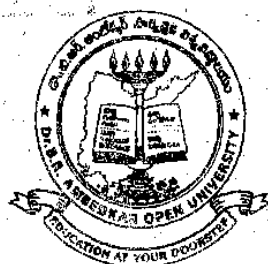


MLISc - 04

INFORMATION SYSTEMS AND PROGRAMMES



Dr. B. R. AMBEDKAR OPEN UNIVERSITY
HYDERABAD

2004

COURSE TEAM

50 - 221M

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COURSE-04 : INFORMATION SYSTEMS AND PROGRAMMES

The course *Information Systems and Programmes* conforms to the syllabus of the Master of Library and Information Science (MLISc) offered by Dr B R Ambedkar Open University. As you are familiar with the structure of the programmes, syllabus and the course material developed by the open universities have distinct features. For the sake of convenience, the syllabus is divided into blocks, each of which comprises a number of units. Each Unit generally covers a specific area of the subject. The Units are prepared by specialists in accordance with the format so designed to enable you read and understand them without much difficulty. Each Unit begins with the contents list (structure) and a statement of its aims and objectives, followed by an introduction to the content of the Unit. The content of the Units are divided into sub-themes and are numbered upto three levels for easy reference. Each Unit ends up with Let Us Sum Up, Glossary, Assignments, References and Recommended Books, and Model Examination Questions.

In view of the increasing role of information in all developmental activities, there is a need for establishing, strengthening, promoting and designing of information infrastructures in all fields and at all levels - international, regional, national and local. The developments in information and communication technologies have facilitated the designing and establishment of information systems and programmes in scientific and technological fields as well as for social, economic, political, cultural and developmental activities. The libraries, documentation/information centres, information analysis centres, referral centres, information clearinghouses, etc., which had limited activities and services to a group of users previously, could able to exchange information and extend their programmes and services through the information systems and networks. Greater availability and speed of accessibility of needed information to all the information seekers from anywhere and at anytime have prompted many international and organisations and professional associations in developed as well as developing countries to promote the information systems/networks and programmes. Norms and standards have been setup to solve the problems of compatibility and to improve the quality of information services.

The Course aims to provide an overview of the information systems/networks at international, regional and national levels and their information activities, programmes, services and products.

The specific objectives of the Course are

- to introduce the concept, characteristics and components of information systems, and also to familiarise you with various models of information systems and networks;
- to provide an understanding of the planning and designing of national information systems/networks;

- to provide an overview of various international, regional and national information systems/networks and their programmes and activities;

- to discuss the role of various organisations and professional associations at the international, national and local level in the promotion of information systems/networks and programmes;

- to acquaint the learners with various information services and products offered by libraries, documentation/information centres and information agencies;

- to familiarise the learners with various standards available in the documentation and information fields in India and other countries;

Your University hopes that the course material will help you to get yourself acquainted with the contents of Course-04: Information Systems and Programmes. The Counselling-Cum-Contact sessions offered to you at the Study Centre will help you to get clarification of your doubts.

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BLOCK-I : INTRODUCTION TO INFORMATION SYSTEMS

Information is an indispensable source for all day-to-day activities and developmental programmes. Library and information centres are viewed as information systems in view of their objectives, organisation, functions and services/products to the information seekers. They possess a set of interdependent and interrelated objects, such as acquisition, serials control, information storage and retrieval, user services, administration and planning, which intend to serve common purpose. Libraries, documentation centres, information centres, information analysis centres, information evaluation centres, information clearinghouses, databanks/databases, etc. from various countries and regions are linked through computer and communication technologies to form information systems/networks.

This Block aims to acquaint the learners with the concept, characteristics, components and models of information systems.

Unit-1 explains the concept and characteristics of an information system and describes the library and information centres as a system. It also discusses the environmental, organisational and operational constraints faced by information systems.

Unit-2 describes the components of information system, such as libraries, documentation centres, information centres, information analysis centres, clearinghouses of information, referral centres, databanks/databases, etc.

Unit-3 provides an overview of various models of information systems and networks.

Unit-4 explains the concept, objectives and functions of a national information policy and national information system. It also deals with various aspects regarding planning and designing of national information system.

UNIT - 1 : INFORMATION SYSTEMS - CONCEPTS AND CHARACTERISTICS

Structure

1.0 Aims and Objectives

1.1 Introduction

1.2 Information and Information Society

1.2.1 Information - Meaning and Need

1.2.2 Concept of Information Society

1.3 Concept and Meaning of System and Sub-System

1.3.1 Library & Information Centre as a System

1.3.2 Characteristics of a System

1.3.3 Objectives of an Information System

1.3.4 Types of Systems

1.4 Constraints of an Information Systems

1.4.1 Environmental

1.4.2 Organisational

1.4.3 Operational Standards/Norms

1.5 Flow Charts and Organisational Charts

1.6 Let Us Sum Up

1.7 References

1.8 Glossary

1.9 Assignment

1.10 Recommended Books

1.11 Model Examination Questions

1.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce and explain the concept of a system, its characteristics, models and constraints. It also aims at introducing flow charts as tools in understanding the system and its functioning.

After reading this unit, you should be in a position to

- explain the concept of information and information society
- realise the need for information in every field of human activity
- discuss the concept of a system, subsystems and their characteristics
- describe the library and information centre as a system
- identify the symbols of flow charts that are used in system representation
- distinguish between flow charts and organisational charts.

1.1 INTRODUCTION

The systems theory has been applied in the present century, particularly the highly complex organisations, in order to effectively plan and control them and also to coordinate all their activities. Library and information centres are now being considered as sophisticated and complex information systems, comprising interrelated and interdependent components as subsystems like acquisition, cataloguing, classification, circulation and reference service.

In view of the increasing awareness and role of information in all developmental works in science and technology as well as in social, economic, political and cultural issues, there is a need for establishing, strengthening, promoting and designing information infrastructure at all levels - local, regional, national and international - for greater availability and speed of accessibility to all the information seekers. The systems approach in L&ICs is being felt increasingly, in view of the application of computers and modern information technologies to achieve their objectives/goals effectively and efficiently.

