time to time. In addition to these, some characteristics are expected while in work situation. These are :

1. Ability to communicate to share ideas,
2. Commitment to organisation with a sense of belonging,
3. Sincerity in purpose and action to be responsible and dedicated to work,
4. Attitudde to grow and develop intellectually and organisationally.

5. Sense of cooperation to work with others having positive attitude to co-workers,
6. Creativity in thinking and activities to solve problems and to devise new solution,
7. Seriousness with desire to work hard to achieve the goals of the organisation.
8. Capability to accomplish the tasks assigned to and to adapt changes in the work environment,
9. Maturity having relevant experience to take right decisions, to face new situations and to explore new work environment.

5.10 Induction and Orientation

When the persons are appointed to the particular posts and they join, the most important job of the management is to make arrangement for induction and orientation. The newly appointed persons are not expected to perform the jobs with much efficiency. They must get acclimatized to new work environment of the library. The induction and orientation programmes make the newly appointed persons confident in their work, motivate them to serve in the best way, inspire them to be involved in participating attitude and create a sense of belonging to the library and the parent organisation. The induction and orientation programmes are meant for any person at any level while appointed to the new position.

The programmes should be designed to provide information in general about the library and the parent institution, the objectives, goals, functions and activities of the library. They should know the rules and regulations of the library and manner of working in the library. They should also know the organisational chart and hierarchical responsibilities and their specific roles in work situations. The programmes should include the library's activities, services rendered, past achievements, relationships with other libraries and plans and programmes for future developments, and the like. They should make a tour to the library to be introduced with other library personnel and to be acquainted with the library procedures.

Orientation programmes prepare the new employee a full and productive member of the organisation. Through orientation the employees get the focus to work environment and approach to job performance. They will be able to find and approach to job performance. They will be able to find how they fit into the total library structure. There is a difference between orientation and training. Training gives the employees such

instructions and makes them acquainted with such techniques which will enable them to perform and complete the specific tasks of their jobs according to job specification and job description.

The orientation process is very important for the newly appointd emplooyees for establishing and maintaining a positive and active attitude on the part of the employees. It is also important for making the employees enthusiastic to participate in all library activities and to accept the work environment as their own. The commitment of new employees to the organisation should be very high and they should be excited about coming to work. Orientation process inspire the employees to accept the challenge to work in various situations.

During the orientation process the new employees should get various printed materials, such as, staff manual indicating rules and regulations of the library, organisational chart, description of different divisions and sections, work schedules, interrelationship of the departments and a total picture of the library. Orientation programmes should be conducted by senior persons to impart knowledge about the objectives and goals of the library and the parent institution, work enviroment, activities, workflow, services rendered, assignments of the posts to which the persons are appointd and all relevant matters.

5.11 Exercise

1. What are the objectives of human resource management?
2. Discuss human resource development climate and its impact on library management.
3. What is the importance of human resource planning?
4. What is job analysis?
5. What is meant by induction and orientation?

5.12 Reading list

1. ALA : Staff development - a practical guide, 1992.
2. Jerris, Linda A. : Effective Employee Orientation, 1993.
3. Sullivan, M. Ed. : Developing Library Staff for the 21s century, 1992.
4. Ziglar, Zig : Top Performance, 1986.
5. Rubin, R. E. : Human Resource Management in Libraries - Theory and Practice, 1991.

Unit 6 ☐ Human Resource Strategy

Structure

6.1   Introduction

Information and Communication Technologies are reshaping the work environment, and the library personnel must have information management skills, not just technical training. In a computerised work place the activities and operations are identical and equally computer-dependent from top level management to juniormost subordinates. Therefore, changes need to occur in library work schedules and activities like typical corporate human resource organisation. Information technology is not just an area of and application of library and information services. The pervasive use of information technology and reliance upon it have become a part of all human activities.

From factory floor to research institutes unlimited communication and data transfer, information resources and their updatedness — in all spheres of activities the use of computers, database and telecommunication networks have become a way of life. Information transfer, storage, and their appropriate use have changed the activities of large corporate organisations to small business house top executives to smallest personal use. "Information worker" is not an academic label restricted to library and information field, it is a description, to varying degrees of the individuals in any life activity. Information is not a resource with tangible entity, but it is most essential resource for most of the human activities today.

In the information age the nature of the work is being transformed as the demands upon the workers, environmental change in workplace, and the quality of

the productivity. Information work and information workers are inherently mobile and their mobility is never limited to "job of the office". The prime concern of the management of any organisation is the complexity of proper recruiting, channelising the development of human resource, and continuing improvement expertise and skill in their specialised activities and operations.

The transformation of work culture from manual to electronic entails transformation of human resources in motivation, attitude to face challenges, new skills, effective expertise, aptitude for innovation and achieving results. It can be done by ensuring the availability of talented personnel. Usually the attention of library management and authority is drawn to senior management evaluation and succession planning including selection of top executives. The library authority should be serious to induct talented and result-oriented persons because they assume strategic importance in computerised work situations. The library authorities must make plans and take decisions for encouraging necessary transformation of human resource, and must induct new employees who can accept the challenge and transform the library and information services to the desired new height.

Successful activities, operations and service can be possible through perspective planning, designing organisational infrastructure and flowcharting of operational system, but the best result can be achieved when staffed with the right mix of people and their skills. The persons who are the right choice for such an environment, know their business and capability are not available easily, They have prepared themselves for intersting and important work to do. They like to stay happy being genuinely productive.

In modern human resource management policy the strategy is that human resource is really resource when they find the "line function". In line function every individual is considered to be the key person for the core activities to be performed, ensuring adequate supply of the most essential input to productive human capital. Thus, the human resource stratgegy is to change the role of individuals in an organisation.

Human resource management policy must emphasise on the human nature of the persons employed, not just personnel administration. The routine administrative tasks should be given to persons not essentially productive information scientists. In this way, human resource understanding will encourage human responses and will represent the human element to work. Thus, they will add extraordinary new value to the organisational work culture.

The information systems designers can develop new work patterns that are truely productive and that maximise the value of human talent. It has been experienced in so many situations that technological projects, in particular, most often fail for lack of far-reaching technological vision and for non-technological reasons. Traditional method of thinking and conventional way of administration cannot cope with the technological advancement. It needs deployment of human resource effectively to adopt technological practices that increase motivation and performance of the workforce. The line managers can use assistance in the human factors of work. The inefficiency of an organisation causes due to human factors, not much due to operational and financial reasons.

Human resource must concentrate on "deliverables, not doobles". It is not important what activities the people perform, but what results have been achieved and how the goals have been reached. Any organisation really need the human resource attitute - not just passive support function, but point of view on the critical issues of people, to push that point of view, and make results happen.

The human resource strategy leads to the transformation of human resource. the human resource managers must have the following attributes.