1.2 INFORMATION AND INFORMATION SOCIETY

1.2.1 INFORMATION - MEANING AND NEED

Information was and has been the causative factor for the history and development of any thing in the universe'. It is both an 'input' and an 'output' of research and development in all the disciplines i.e., in science and technology, social sciences and Humanities.

Information has been viewed differently by different people. For some it is knowledge and for others it is a commodity, power and for some it is a document.

In a broader view 'information and transferable knowledge are one and the same thing'. Further, any transfer of knowledge is considered equivalent to transfer of information and vice-versa.

This definition reveals the close affinity that exists between information and knowledge.

Georges Anderla defines information as 'a resource, a resource as fundamental as energy or matter, which affect all human activity and as an indispensable, irreplaceable link between intellectual and material activities. This concept leads to a conclusion that information must be at the service of the whole community.

Ching-Chih Chen (1982) defines information as all knowledge, facts, data and imaginative works of mind which are communicated formally and / or informally in any format. But information is not equivalent to knowledge. Information is the raw material and the precursor of knowledge. Knowledge emerges from the distilling, shaping and integrating of the raw material into concepts and rules'.

A similar but a relatively a wider definition is offered by McGarry. According to him information is not limited to facts in documents but it covers a wide spectrum of issues, including emotions, facts, opinions, guidance and persuasions'.

You must have understood from the above definitions, how variantly the concept or meaning of information has been defined by various information specialists. Now, let us try to understand the need and importance of information in the present day society.

- Information is an aid in decision making, policy making by the policy makers, decision makers and managers.

- Information will have a reinforcing/transforming effect on human beings on receiving it. A great deal of change can be perceived in the human minds and attitudes on receiving the information, as it increases the ability of knowledge of the recipient.

- Information is needed by scientists/engineers, scholars, and others to update their knowledge.

- Information helps in generating new information. In fact scientists and scholars avail or use information to produce another document like research reports, theses/dissertations, books, journal articles, seminar papers, etc.

- The user from various professions and vocations like doctors, engineers, scientists, scholars, etc. acquire and apply information in order to do their jobs more effectively and efficiently i.e., application of information for practical purposes.

- Information supports research in order to obtain effective and fruitful results.
- Information helps in better management of materials, production, finance, marketing, etc.
- State-of-the-art kind of information of a subject helps in identifying the gaps/shortcomings in the subject field and also helps in identifying the research problems to be explored or undertaken.
- Information helps in avoiding the duplication of research.
- Information stimulates thought process of the users, particularly the scholars.
- Information keeps the scholars well informed with the current advancements in their subjects.

The over all benefits of information can be as follows :

- 1) Improved capability of a country by availing the existing knowledge and know-how achieved elsewhere.
- 2) Rationalization and systematization of a country's research and development efforts, with the help of the existing information/knowledge.
- 3) Problem solving, based on available wider knowledge base
- 4) In improved effectiveness and efficiency of technical / production oriented activities.
- 5) In better decision making in all sectors.

1.2.2 CONCEPT OF INFORMATION SOCIETY

We are, at present, living in a knowledge-based society; a society that demands and makes use of information in almost all kinds of human pursuits. It is because of the role played by information and its importance and also because of the involvement, association and employment of large sections/ proportions of people in information related industries or information industries in this modern society, that's why today's society is very naturally called an 'Information Society'.

Cawkell (1987) observed that there is a three stage shift from traditional agricultural society to an advanced industrial one, and then to an information society, where information is the central factor and where primary economic and social activities are the production, storage and distribution of information. Fritz Machlup called it "Knowledge Industries" - an umbrella phrase covering the educational system, media, libraries, research institutions and other information intensive activities, traditionally identified as parts of the service sector. *The Information Economy - A Report of U.S. Department of Commerce* has confirmed the Machlup's thesis. The report revealed that the dominant trend in American economy involved expansion of information-related activities in the services

sector. Alvin Toffler and Wainsbitt have widely publicised the concept of post-Industrial Society - the Information Society.

Manfred Kochen has identified the characteristics of information society as the society in which

- i) Information is considered to be important than the materials that provide information.
- ii) At least half of its members are engaged in knowledge occupations, and such occupations are not only based on knowledge but are also knowledge generating.

The information society and its very existence has been termed in a different phrase as 'Information Age' by Dizard (1989). According to him in the present times there is convince of rapidly changing new technologies in support of communication networks for information exchange. Every one on the earth will be interlinked in order to exchange the information required by him/her. Scholars like Richard Barnet calls it as post-petroleum society, whereas Daniel Bell describes it as post-industrial society and so on. By whatever name the scholars call it, the one significant issue is that of a more complex information and communication environment.

1.3 CONCEPT AND MEANING OF SYSTEM AND SUB-SYSTEM

General System theory was developed from the last two decades, based mainly on the investigations of L. Von Bertalanffy. He outlines the general theory of systems. He recognises that systems with various components and objectives have common properties and characteristics.

Let us understand first the meaning and concept of a system before learning about information systems.

The concept of a system can be defined in various ways. Most of the definitions refer to the basic properties such as

- System is an entity
- consisting of components, which are interrelated or interlinked, and
- perform operations in the accomplishment of a purpose, i.e., the purpose of the system.

In the light of the above properties, System is a set of interrelated entities of which every subset is related to every other subset in the set and also has relationship with the environment. Further, these entities are so integrated that a change in the functioning of one entity affects the effectiveness of others, and thereby the over all functioning of whole set i.e., the system. Further, a system is an organization that can be reduced into its component parts on the basis of their functions and each functional component part into its subsystems and each subsystem into its component parts and so

on. An entity can be considered as some thing that has separate and distinct existence and objectives or conceptual reality. In systems thinking, system is viewed like a black box and hence it is defined by first defining its inputs and outputs.

In functional thinking, a system is understood as a hierarchy of functions, in which a function is meant as transformation of some input into some output. It starts by defining the overall function of the system and breaking it down into subfunctions. Meanwhile, the inputs and outputs of the function and subfunctions are also defined. The basic difference between functional thinking and systems thinking is that the former defines the functions first and then its inputs and outputs, whereas, the latter defines first its boundaries by defining its inputs and outputs.

In data processing, system is considered as a collection of men, machines and methods, organized to accomplish a set of specific functions. According to Weismen (1972), "a system is an arrangement of parts or elements working together to perform a set of operations in the accomplishment of the purpose of the whole. In fact, a system is a generic term used to comprehend a whole in order to achieve a common purpose. Hence it can be understood as a compound or complex of functionally and/or attributively related components.

So far we have talked about what a system is. Now let us also know what an information system is in the following paras:

Mikhailov has defined Information System (IS) as 'an organisation of people, material and machines that serve to facilitate the transfer of information from one person to another'.

The phrase Information System, as stated by Weisman refers to the methods, materials, media, producers and recipients involved in an organised way to effect information transfer with a specified, activity or organisation'. It comprises of a complex collection of information messages, persons who produce and use them, institutions which process them, and a set of behaviour patterns, customs and traditions by which these persons and institutions interrelate. Thus, an Information System is a combination of methods for acquiring, classifying, recording and disseminating knowledge for proper application with speed.

Vickery gives almost a similar definition. According to him, information system is 'an organisation of people, materials and machines that serves to facilitate the transfer of information from one person to another'. However, its function is social i.e., to aid human communication. Information systems handle information with the specific purpose of providing to its users in the form and content needed. Thus, information system is an entity which derives information useful to the consumers of the system. However, information system cannot generate information spontaneously but it delivers information to its users, from the inputs that are previously or already stored as inputs to it.

1.3.1 Library and Information Centres as Systems

The systems concept and the systems theory have been applied, initially, in the manufacturing and production oriented organisations. The systems approach in various kinds of organisations including library and information centres has been felt increasingly important in view of automation and application of modern technologies and methods, in achieving the objectives of the organizations very effectively and efficiently. The potential of the systems has been well recognised by the policy makers, decision makers, managers, etc on all levels.

Library and information centres can be viewed as systems or information systems in view of their objectives, functions and information services / products to the information seekers - the users. The following general picture makes clear the concept of system and particularly, library and information centre as a system, by revealing the functions to be performed and their sequence in a library system.

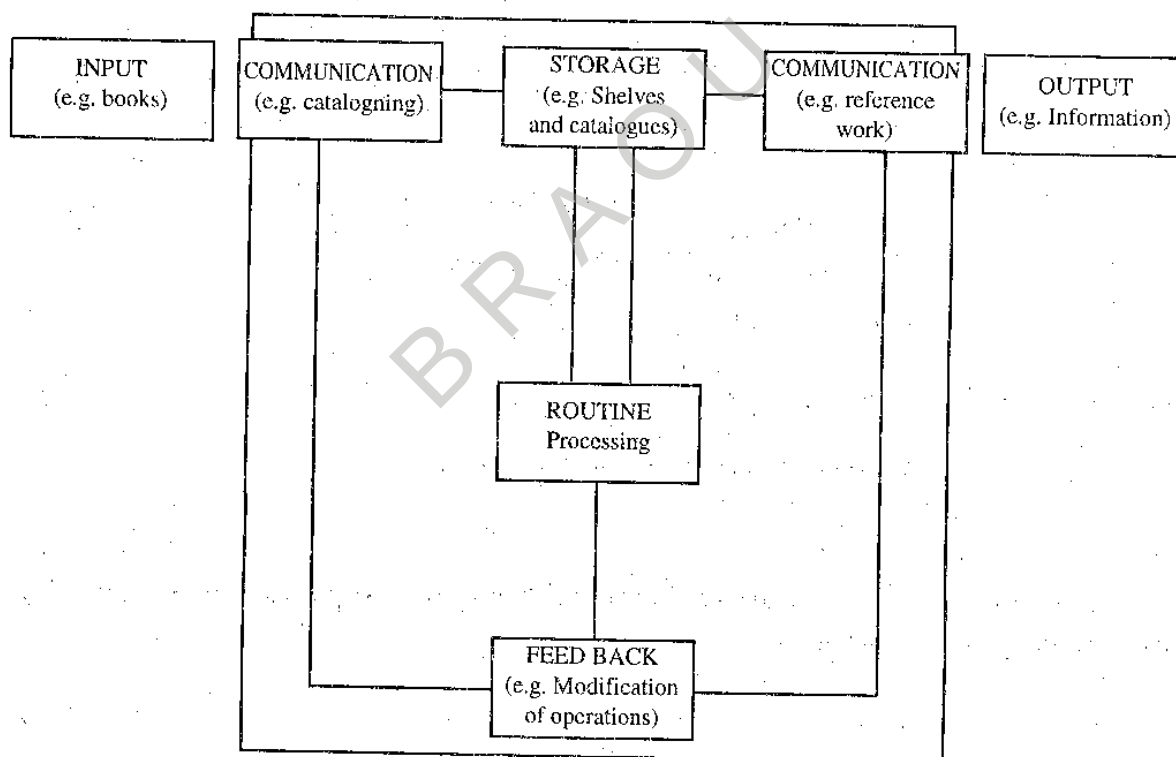


Figure-1: A Typical Information System Components

Source: Atherton, Pauline. *Handbook for information systems and services*

A system is a set of interdependent and interrelated objects. Similarly, a typical library and information (LI) system is a set of objects, namely, acquisition, serial control, information storage

and retrieval, user services, administration and planning which are interdependent because of the common purpose they intend to serve. The service is the common purpose that unites or integrates all the objects into a set or a system. All these objects that perform the major functions of the library and information system are considered as the sub-sets of the LI system. Thus, Hays and Becker identifies, acquisition, serial control, circulation control, cataloguing, inter-library loan, reference and administration and planning as seven basic subsystems that make up the library system.

Chapman and others have presented a model library system in the following diagram which presents a well-defined functional interrelationship among the component parts/subsystems of LI system.