1. Leadership and courage.
2. Line experience to decide the performance strategy.
3. Knowledge in computer application, appropriate software application, information and communication technology.
4. Expertise in psychology, change of work culture and change of management techniques.
5. Knowledge of human resource management and strategy.
6. Personal credibility of human resource executive to play both the roles of collaborator and peer on the executive team.

The most vital issue of the technological workplace in an organisation is the necessary and inevitable convergence of people and technology management. The greatest challenges of human resource management strategy involve deploying and developing the workforce accommodating their technology-enabled patterns of work. The greatest challenges and crucial issues of information technology implementation

are the human issues. These involve creating productive person-machine combinations and motivating people to work and work together in the new ways enabled by new technological tools. The strategic importance of both human resource and information technology is at an all-time high. This strategic role leads to the ongoing challenge to keep pace with performance standard and to focus every service activity on delivering appropriate results.

Human resource management strategy and information technology together with human capability can create the ideal and most effective service fabric that the end-users demand. These can act as real change agents for developing more crucial and productive work processes, most robust inter-organisational working relationships, and ultimately the network of development.

6.2 Information Technolgy Workforce

Human resource managers responsible for recuriting information technology personnel increasingly must become trained with the functions and operations of the myriad job titles now in vogue. Some of them are given below. Persons required for :

Database generation and inward transfers, Database management,
Information systems operators or analysts,
Interactive media specialist,
Programmers and analyst,
Software engineers,
Hardware maintenance operators,
Software developer,
Software support expert,
Technical support personnel,
Network specialists.

All these persons cannot be hired for all the time. Therefore, library emloyees must be trained as far as practicable. Human resource managers should play a vital role in the training programmes, but usually training programmes, in-service training and orientation to newly introduced technology and services are not in their job descriptions. Therefore, they are focused on recruitment of new employees and not on building a new workforce.

There is also a need to improve the quality of information technology education and training. Those who get short courses and periodic exposure to fragmentary computer and information technology courses or refrersher courses are not competent to work as information technology workforce because of their fragmentary knowledge, incomplete training and lack of skill in technological environment. There is an ever-expanding distance between the information centres require the actual work situatioln. Library and information centres require the persons who are properly qualified with intensive education and proven skill to fit to their needs but the persons already employed are often ill-suited to deal with state - of - the - art technolgy, which continues to advance while students are still learning about yesterday's technology.

6.3 Strategic Planning

In the present library environment the librarians must act proactively and creatively to develop effective future of the library through the strategic planning of the human resource. The principles, processes and mind set of strategic planning is a productive endeavour for all typs of libraries and information centres. The library management should think strategically and should plan formal stragtegic planning efforts for the library.

Strategic planning is an active, ongoing process and way of thinking that concentrates human resource in areas that are most productive. It is a tool of leadership that can build consensus among all the persons in the library and promote the proper understanding and commitment to the goals of the library. It must also be consistent with the mission and goals of the parent organisation. The future of the library should be anticipated and the human resource strategies should actively meet the future. The strategies require continuous review and updating. The most important aspect of strategic human resource planning should be embedded in library planning, operations and the library culture.

Organisational designs can be used to encourage the development of creative structures. Organic structures, in contrast to hierarchical structures, allow for adaptation to planned change. These designs may be the use of task forces, small working groups, temporary work groups for specific activities. These are all flexible structures that operate for adoptation to change. These groups can respond to a

crisis, experiments with various projects, identity problems, propose solutions more quickly and efficiently than conventional hierarchical set up. The activities of these types of groups can encourage enterpreneurship in the organisition and can faster creativity avoiding bureaucratic constraints on the process of change. The library personnel, thus, can be transformed into human resource for designing and implementing new concepts.

The essential factor is the coordination of activities in its totality by the working groups created for implementing particular purpose. Leaders of the groups need to look for ways to encourage the development of spontaneous processes that can cope with unanticipated changes in the environment. The critical steps to improved performance in organisations are the empowerment of library personnel and their meaningful involvement at all levels of the library. The success depends on the relationship between the manager or leader and the staff members. This can create the future service design and its implementation to achieve the goals of the organisation through the best performance of its human resource. The human resource, as a whole, assumes their responsibility for their performance by developing their full potential being committed to excellence. The library personnel must have greater involvement, in the problem solving and decision making activities, self-responsibility for development to achieve the desired excellence.

The shared leadership of library personnel is recognised as an evolutionry process and the management leaders require careful attention to the developmental levels of the library personnel. The members of the staff are outwardly seen as different individuals that they are but they are at varying levels of development to be qualified as appropriate human resource. The management leader helps each person to perform at their current level of development as well as continuing to develop their skill and effectiveness. While the staff develop, management leaders gradually share more responsibility. As the new skills are learned and new technologies are operational in the library, greater independence of operational activities is encouraged and more reponsibilities are delegated.

Problem-solving should be made through the new aproach. Problems are seen as opportunities for the staff and the management leaders alike to learn and to develop their skills and capabilities. The increased complexity in the work and the systems designed for the accomplishment of this work have created new problems, many of which are quite complex. The leader recognises that problem-solving is

both a technical process and one that furthers the development of those who participate. When things go wrong or failures occur, the leader analyses the situation and makes attempts to understand the reasons. This is done for the purpose of learnng, and continuing learning discovers the ways of problem solving.

The management leader should empower the library personnel by encouraging self-responsibility and shared responsibility by giving work assignments. When the specific responsibilities are delegated, performance exdpectations should be clearly stated and set by the supervisor and the staff mutually. The library personnel should know and understand the standards for competence levels of performance. Every person should be encouraged to assess their own performance on an on-going basis and to take corrective actions as necessary. When they are not able to take such actions, the management can help them. They should be encouraged to take decision when they are able to take. Such empowerment represents a shift away from a dependent relationship to one of interdependence.

The delegation of responsibilities should be based on a careful assessment of the person's skills and capabilities for performing the work. When responsibilities change the supervision should monitor the person's ability to perform new tasks, performance problems should be addressed as soon as they occur. The supervisors should understand the performance problems, should encourage the staff to solve the problem and should provide support and guidance wherever needed.

The effective management leader is a skilled communicator by following a variety of methods for formal and informal sources. He should regularly interact with all the persons by sharing information as well as receiving it. Any major decision or any change of workflow should be announced well before they are implemented, and ideas and staff reactions should be encouraged. The new leadership paradigm requires different organisational structures that are flexible and open to change. The library personnel require appropriate work environment, timely decisions and effective performance to achieve the goals of the library. Decision-making at the lower levels suggests fewer management levels, increased participation in problem solving and decision-making by groups or teams with participation and shared responsibility.

The work group can work in specific areas as self-managing teams in effective structure of increasing human resource commitment to quality performance. Clearly recorded and meaningful performance goals, keeping good standards in activities

273

18

successful individual performance, highly motivated human resource and planning for future imporvement and development are the most crucial factors for making human resource management strategy.