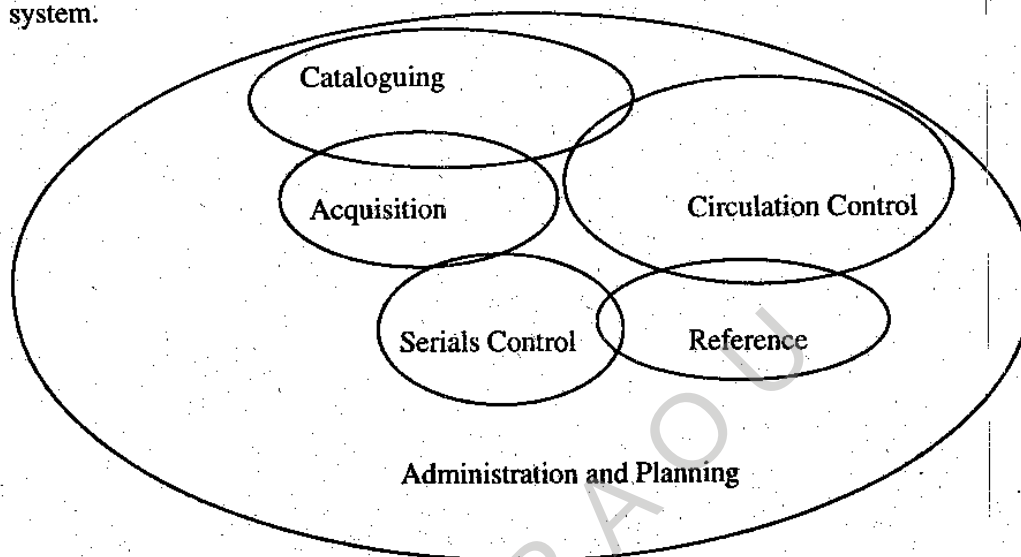


Figure-2: Model Library System

Source : Chapman and others: *Library system analysis guidelines*.

The diagram given below shall make Library and Information System more clear by revealing the subsystem and their functions.

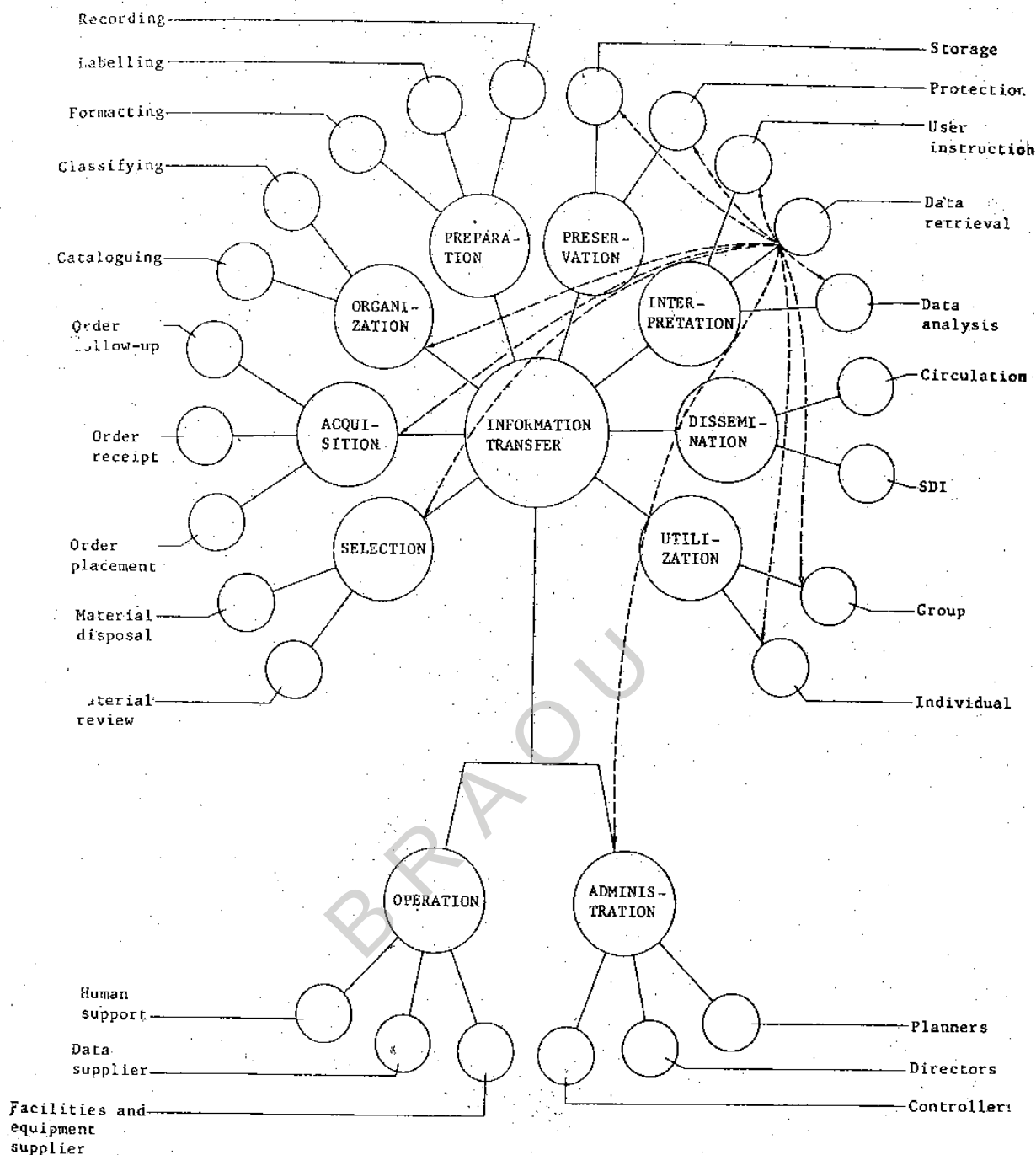


Figure-3: Library System Viewed by Reference Librarian

Source: Atherton, Pauline. *Handbook for information systems and services*

Almost all the subsystems like acquisition, cataloguing, and circulation in a library are interdependent. All such interacting and interdependent or interconnecting subsystems form a unified whole i.e., system. The categorisation of something as a system or subsystem is purely dependent on the perception and consideration of the one who categorises. For example: we have already known library and information centre is a system. When we look at it in a broader perspective,

it becomes a subsystem of a city or a university or a corporate R&D organisation. A library is just a unit or component that constitutes among several other units/components that make a city or university or corporate R&D a system. Further, as already stated subsystems of library and information centres, like cataloguing, circulation and serials control may also be perceived as systems within which several subsystems function or operate in an interdependent and interacting way.

According to their functions, as stated by Chapman and others, libraries shall have two types of systems. They are Data processing systems and Information systems.

i) *Data Processing Systems*: This system may be defined as the organisation and the methods involved to perform operations necessary to effect the former content of information needed to satisfy the library's management, requirements and goals.

ii) *Information Systems*: This system may be defined as the organisation and methods followed in storing and retrieving information to satisfy the library's service requirements and goals.

Data processing system is concerned with the manipulation of data (clerical functions) and the informational system with the storage of information and its recovery.

Information system can also be viewed as:

1) A system of interlinked entities (languages, symbols, signals, information items, articles, publications, guides, libraries and so on) and,

2) As a system of interlined processes (Encoding, transmitting, transforming, writing, publishing, translating, abstracting, lending, searching, reading and so on). In fact the entities participate in the processes and their interrelations are shown in Figure-1.1. (The entities are shown by capital letters and the processes by small letters)

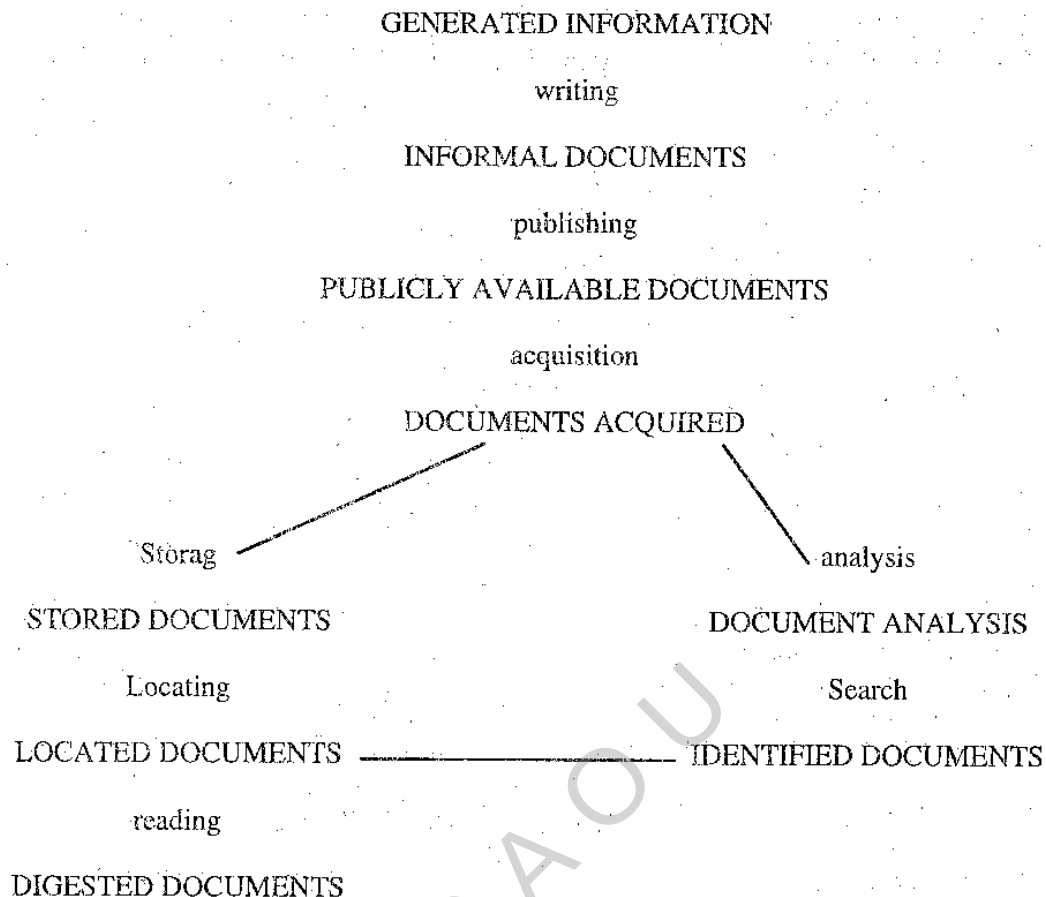


Figure-4: Information transfer through documents

Source: Vickery, B.C.(1973). *Information systems*.

One can understand from the above explanation that system is a set of interacting components and the components can be either entities or processes that are identified as a unit within the system. The entities may be documents, libraries etc, whereas the processes may be writing, publishing, abstracting, indexing, listing etc.

1.3.2 Characteristics of a System

According to Ackoff, as stated by Parida (1993), every system shall have the following characteristics /properties:

- i). The properties and behaviour of a system are effected by those of its components
- ii) Each component has an effect on the system to which it is associated, but no component can have an independent effect, and
- iii) Every possible sub-group of components has these two essential properties of its system.

Any change in any one of the components of a system may affect another component as well as the system as a whole. This attribute of a system is referred to as its coherence or wholeness. On the other hand a component of a system may not be effected due to a change in another component. This attribute of a system is referred to as its independence'. Certain degree of coherence and independence may be present in any system.

1.3.3 Objectives of an Information System

The overall objectives of an information system as stated by Seetharama (1990) are:

- 1) Building up a good valuable document collection, relevant to the organisation or systems needs in order to support the service activities.
- 2) Acting as a control point for filing of the organisations/ systems scientific and technical reports and other related documents, and organising them for use in order to aid the exploitation of the organisation's know-how, and reduce or eliminate duplication of work.
- 3) Exploiting the literature - both published and unpublished - and other sources of information in order to provide the staff with new and up-to-date information on subjects relevant to their fields of specialisation.
- 4) Providing an efficient and effective information retrieval and dissemination system.
- 5) Acting as a clearinghouse, referral and switching centre for information on all aspects.
- 6) Acting as a partner in the integrated development of information and documentation systems in the field concerned and related sectoral information systems in the country and operate as a feeder to and user of relevant international information systems and services.
- 7) Fulfilment of all these objectives in an economic and balanced manner, so that reasonable services are provided and at as low a cost as possible, commensurate with effectiveness.