Honest, open and clear communication on the part of both supervisors and subordinates at all the management levels is critical for proper and accurate assessment of performance and deployment of human resource. The library management must be "high-involvement" management group.

6.4 Performance Evaluation

Performance evaluation of the library personnel is an ongoing and continuing activity. This must be done for all the employees of the library at all levels on the basis of the individual's performance. It must be done as formal review through continuous monitoring in the light of objectives and goals of the library. Proper performance evaluation guides the accomplishment of goals by improving communication as well as understanding among the people working in the library. It also supports a positive work environment through improvement in the activities. As performance evaluation and review are ongoing activities for all the persons at respective levels, everyone will have a clear understanding of he responsibilities, objectives, goals and job standards. All the persons will have the knowledge of how their tasks support overall activities of the library.

Such evaluation signifies the evaluation of tasks assigned to a particular person, assessment of the jobs done, personal capability to work with efficiency, cooperation with coworkers in a particular work environment and successful completion of work within a period of time set aside by the supervisor. The statement of evaluation is an official record prepared day to day and compiled weekly, monthly and finally annually with comments of the supervisor.

Performance evaluation is a continuing process in management fucntions. Such evaluation report contains vital information to improve and sustain library activities on the basis of both personal performance and group performance. Various activities of the library are directly influenced by the performance evaluation. It is the predictive information by which the activities, operations and strategies of the library can be redesigned.

274

It can also support in assessing future personnel requirements and the concomitant skills required to support the library activities. Performance of activities depends on the right person with the right task in the right situation having right environment. Performance evaluations of all the employees of the library reveal the human resource employed and the library activities in totality. Library budget can be prepared considering the human resource and the library services. Creation of new posts, promotions, on the job training and reallocation of jobs can be indicated in budget proposals. The purpose of performance evaluation may be stated as follows :

1. The individuals can understand the level of performance required to meet the job requirements and they know what types of performance are considered satisfactory.
2. They are informed about the quality of work currently being performed by them as well as the attitude of the management regarding their work. They can also understand whether the jobs done meet the standards that have been set.
3. The employees can identify the areas of activities that need improvement and such improvements lead to efficiency.
4. The evaluation reports become important communication channels between an employee and the supervisor. Many problems can be solved and constraints may be overcome by formal and informal discussion.
5. The management can identify outstanding performance and also can identify the areas of defficiency.
6. The good performers can be rewarded and this can be incentives to good performers. The performance reports may be considered at the time of promotion, job distribution and new assignments. It will strengthen the motivation of bad performers.
7. Performance evaluation only evaluates the task performance of individuals, it identifies deficiencies of the organisation as a whole.

If the objectives and goals are not properly defined to the library personnel, planning cannot made to achieve the goals of the organisation, infrastructural facilities are not adequately offered, manpower planning is not well-thought, workflow is not properly designed, the capability of the individual employees cannot ensure running the organisation efficiently. Performance evaluation reveals the deficiencies of the management also.

6.5 Performance Evaluation System

Performance evaluation system must have certain prerequisities which are the key elements of the evaluation system. To make the system most effective and result - oriented, the tasks of the individuals under evaluation system and the standards used in evaluation must be clearly defined. Both the employee and the supervisor must understand the tasks and the evaluation standards. The key elements are stated below :

1. The library must have performance evaluation policies and procedures approved by both library committee and library authority to make the evaluation system consistent, uniform and fairly conducted. The policy statement must be printed and made available to all the employees. It must contain the position of the supervisor who will conduct the evaluation process and what are the criteria of the evaluation. The procedures must be available to both the supervisors and the employees. Both the parties should ensure that the evaluation process is conducted consistently, uniformly and completely. Such recorded evaluation policies and procedures can be used as guidelines for training evaluators.

2. The library must have written job descriptions. The term job descriptions includes all aspects of the jobs of individuals to be performed, tasks to be performed abilities, skill and knowledge needed for the jobs expected from the employees. The job descriptions consist of the basic tasks to all the tasks entrusted to a person, to all the jobs assigned to an individual either to be performed individually or sharing one's role with other employees as required in the library. Job description depends on the job analysis. It is the process by which the tasks and activities of each job are identified.

3. The library must have performance evaluation forms in standard format to assure consistency. These forms must be distributed among all the library staffs without considering the designations. The forms should include all the required and relevant items for performance evaluation of the individuals with clear instructions as needed.

6.6 Exercise

1. What are the attributes and functions of the human resource managers?
2. Discuss the strategic planning of the workforce.
3. State the salient features of the resource management strategy.
4. What is performance evaluation?
5. Define "line function".

6.7 Reading List

1. Sullivan, M. ed. : Developing Library Staff for the 21st century, 1992.
2. Marshall, D. R. : The Four Elements of Successful Management, 1998.
3. Jerris, Linda A. : Effective Employee Orientation, 1993.
4. Rubin, R. E. : Human Resource Management in Libraries - Theory and Practice, 1991.
5. Giesecke, Joan : Practical Help for New Supervisors, 1992.

277

MODULE - 4

Unit 7 ☐ Collection Management

Structure

7.1   Introduction

Several terms have been used to denote acquiring books in the library holding during past few decades. These are book selection, library acquisition, building the collection and collection development. The meaning, definition and scope of the topics and activities indicated in these terms and similar to some extent, but not actually identical. All these terms have been used to describe the processes of building the collection or library holding in a library folowing certain principles and to add library materials to the existing holding of the library annually or periodically. But there has been a metamorphosis in the terminology and collection development has replaced the other terms in general. During the period there was more concern with the larger definition of the term collection which was not limited to books and periodicals only. A wide range of other physical formats was required to be included in the term collection. Another situation compelled the librarians, who had to justify the expenditure for acquisition of library materials, to formulate collection development policy not only for limitation of financial resources but other resources also. The activity of purchasing the materials was related to weeding out and relegation of materials. The whole process includes identification of objectives and goals of the library, planning the selection and weeding out policies, pattern of growth of collection, allotment of funds, evaluation of collection and criteria for collection development.

Because of the limitation of resources, fund, personnel and accommodation, it has been felt that the growth cannot be infinite. Collection maintenance has become a part of the collection development and has a role in collection development policies. Emphasis has been given on better collection, not just a big collection. Better, effective and efficient collection development requires management of all types of resources with short-range and long-range planning, provision of adequate infrastructural facilities, proper implementation of collection development policies and use of collection development techniques and procedures. A part of library management has to be used in collection development activities. Thus, the term collection management appeared to signify the management part of the collection development associated with it.