1.3.4 Types of Systems

Some of the types of systems generally encountered in systems studies are enumerated below with their meanings and purposes.

Open System: A system exchanging of materials, energy or information with its environment is called as an open system. Library is an open system as it is closely interrelated with its social environment and it continuously communicates with the environment through various interfaces like input interface, user interface, human resource or manpower interface.

Closed System: A system which does not exchange or import energies in any of the forms, such as, information and materials.

Adaptive System: A system which possesses the ability to react to the environment in a way which is favourable for its continued operation is called Adaptive System.

Object System: The larger whole of a system is called Object system. Eg: Information systems are meant to serve in a longer whole of which the information system is a subsystem, i.e., information system is a subsystem of the Object system. Because object system contains the information system. That is the larger system which contains several subsystems is called an Object system. It is more close to the concept of Total System.

Imperceivable System: A system of which the number of its parts/components and their interrelationships is so high that all of its structure cannot be safely perceived or observed at one and the same time.

Management Information System: Tony Debons states that MIS is a kind of information system whose specific function is to facilitate the management of organisations and institutions.

Total System: Total System operates within an environment dictated by the goals of its parent organisation or governing body.

The designing and integrating of the major operating systems in such a way that the interaction and exchange of information are facilitated in a logical and systematic manner. The planning of individual systems is not an end in itself. Such planning must always be in the context of developing a total system of reciprocal relationships among individual systems. This requires design of integrated procedures, taking all the library's systems.

1.4 CONSTRAINTS OF AN INFORMATION SYSTEM

Having understood the concept of system, subsystem and various types of systems, now let us know the constraints of a system. Constraints are something that limit the system either in its design, effectiveness, efficiency or cost-effectiveness, or it can be limitations on the availability of manpower, materials or equipment and compatibility with other systems.

As we already understood that information system is any procedure/ method that allows the systematic acquisition, storage and transmission/distribution of information. Constraints are imposed on the system by external conditions and they must be duly taken into consideration, while designing a workable system, meant for implementation. Peter Lazar (1985) has categorised all the system constraints broadly into three. They are

- 1) Environmental Constraints,
- 2) Organisational Constraints, and
- 3) Operational Constraints.

Now, let us examine these three systems constraints in detail.

1) Environmental Constraints: These are the limiting conditions originating in the environmental set-up of the information system. They may refer to the design parameters fixed on the at the import side one had and those imposed by the physical environment on the other at the output side.

At the input side, the limitations relate to the availability and accessibility to receive inputs from a specific country from a specified source, because of political or policy reasons. The limitations on the access to availability of external communications in case information centres are located at far away and isolated places and lack of facilities of modern information technology in their vicinities. The premises available for the information centre, their location, lay-out, equipment, noise level, heating and ventilation, etc may also impose severe limitations on the system design.

2) Organisational Constraints: Organisational constraints refer to the organisational set up of library and information centres or that of the institution/organisation to which library and information centre is attached. The organisational constraints severely limit not only the human material and financial resources in system design but also in the system implementation. In system design, the subjective nature and limitations imposed by the management of the organisation need to be taken into consideration. For example, the directives and wishes of the personnel administration in providing adequate personnel and also managing the posts, constraints design and implementation of a system.

3) Operational Constraints: These are the constraints that affect the operations of the system or its components. In the systems analysis and design, one has to take into consideration the available students at international, national and also within the organisation internally. Further, the constraints those are linked with the rules and regulations for accounting, internal and /or external reporting etc of the organisation or library and information centre may become the operational constraints.

There can be some other constraints that may relate to personal, behavioural, technical, etc. issues in planning and designing of systems.

1.5 FLOW CHARTS AND ORGANISATIONAL CHARTS

A flow chart is a potential representation of the flow of data and activities in a system. The flow chart which depicts the functional interrelationships of different components of a system is called a **Functional Flowchart**.

A variety of situations/problems can be precisely and clearly depicted by flow charts. Flow chart is a tool for analysis of a system. It assists the systems analyst in acquiring a better understanding of the sequence of logical steps of the problem solution. Therefore, it is considered

a tool in the hands of a systems analyst for representing the complex processes, their interrelations among its components (subsystems) inputs/outputs that constitute a system. In general, flow charts represent the sequential or logical progressions of functions, decisions, actions, etc involved in a system. In analysing complex library operations a job or of its various sections will be understood through flow charts. By using standardised flow-chart symbols a platform/ground is created between the librarian and the systems analyst and for an effective communication through well constructed flow-charts.

The Flow-Process chart is an another kind of flow-chart which portrays the works involved in a job, where a person or a product charted moves from one point to the other. It also includes the distance travelled and amount of time required to perform each operation. It is used to record either the activities performed on a product or the activities of a person. The purpose of the flow-process chart is to know the proper functioning or the defects in a new service, activity, product or process and also to improve them or simplify them if needed.

Other kinds of chart generally used are the **organisational charts**. These charts, as stated by Peter Lazar, are intended to reveal the organisational structure, hierarchical set-up, the relations of its organisational units and the character of their interrelationships. In addition to this, they may present a graphic view of the distribution of personnel, funds, costs, income and various other data corresponding to the organisational units of the system. Eg: Organisational Chart.

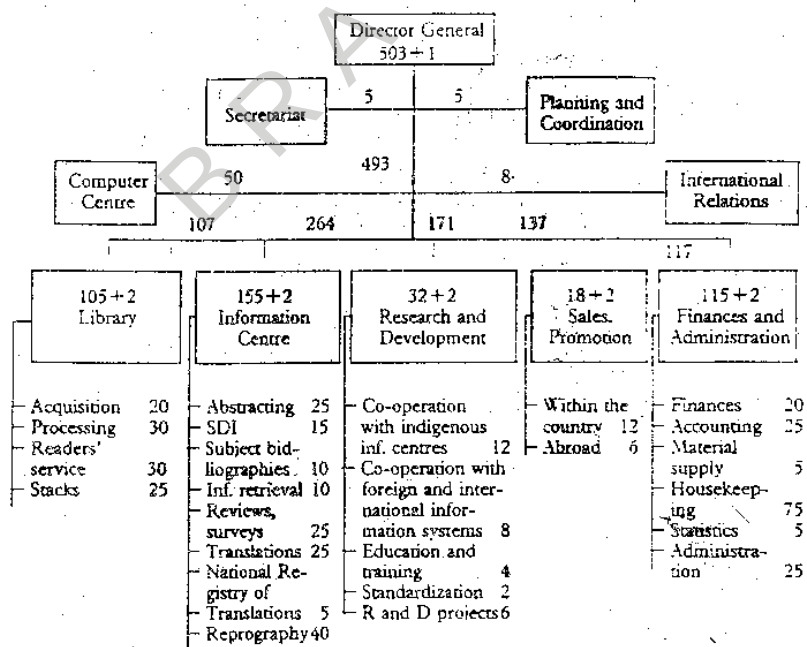


Figure-5: Organisation chart of a typical national information centre (Figures indicate the number of staff members)

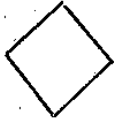
Source: Lazar, Peter (1985). *Information system design and management*.

Precisely, one can say that organisation charts represent graphically the communication channels and the command/control set up in an organisation.

A standard set of symbols are used in flow charting. The most commonly used six such symbols, which can be used in either a machine or manual system are shown below.



Input/output: Any form or type of input/output media



Decision: a point in a system where a decision must be made as to what action may be taken based upon the stated condition or question



Processing: a classical or mechanical function



Terminal: The beginning or end of the procedure under study, i.e., Start or Halt



Connector: An entry from or an exit to another part of the flow chart. The character appearing inside the connector is the reference point in the chart at which flow continues.



Offpage connector: An entry from or exit to another page of the flow chart.

These symbols are used to show the sequential flow of work and they are connected by directional flow lines with or without arrows. Arrows need be used only when it is necessary to represent exit or entry line from one symbol to another and that is not the same direction as the method being followed.

The flow charts can be constructed in two methods. They are

- 1) **Vertical flow method:** Progression from top to the bottom of the chart, and
- 2) **Horizontal flow method:** Moving from left to the right in the chart. Each method has its own advantages.

Once a method is adopted, the same method has to be consistently adhered to on the flow chart. An illustrative example of a flow chart is shown below to understand well the flow charts, their symbols and the principles of flow charting.

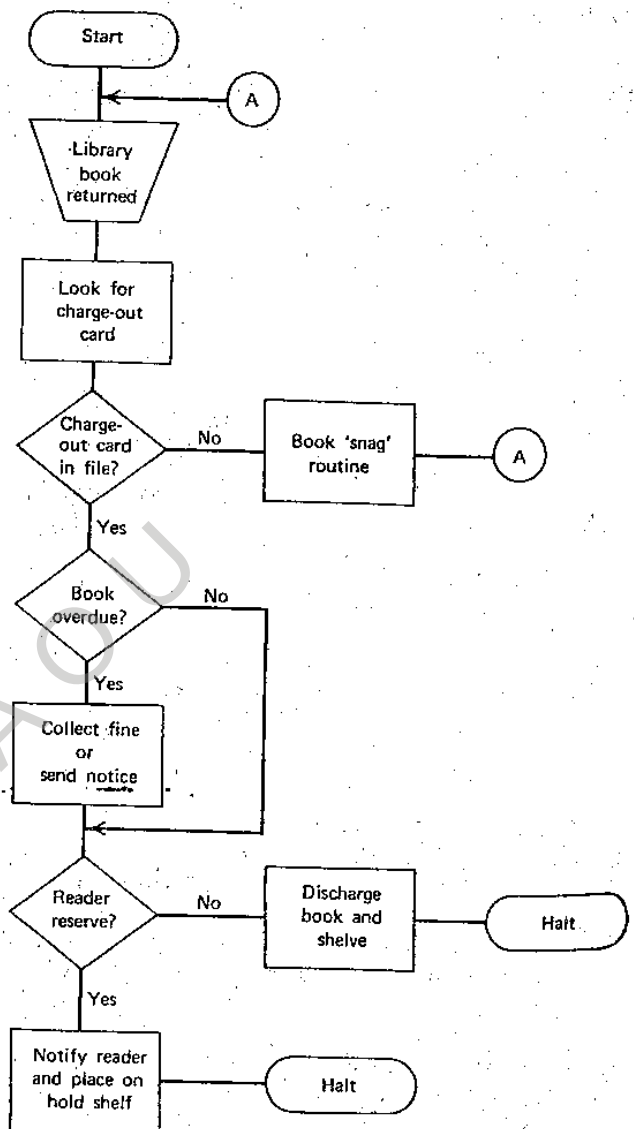


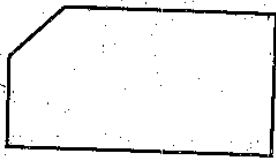
Figure-6: Discharge of a Library Book

Source: Chapman and others: *Library Systems analysis guidelines*.

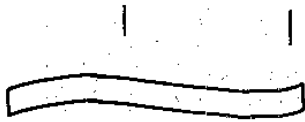
Flow charts play an important role in system analysis, once the systems analysis is made, it needs to be represented/ communicated in an easy to understood method, and at this stage flow charts are very helpful to depict all the components, processes and their interrelationships.

The following symbols may also be used along with the already stated six symbols, when more detailed presentation of the constituent components and their processes/ functions/ inputs-outputs needed'. These symbols may also be used in flow charting automated or computer systems.

Forms of Inputs and Outputs



punched card



punched or perforated paper type



Any Document



Magnetic tape,



Disk, drum, random access

Forms of Processing functions



Pre-defined process: a process that involves a number of separate steps but is represented under a single statement



Clerical Operation: a manual operation not requiring mechanical aid

Keying operation: an operation making use of a key-driven device such as key punch or Typewriter

Source: *Library Systems analysis guidelines* /E A Chapman, Paul L.S.T. Pierre and John Lubans Jr.

1.6 LET US SUM UP

Information is an essential ingredient in all the developmental works such as in science and technology, economic, political and culture spheres. In view of the well recognised importance of information and also because of the involvement and employment of larger section of the society in information related industries, the modern day society has been considered as the, 'Information Society'.