Collection development and collection management —These two terms have been used almost synonymously and as interchangeable with different implications and associations. The scope and treatment of the subject areas signified by these two terms are somewhat different in concept and the features are distinctive. Collection development indicates the selection and acquisition of library materials for developing the holding of the library within the framework of collection developmnt policies considering the various aspects of the existing holding according to the needs and requirements of the users, both present and future. Collection management implies these areas, but with the addition of allocation of financial resources, readjustment of storage areas for various types of library materials having different physical formats separately, maintenance of library collection, application of conservation methods as and when necessary, keeping the balance among various types of materials, keeping coordination with other departments like processing, reference, circulation, etc. using performance measurement and performance indicators, as well as monitoring for best utilisation of various types of materials with different physical formats. Collection management emphasises not only the development of collection but the presentation of collection to users also. Such activities necessitate deployment of staff and other resources in different ways and in different times when the situations demand.

The nature of the collection management is concerned with acquisition of materials for collection development as well as with all library activities designed to make the materials available to the users. There are various categories of users with differing needs and requirements at different times. The librarian and his staff

are responsible for the collection management and they must be aware of these needs so that the policy and principles and their implementation can be designed and modified accordingly. Collection management functions keep no barrier between technical services and users service. The term library management has established its identity with the connotation different from that of collection development.

Therefore, the concept of collection management signifies the theoretical aspects of collection building as well as the managerial aspects of the use of collection, storage, organisiation, circulation, information service, resource allocation, access to information and documents and other related matters. The area of collection management activities is wider than the activities related to collection development.

7.1.1 Utilisation of financial resource

The financial resources are shrinking each year in the libraries for a number of reasons. On the other hand, documents are increasing in astronomical progression in each year in various physical formats, and the same documents are now available in different physical packages. This scenario has caused a bewildering situation in the libraries, and the libraries are confronting the problems of financial management. Although in the financial terms cost-effectiveness is a factor for utilisation of fund, in a library situation such factor cannot be the only criterion. A library has to achieve the long-term goals which are in the core activities of the library management.

Library collection, with all their characteristics, are preserved in the libraries as the cultural heritage and the gamut of human wisdom. The active part of the library serves the immediate needs and requirements of the users and this part can be replaced by the new acquisitions of similar nature but the storage part of the library has to be preserved for the present and future generations. The intellectual contribution of our ancestors recorded for thousands of years are still relevant and will be relevant in future because the human knowledge is cumulative and each stage of progress and advancement of knowledge is based on the past knowledge of the same area.

The user community, in generations has to be served by the library and for this reason the library must gather the resources for the collection of right materials. The fiscal requirements at any point of time and the demands of documents by the users at all the times cannot be matched easily. It is very difficult for librarians to choose the best materials for their users depending on the financial support which is ever

declining. The situations become very sensitive for the librarians when the number of users is growing, the needs and requirements are ever-increasing, but the library budgets are declining in real fiscal terms. The librarians have to struggle to find a balance between immediate needs and long-term requirements. No library budget is adequate enough to meet all the needs and requirements for the present and also for the future. The librarians require budgetory skills for utilisation of financial resources to get the best out of it. This is an important part of collection management.

For financial resources the librarian has to depend on the parent institution and that instituation has to depend on the government or other bigger agency. In such hierarchical order adequate financial resources, however justified that may be for the library, may not be available to the librarian, but the librarian is responsible to the parent institution. The first victim becomes the library, and in case of financial crunch in the library, the acquisition division becomes the first victim. When the objectives are set and the process of collection development is going on the basis of anticipated fund, there may be a situation that the fund many be available less than expected. Sometimes funds are released at the end of the financial year and the librarian is not able to revise the planning in a short period.

Another situation has been created in the library for the current trends in the library use. The librarian's job is building the collection and to hold the collection for the users who require the documents. The current trend is that the documents are not always required by the users and they require access to information. The librarian has to provide such access to information which may not be holding-oriented and the librarian has to purchase such information from other sources. The other sources are th online computerised databases or CD-ROM databases available commercially. It has tremendous impact over collection development programmes. It not only affect the financial management but the library management as a whole.

7.2 Accommodating the Collection

The document or information cannot be communicated as long as it is in store. It must be retrieved but retrieval is dependent on the size of the store. The larger the library, the bigger the problem of retrieval of documents. The problem of retrieval is in fact, directly proportionate to the size and complexity of the storage.

The library materials are to be taken out manually and to be replaced in the same way. The design of the store has to follow simple anthropometric rules, which mean books must be within reach and the aisles must be wide enough for the persons who work there. The critical vertical dimension is that the topmost shelf must not be higher than 6'4" from the floor, because it is to be reached by persons with average height. This makes it possible to place six shelves evenly spaced below this height.

The number of books that can be stored on shelves, the run of shelving will depend on the thickness of books. Usually, fictions require 8 volumes, history, literature and art 7 volumes, bound volume of periodicals 5 volumes, science and technology 6 volumes per linear foot on an average. Shelving is usually manufactured in 3' long sections. The capacity of such sections with the shelves in vertical position can accommodate 100-125 volumes depending on the thickness of volumes. In a double-faced shelf range the number of volumes will be 200-250. the length of shelf range as a single unit will be the multipliction of 3' horizontal shelf units.

The critical horizontal dimension is that of the space between two sets of shelves facing each other across an aisle. This passage way has to allow at least for a person to walk down it and for a book trolley to clear the shelving on either side. As the number of of people using any one aisle at the same time increases, so the width of that space has to increase so that people can pass each other. the aisle space should be of 3' width as standard space calculation. The width of the shelving itself is related to average book depth. If the same criteria are to be accepted as for book height, shelves should be 9" deep for a double-faced shelving for both the sides i.e. 18" width for a shelf-range. It will be able to cope with 90% of the holding of the library. If there is to be effective use of the floor space, it is important that the relationship is established in such a way that the columns fall within the band width of a shelf range. There should be scope of flexibility to accommodate more materials in future.

In case of ordinary shelving, the storage capacity will not be affected by the choice of book shelving. The decision can be made on grounds of adaptability, cost and appearance, Steel shelving has the advantages on adaptability, cost and space saving. At present bracket is most frequently used type of library shelving. It gives the best combination now available of satisfactory performance with

reasonable installation costs. It allows air circulation and moisture control with the shelves.

The librarians face the problems of storage accommodation for books and bound volumes of journals. By weeding out and relegation a small part of the shelving accommodation can be saved, but the collection development programmes for years and decades will increase the number of volumes in the library both for books and bound volumes of journals. Storage capacity of a library is always limited and at times the librarian will face the problem of accommodation which is very much related to collection development activities. Therefore, the management of accommodation is associated with collection development. Increasing the book stack capacity is a method of space management. The total library holding should be divided in two parts, the major part is the active collection which will be used daily by the users for reading, referene and lending. The minor part of the collection should be the storage part which will not be used frequently and will be used by a small number of users. Rare books, out of print books and books not to be circulated for some reasons should be kept in the storage part, when the books will be required by the selected users, these may come out of the stack rooms.

The storage part of the collection can be shelved in compact shelving, the term used to mean a method by which more books can be shelved in less space in comparison to storage of active collection. This can be done by using compact methods of storage by having sliding stacks which are moved sideways on rails in order to make a particular run of shelf accessible. As the number of people using the stacks is very much smaller and they know their way about, narrower aisks can be planned because they are the stack maintenance staff. Compact shelving would increase a maximum 85% of storage space in comparison to ordinary storage.

The surveys undertaken by experts have indicated that a collection may expand from 50% to 85% of full capacity in approximately 13 years if growth is at a compund rate of 4% and under 5 years if at a compound rate of 10%. At the planning stage all book shelving should be calculated on the assumption that at the opening of the library at most only half its capacity will be filled. This allows for the first increase of books during a number of years until 75% to 80% capacity is reached. Shelves should not be fuller than this, if books are not to be damaged and if they are to be easily handled. Thereafter, the amount of shelving will have to be increased.

The accommodation of documents becomes, thus, an increasingly acute problem. This has almost frightening implications on the degree of flexibility needed in planning and the amount of space to be allocated at the outset for expansion. It should be remembered in planning the library building to select a site which must have enough space around the proposed building. The kind of increase which occurs in libraries also poses problems of magnitude, normely that on increase in size may not only be a simple quantitative enlargement but may also demand changes in institution which are likely to alter the anatomy of the building. Both the institution and the library will grow in future. The goals of the library and the parent institution and the changes in activities may require reallocation of building space.

Compact shelving is made up of closely packed shelves where a complete range of several sections can be slid aside to open up an access aisle. Such stacks are supported by rails on the floor and can be moved aside either manually or mechanically, In a well-supported system comparatively little effort is needed to slide a range laterally. Despite the very great increase in storage capacity of such a compact system, it is suitable only when the chance of a demand at the same time for books in nearby stocks is small. The system is, therefore, most useful in large closed decess libraries, for little-used research materials, rare books, reserve collections and similar situations, where the materials are being retrieved by the trained stack room staff.

7.3 Personnel

The collection development unit should be constituted with academically sound and professionally qualified persons. They should have awareness of and acquaintance with the publication world, recent trends in international publication, specialization areas of the publications, recent publications, information of forthcoming publications, books in print available in the market, foreign books shortly available, books available in pre-publication rate and reprints of scholarly publications. They must have knowledge about broad spectrum of subject areas in which the library is specialised. They should have the expertise to make a preliminary screening of the books and to suggest the books to acquire. The current awareness about the book reviews, trade lists, forthcoming publications,

foreign books recently arrived in book market and comprehensive information for collection development. Such active efforts will be rewarding.

They must have good rapport with the publishers, book sellers, journal subscription agents and other persons in book market. They should also keep information about the old books, rare books, personal valuable libraries for sale, vendors of old books and any other source to avail books for the library. These types of books are not available in the market. The research publications of the universities, learned bodies, research institutes, scientific laboratories, government departments and valuable publications of professional organisations are not available in the market. Therefore, correspondence should be made with such organisations.

The collection development personnel must maintain constant communication with the users services staff like reference librarians, circulation staff, stack maintenance staff, users guide and such other persons to know the current trends of users' approach to library materials. They should have personal contacts with various categories of users to know their specific and changing needs and requirements. They should make the users aware about the availability of documents which they know as well as which they do not know. They should collect statistical reports from various departments associated with users services. These will help them to make quantitative anlysis.

Collection development activities should be divided into job descriptions and jobs should be assigned to individuals independently or to a small group. They will report to the immediate seperiors. At the next higher administrative level the reports will be assessed and evaluated. At every stage the assigned jobs and the performances are to be mentioned and guidance should be given to the concerned persons. When all the results will be coordinated, the outcome will be finally evaluated.

All the activities of the collection development programmes should be performed through team approach. The personnel management in collection development unit may be a problem because of the subject bias, attitude for subjective evaluation, lack of motivation, evaluation of individual titles, lack of awarenes and knowledge for the jobs asssigned, and such other factors. The management of the programme is to determine priorities and targets for the whole collection management team. These should not be assigned to individuals with independent and differing assessment of activities. The activities of collection development are becoming pervasive. The activities are based on planning and policy development,

implementation of principles and policy, collection evaluation, selection of various types of materials in different physical formats, collection maintenance, fund management, liason with users, appraisal of final outcome and resource sharing. Personnel management has its impact over collection development.

The exponential growth of publications, enormous number of documents even on specific subject areas and financial limitations have made a situation that individual libraries cannot serve its users will all the information and documents they require. Therefore, is has been imperative to explore the possibilities for cooperative acquisition and access to databases of more than one libraries. The librarians can assume that some items, considered not much essential in their libraries, can be available in other libraries and there can be mutual exchange of documents required by an user but not acquired in his library. Thus, the cost of acquisitions of not-so-required materials in a particular library can be saved to ease the financial crunch. Resource sharing can also be made for subject specialisation. The collection development cost can be minimised for subject specialisation. The collection development cost saved in this way may be utilised to colllect core and essential materials for the users of a particular library.

If resource sharing is practised, there should be an agreement among the libraries in the system leading to cooperation and resource sharing. The methods of collective resource development, mechanism of document transfer, sharing of expenditure incurred for administrative cost, principles and procedures of resource sharing, and such other related matters must be incorporated in the collection development policy of every participating library. The management of resource sharing is an integral part of the collection development activities.

7.4 Collection Maintenance

Collection maintenance has no apparent relationship with collection development in the limited sense, while collection development means selection and acquisition of library materials by which the library holdings become larger. Collection maintenace is not under the acquisition department and the maintenance activities fall under the library administration responsible for shelf rectification, stock verification, preventive measures of concervation jobs and checkeing up physical condition of the books and other materials. The value of a library is

known by the total existing holding of the library materials it keeps for the users at any point of time. The stack rooms are the real home of the books where they are arranged and kept for use of the present and future users. Some books may be weeded out or discarded from time to time when not in use, but the total book stock is there so long the library exists. This holding is not a static one, it grows and develops continuously. The collection development unit is responsible for such growth and development. The holding is there after performance of the activities of the collection development unit.

The maintenance department supports the collection development programme in two ways, although it is not an integral part of the acquisition department. First, the books are arranged in proper locations, books are physically verified, stock taking is made, constant vigilance is held so that misplaced books can be placed in proper order and arrangement and, thus, a clear picture of the holding is revealed. Therefore, the collection development unit can assess the existing book stock and can suggest required additional materials to be included in the holding from time to time. Secondly, the books are kept in the stack rooms for a long time and because of the environmental condition, adverse internal and external factors as well as enemies of the documents, the books are physically damaged. Books may also be physically damaged for frequent handling by the users. The maintenance department can suggest the weeding out of the books from the holding for those which cannot be used physically. It can also suggest replacement for books lost or books damaged physically but useful in the library. Books requiring binding and books requiring restoration and lamination can be suggested by maintenance department. Therefore, three groups of books are identified, which support the collection development activities. These are (1) books to be weeded out and discarded, (2) books to be relegated to storage part and not to be in the active collection or circulation and (3) books to be strengthened physically essential for the holding, either in active collection or in storage part.

With all these activities the maintenance department saves storage space by weeding out and makes rooms for newly acquisitioned books. It identifies the books to be kept and not to be pruchased. The clear picture of the holding helps the collection development unit to design collection development policy and principles. All the activities support the collection developent activities. The

collection development unit cannot stand and operate independently, it must be a part of collection management.

7.5 Exercise

1. What is collection management? How it differs from collection development?
2. Discuss the methods of accommodating the ever-increasing collection in a library.
3. What should be the qualifications of staff associated with collection development activities.
4. What is compact shelving?
5. State the importance of principles and policies for collection development programmes.

7.6 Reading List

1. Futas, E. : Collection Development Policies and Procedures, 1995.
2. Gilbert, J. A. and Wright, J. W. : Non-book Materials : Their bibliographic control, 1971.
3. Jenkins, Clare and Morley, Mary : Collection Management in Academic Libraries, 1996.
4. Martin, Murray S. : Collection Development and Finance, 1995.
5. American Library Association : Guide to Review of Library Collections : Preservation, Storage and Withdrawals, 1991.

Unit 8 ❑ Management of Information Resources

Structure

8.1   Introduction

Libraries are basically repositories of human knowlege in various physical formats through different media. Because of the exponential growth of knowledge the knowledge and information sources have become proliferated enormously in print as well as nonprint media. The technological innovations have great contribution for generation, storage, retrieval and dissemination of information for global access. The information and communication technology made it possible. Proliferation of primary documents, increasing specialisation in all branches of knowledge, interdisciplinary specialisation in all branches of knowledge, interdisciplinary and multi-disciplinary information search, quick access to inormation sources necessitate organised access to information sources necessitate organised information and databases constantly updated.

Each library has two broad area of activities, the collection of library materials and their maintenance under the category of collection management and organisation of library collection for the use of the users under the category of library materials in the desired and required physical formats. The second category related to management activities excluding collection management. Computer application in libraries primarily begins with the second category of activities, and then, it extends to the first category of library activities.

There are three situations in the libraries as management is concerned. The first situation is the conventional library management where the library collection

289

is the hard copy materials in any physical format and the technical operations are done with the help of paper and paper-like materials which are also hardcopy objects. The second situation is the automated library system where the collection management is done with hardcopy materials in any physical format, but the management activities and technical operations are performed with computer application which involves electronic media. In this situation installation of computer system is essential, and if possible, netwroking should be an integral part of the system. The third situation is the electronic library where the library collection is held in electronic media and the management of library operations is also in electronic media. There is no place of hardcopy documents or records in electronic library in the true sense of the term. The three library situations may be transformed in three stages of operational change. Th conventional library changed to automated library and, then again, a change to electronic library with total technological support with appropriate computer systems, dedicated software and protocols as well as networking infrastructure.

The electronic library is the development of automated library when it is fully operational. The electronic library is coming into existence because the 'reading materials' are more and more available in machine readable form directly without any kind of hard copy format. As and when required the users must have access to such electronic databases and 'texts'. The concept of total electronic library may be far from reality or may be feasible in distant future, but a part of the automated library should be electronic because the 'materials' or 'documents' are available in full electronic form. Print-on-paper and other physical formats are unlikely to disappear for their importance and necessity as library materials embodying particular types of documents. Therefore, electronic databases containing electronic texts should be an integral part of the automated library. The benefits of electronic media are that the electronic databases can be used from any distance across the geographical barriers, and any number of users can use the same databases at the same time and formatting and reformatting of databases are possible by the librarians as well as the end-users.

In the electronic environment online products as organised databases on various subject fields updated immediately are very important tools for information storage and service. These are kept in computer random access memory available in any

place of the world. These are accessed to through communication network owned by external agencies at local, regional, national and international level. The role of the librarian is information providers and facilitators. The databases are usually supplements, rather than substitutes for printed versions. The librarian acts as intermediary to provide access to databases. The users, now known as end-users, get access to databases through computer terminals. The electronic publishing at any organisation is available to any library and any end-user. The position of librarian is both active consumer of information as well as information provider.

Online search to remote databases has the facility to have access to resources kept outside the library. It is not a tangible container to hold in house databases or information sources. The container for in-house storage of data is disk. It is a storage device. Consisting one or more flat circular plates coated on both sides with magnetisable material. There is a range of types of disk and this includes 'floppy' disks and 'hard' disks or winchester disks. The device is with ramdom access memory for storage and retrieval of information of any amount of data. The device is most convenient also for random access record and retrieval.

As container of electronic databases the compact disk technology was a break through innovation. CD-ROM (Compact Disk - Read Only Memory) technology was innovated as information container in mid-eighties. The standards for CD-ROM were established in 1983. Primarily CD-ROM information products have two advantages, first, they can hold enormous quantities of information in the small laser disk, and secondly, the storage device is non-volatile. The data are electronically 'printed' or 'written' on the disk which are of permanent nature. But the device has one disadvantage that the data can only be 'read' because of its 'printed' nature and this is not of random access memeory (RAM) nature. The device has become highly popular and rather inexpensive in comparison to online database search. The library can hold it either by purchase or by taking lease and this storage medium can physically be used at the library premises. Initially the use of CD-ROM device is inexpensive at the time of Installation. It requires a computer system, with CD-ROM drive and the requred CD-ROM disks as the data storage media. Data search and access to information are instantaneous like online search and the compact disks contain a large quantum of data which any other electronic container cannot store.

CD-ROM databases may be good stustitute for print documents and online search of databases, whether as information resources or full text documents. The existing CD-ROM products on library and information services have a large share in CD-ROM market. Many commercial organisations are now preparing and vending CD-ROM products both as infromation resources and substitute of CD-ROM Database printed documents.

The warehousing of very large data storage and retrival techniques is made by microelectronic technologies. Advances in optical storage technology have made phenomenal increase in the capabilities of 50 Gigabytes and more are likely to be available in the market soon with the Digital Versatile Disks (DVD) coming up and the blue lasers replacing infra red lasers. The optical storage is the most potential data warehouse medium for the networked information world. Current data warehousing software efforts are directed towards corporate data resource which needs to be managed effectively to maintain leadership in a competitive world.

There are different ways to search in a CD-ROM database. In most cases the databases are searched in a dialogue mode by using a retrieval language created by the producer of databases. With this mehod every CD-ROM database would have its own retrieval language for searching. For those users searching in different databases it may be a bit difficult, since they would have to switch from the command language to the other. Another search system is hypertext system to search information on a CD-ROM. Hyper systems are particularly appropriate for heavily cross-referenced materials. Reference buttoms may be inserted automatically to highlight cross-references to other materials within same document, particularly in case of a full-text database or to highlight references to other documents. If such material is available on the CD-ROM system, then the user may, by selecting a highlighted reference, automatically enlarge the material that is currently on the screen, with the referenced documents. Another easier way is to search in the database with a menu-driven user interface. Most of the CD-ROM databases are searchable in this method. Now the search has become easy and user-friendly.

Every CD-ROM database producer and publisher has developed flexible and powerful software products for searching databases on CD-ROM. Database-specific Guides are also available which give details such as field names for each database

and a Tutorial. The Tutorial is a detailed explanation of how to use the information retrieval system for CD-ROM searching for first-time users.

There is a large number of big corporate bodies having well-organised updated databases covering specialised branches of human knowledge both for online search and CD-ROM products. Libraries and information centres can get the services of both types of products if interconnected to global network. CD-ROM products are very useful and sometimes as good as online search as these are updated very frequently and in many cases datanases for online search and CD-ROM search are almost identical. There are some information producers deling with CD-ROM products and services only. Both bibliographic and non-bibliographic databases are available in CD-ROM. Several CD-ROM producers and their products are given below, which are information resources and services in libraries as well as information centres.

8.2   K R Information On Disk

K R Information On Disk , formerly known as DIALOG On Disk is responsible for CD-ROM products and services of the corporate house of Knight-Rider Information, Inc. USA. It is a collection of databases on CD-ROM including key resources in the areas of science and technoloogy, humanities, social sciences, education, health and biomedicine, law and government, finance and business, as well as full-text newspapers. K. R. Information OnDisk databases feature search software that can be used by both novice and professional information searchers.

The K. R. Information On Disk collection of CD-ROM products is based on popular and useful DIALOG databases. Each disk holds the equivalent of over 275000 pages of information. These products are easy to use and have two ways of search : An easy menu mode for novice searchers and the regular command language access for experienced searchers. Whenever needed the searcher can go online to K. R. Information online for the most current and comprehensive information on the subject required. But CD-ROM searching is unlimited at an affordable price. K. R. Information On Disk offers unlimited searching at fixed, yearly rates. A variety of K. R. Information On Disk yearly lease options can be selected for particular needs.

A wide and complete range of databases with continuing updating on various specialised subject areas is available with Ondisk CD-ROM products. These are based on specialised databases of DIALOG. The information is always available at a fixed cost, so more people can share it and more people can gain access to the power of information. These CD-ROM products come on one or more disks with retrieval software, documentation, and user-support. While updated and current information is available, update disks are sent to the customer. As the family of discs grows, databases will be available in a consistent format. CD-ROM information can be searched much more often at no extra cost.

K R Information On Disk encompasses all the contents offered by DIALOG, Datastar, and K R Information OnDisk to provide the integrated information solutions with in-depth collection of contents, conprehensive and updated. A new Product range K R ProBase was designed to be used by information professionals. It offers information professionals all the sophisticated functionality of the Datastar system as well as all the databases with an easy to use, full-colour Windows-based application. K R Source One provides engineering documents as worldwide document delivery provider. To make CD-ROM searching easier and faster, two bigest and most popular databases, Ei Compendex Plus and MEDLINE are now available in 'site enhanced' versions that allow to search across multiple disks as if they were one.

In the areas of enviornmental sciences and pollution control, K R Information OnDisk products have comprehensive updated databases. Ei Energy and Environment Disk and Ei ChemDisk are two engineering subsets of Ei Compendex Plus. The wealth of critical information and international databases is accessible through these CD-ROM sets. These products record the experiments and activities of different countries. More than 70000 articles are added annually to these CD-ROMs concerning new developments in the field of environmental pollution.

By an agreement with Derwent Information Limited, K R Information OnDisk is producing comprehensive databases on Power Engineering and Petrolium. These two cover Patent Technology monitoring in the Petrolium and power engineering-related industries. With Windows-based versions the CD-ROM database is available with images from the Derwent World Patents Index database covering patents from 1989 to the present. There are databases on Petroleum Abstracts, DOE Energy

science and Technology, Ei Energy and Environment, and Nuclear Science Abstracts products. Derwent's information products provide a comprehensive picture of technological innovations worldwide-essential information for today's business and research professionals.

Ei ChemDisc databases are worldwide coverage of chemical engineering journals and published conference proceedings. Over one million records include bibliographic data and abstracts, covering chemical operations, processes, products and agents; with emphasis on technical challenges of process control, measurement, and analysis in every control, measurement, and analysis in every environment, beginning from 1984.

Ei Compendex Plus records abstracts from every engineering discipline, including bio-engineering, Chemical, Civil, electronics, computer, communication, mechanical, automotive, materials, nuclear and aerospace engineering, and many others. It is worldwide coverage of more than 45000 journals, conference proceedings, and selected government reports beginning from 1989 onwards.

Ei EEDisk covers abstracts from worldwide computer, electronic, and electrical engineering literature. More than one million records cover computer science, information science, communications, electronics, lesers, accousties and instrumentation, beginning from 1983 onwards.

Ei Energy and Environment Disk databases include worldside databases on energy and environment consisting of air and water polution, waste management, geology and geophysics fossil fuels, power plants, nuclear technology and related subject areas from 1984 to present.

Environmental chemistry, Health and Safety databases provide comprehensive scientific and technical information on the environment including information on chemicals deemed to cause actual and potential problems to human and environment beginning from 1980 to present.

ERIC databases cover a broad spectrum of educational subjects, including educational and vocational education, counselling, educational management, reading and communication skills, curricula for handicapped and gifted children, testing and evaluation methods. These include bibliographic references and abstracts from

more than 800 educational journals and thousands research reports beginning form 1966.

The National Library of Medicine's MEDLINE databases is the premier source of biomedical literature including rescarch, clinical practice, administration policy issucs and health care services. The database combines the Index Medicus, Index to Dental Literature, and International Nursing Inded to cover vertually every area of biomedicine. It includes throughly indeed information on tuxicology, nutrition, pharmacology, medicine, veterinary medicien, psychiatry, medical engineering, pathology, experimental medicine, microbiology, psychology, parasitoloogy, and many other allied and related subject areas. MEDLINe provides indexes and abstracts for articles from over 36000 US and international journals in 70 countries. The database use the NILM MeSH indexing system and tree structures, allowing the users to display major subject headings and related subheadings at a glance as well as the MeSH thesaurus is available for locating all related terms. Coverage begins from 1966.

On Disc Polymer Encyclopedio contain the complete text of the 19-volume Encylopedia of Polymer science and technology. K. R. Information On Disc provides a long range of databases, comprehensive areas, specific, interdisciplinary and multidisciplanary, in CD-ROM format.

The Institute of Scientific Information (ISI), Philadelphia, began in 1957 by offering information services covering the scientific journal literature. The services include bibliographic tools covering journals, books and proceedings literature in sciences, social sciences, the arts and humanities. ISI is among the world's largest commercial producers of information services covering the professional literature. As a leader in the information industry, ISI meets the growing needs of the users worldwide for efficient use of the scientific, technical and scholarly literature.

Faxon Informatics Pvt. Ltd., Bangalore represents the following CD-ROM database producers in India

ADONIS BV. The Netherlands

Bowker Saur, UK

British Library Document Supply Centre, UK

Derwent Information Ltd., UK

Knight-Ridder Information Inc., USA

Meridian Data Inc., USA

OCLC Inc., USA

Silver Platter Information Inc., USA

UMI Inc., USA

Faxon Informatics can collect any CD-ROM database to be supplied to the libraries and information centres. They offer CD-ROM networking system and solutions as well as CD-ROM based document management system.

8.3   Internet

Internet is the largest and ever-expanding information resource for instant access to global bibliographic and non-bibliographic resources. It is the conglomeration of worldwide networks providing access to information resources beyond the geographic barriers. The hardware interconnectively, network compatibility, database of files, file transfer and network compatibility through the networking protocol TCP/IP (Transmission Control Protocol / Internet Protocol) made the operational capability. Telent protocol gave the ability to access only system connected to the network. Internet is a decentralised network of networks operating all over the world not controlled by any organisation centrally. Practically it is working on cooperation of its users among themselves. The operational aspects have been taken care of by the search tools developed for this purpose. Telent is a utility which allows to log-on another system and use various services available on the host. One can TELENT into huge databases to do research or even TELENT into libraries around the world to check if they have a certain book reguired by the user. It also offers an easy entry into the Gopherspace and the World Wide Web (WWW) for those users who may otherwise have access to these tools. ELENT allows to log-on to remote computers and run programmes from them.

The basic type of Internet file access is Through File Transfer Protocol (FTP). All the systems connected to Internet support it. Through this protocol the files containing information can be found on remote system. If a user of a particular computer wants a copy of a data file available on a remote site he would use ftp to get it on his own computer screen. FTP facilitates transfers of files of all types

297

from software application to text. It is capable of operating into application to text. It is capable of operating in two different modes. The standard mode (ASCII) allows for the transfer of text files, such as textual documents, pages of printed or nonprinted reading materials. The binary mode allows for the transfer of all other types, such as, graphics, images, audiovisual materials and other non-reading materials.

Most attractive feature of FTP is that the user interface implementation was made fairly uniform across all types of systems. It provides users with an important way to accomplish transfer of information and files throughout the Internet. But the search process within the vast resources of Internet is to some extent complex, and it requires technically experienced library staff. The basic requirement is Internet access through international telecom carrier of the country. During past years services like anonymous FTP became widespread, which allows any one to gain access to and transfer files without obtaining prior permission from the database owner. Some sites offer services such as online access to library catalogues. The user has to know in advance the location of the service and how to gain access to it. FTP is needed to get information at certain sites with gopher and Web servers, particularly databases required in research libraries. FTP facilitates access to specific file or programme.

The most used network interface protocol and server software is World Wide Web (WWW). Formation of the internet relied critically on standard network protocols for universal services. New protocols and services have evolved to support the logical structure of ierconnected worldwide network in hypermedia system. The world wide web is a set of protocols that allow for the location of any document on Internet through a naming system based on Universal Resource Locators (URLs) and describe a way of placing links using URLs within text documents, called Hypertext Markup language (HTML) as well as specify a way to request and send a document over the network, The Hypertext transfer protocal (HTTP). With these standard protocols in place, one can set up a server and construct hypertext documents with links to that point to the documents on the server. Selecting the link from within the display of a document sends a request to he server, which in response sends the document back. The retrieved document might have links in it and to documents on another server, and, thus an user might

browse through an extensive corpus of materials distributed around the global network simply by following the hyperlinks from one point of interest to another.

In World Wide Web a retrieved document may be an index of information and thus be searchable by specification of a query string. The results of a query against an index can be automatically composed into an HTML document with short summaries on the returned items containing embedded links that can be followed to retrieve the complete documents. Directed navigation from one document to another, an information space is created and such situation support searchy strategy. World Wide Web thus, two underlying functions of browsing information spaces, 1. The presentation of information, and 2. The methods of choosing which information to browse the next. The combination of this easy method of browsing and a growing base of information to browse on Internet set the stage for an explosive growth in WWW usage. The conceptual framework of the WWW project has sought to encompass all existing methods of network protocols for information navigation and retrieval.

Current information technologies and online union catalogues with associated communication networks allow ready access to the collective holdings of numerous libraries all over the world. The exponential growth of information resources and documents is continuingly adding to the human knowledge and wisdom because of the instant access to global information resources.

8.4 Exercise

1. What is electronic library? How will you organise the library?
2. Discuss the role of CD-ROM database as information resource.
3. Discuss the changing role of librarian as information provider.
4. What is DIALOG?
5. State the utility of Internet protocol.

8.5 Reading List

1. Feather, John : The Information Society, 1994.

2. Million, Marc : Creative Content for the Web, 1999.

3. Graubard, S. R. & Le Clerc, Paul eds. : Books, bricks & bytes : Libraries in the twenty-first century : 1998.

4. Mahapatra, P. K. & Chakrabarti, B. : Book Byte and Beyond : Library without Wall, 2000.

5. Mahapatra, P. K. & Chakrabarti, B. : Redesigning the Library, 1997.

মানুষের জ্ঞান ও ভাবকে বইয়ের মধ্যে সঞ্চিত করিবার যে একটা প্রচুর সুবিধা আছে, সে কথা কেহই অস্বীকার করিতে পারে না। কিন্তু সেই সুবিধার দ্বারা মনের স্বাভাবিক শক্তিকে একেবারে আচ্ছন্ন করিয়া ফেলিলে বুদ্ধিকে বাবু করিয়া তোলা হয়।

— রবীন্দ্রনাথ ঠাকুর

ভারতের একটা mission আছে, একটা গৌরবময় ভবিষ্যৎ আছে, সেই ভবিষ্যৎ ভারতের উত্তরাধিকারী আমরাই। নূতন ভারতের মুক্তির ইতিহাস আমরাই রচনা করছি এবং করব। এই বিশ্বাস আছে বলেই আমরা সব দুঃখ কষ্ট সহ্য করতে পারি, অন্ধকারময় বর্তমানকে অগ্রাহ্য করতে পারি, বাস্তবের নিষ্ঠুর সত্যগুলি আদর্শের কঠিন আঘাতে ধূলিসাৎ করতে পারি।

— সুভাষচন্দ্র বসু

Any system of education which ignores Indian conditions, requirements, history and sociology is too unscientific to commend itself to any rational support.

—Subhas Chandra Bose

Price : ₹ 150.00
(Not for sale to the Students of NSOU)