A system is a set of interrelated and interdependent entities, of which every subset is related to every other subset and also has relationship with the environment. These entities or subsets are integrated so that a change in the functioning of one entity affects the effectiveness of others and ultimately the system as whole. Further, an information system has been considered as an organisation of people, material and machines that serve to facilitate the transfer of information from one person to another.

Library and information system is a set of objects or components, namely, acquisition, serial control, information storage and retrieval, user services, administration and planning. They are all interdependent because of the common purpose they intend to serve. The categorisation of the same thing as a system and subsystem is very much dependent on the person who categorises them. For example, when viewed from a broader perspective library and information system becomes a subsystem of a society or university or an institution in which the library and information centre is located (as a unit). Various types of systems are identified in the present times as Open systems, Closed systems, Adoption systems, Object system or Total systems. There are certain constraints of a system that affect the system design, effectiveness, efficiency, etc. They are broadly grouped under three categories as environmental constraints, organisational constraints and operations constraints.

1.7 REFERENCES AND RECOMMENDED BOOKS

BLOCKDIJK, Anire and Paul Blockdijk. *Planning and designing of information systems*. London: Academic Press, 1987.

CHAPMAN, Edward A., Paul L. St. Pierre and John Lubans, Jr. *Library Systems analysis and guidelines*. New York: Inter Science, 1970.

LAZAR, Peter. *Information Systems Design and Management*. Bangalore: Sarada Ranganathan Endowment for Library Science, 1985.

SEETHARAMA, S. *Guidelines for planning of libraries and Information Centres*. Calcutta: IASLIC, 1990. pp. 37-38.

VICKERY, B.C. *Information Systems*. London: Butterworths, 1973.

1.8 GLOSSARY

System: A system consists of various components which work in harmony to achieve an objective.

Information System: An organised system of several components which function to achieve the objective of providing or supplying information.

International Information Systems (Also called as **Global Information Systems**): A system obtains the inputs in decentralised way and disseminates/distributes the information or information products in a centralised way catering to the international needs. Precisely, an information system aimed at serving the users at international levels.

Models: A small scale reproduction or presentation of an actual object or thing.

1.9 ASSIGNMENT

- 1) Prepare a flow chart of charging of books in a library.
- 2) Explain the library and information system as a system.

1.11 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) The present day society is called as 'Information Society'. Explain why ?
- 2) Define a System. Explain the advantages of systems approach to complex organisation
- 3) State the characteristics of the system and explain why library and information centre can be considered as a system.

II. SHORT NOTES

- a) Objective of a system
- b) Flow charts
- c) Organisational charts

UNIT - 2 : COMPONENTS OF AN INFORMATION SYSTEM

Structure

- 2.0 Aims and Objectives
- 2.1 Introduction
- 2.2 Libraries
 - 2.2.1 Meaning
 - 2.2.2 Objectives and Functions
- 2.3 Documentation Centres
 - 2.3.1 Definition and Meaning
 - 2.3.2 Functions and Objectives
- 2.4 Information Centres/Specialised Information Centres
 - 2.4.1 Definition and Meaning
 - 2.4.2 Functions and Objectives
- 2.5 Information Analysis Centres/Information Evaluation Centres
- 2.6 Clearing Houses of Information
 - 2.6.1 Definition and Meaning
 - 2.6.2 Functions and Objectives
- 2.7 Referral Centres
 - 2.7.1 Definition and Meaning
 - 2.7.2 Functions and Objectives
- 2.8 Databanks/Data Centres
 - 2.8.1 Definition and Meaning
 - 2.8.2 Functions and Objectives
- 2.9 Let Us Sum Up
- 2.10 References
- 2.11 Glossary
- 2.12 Assignment
- 2.13 Recommended Books
- 2.14 Model Examination Questions

2.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce and explain various components that constitute an information system, or Library and Information System in its broader perspective. It is also aimed at describing various objectives and functions of the different components of a Library and Information System.

After reading this unit, you should be able to

- identify and list various components of library and information systems
- distinguish various components of library and information system from one another
- realize the functions, objectives and importance of various components of an information system.

2.1 INTRODUCTION

In Unit 1, you have learnt the concept of an information system or library and information system and various similar other kinds of systems. In this unit, let us try to understand various components of an information system/ library and information system, their objectives, functions, similarities and dissimilarities etc with one another.

The national framework of an information system includes the information infrastructure involving all the activities and processes in disseminating information. Such an information infrastructure includes obviously, all the components of information system, such as libraries, documentation centres, information centres, information analysis centres/ information extension centres, data centres/ databanks, clearinghouses of information, referral centres and so on. Each one of these components of an information system has a different role to play in linking and providing the information to the information seekers.

Thus, in a holistic approach, we can consider various library and information centres such as libraries, documentation centres, information centres, information analysis/evaluation centres, clearing houses of information, referral centres, databanks, data archives, reprographic centres, translation centres, together to form an information system. All these centres when considered individually form as components of information system. In other words, the existing set up or pattern of the organisational units with a geographical area, may be a country, supporting information services constitute an Information System. These components may either function independently or as units of the larger organisations to which they are attached. Further, they are organised and developed to offer services in accordance with the objectives of the corporate organisation/agency in which they are located.

In a generalistic approach, the different units like a designing unit, a marketing unit or an administration unit are considered as components of a system. Similarly, in a library and information system, acquisition, circulation, organisation, administration, serials control etc are considered as components of the library and information system. However, in this unit we are studying the information system, in its holistic approach considering all the units of an organisation meant for the provision and support of information services as its components. All the centres/units, which are segments of the total delivery system like organisation, collecting, packaging, storage, distribution, consolidation and repackaging of information into products and services. The units relating to reproduction, translation, etc also constitute the components of a total information system.

The components of a total information system can also be broadly grouped into the following subsystems:

- i) Information generation systems
- ii) Information communication systems and
- iii) Information service systems

Now, let us learn the concept, objectives and functions of each component of an information system.

2.2 LIBRARIES

Libraries are the earliest kind of centres of information. We have clear evidence of the existence of libraries dating back to 5000 BC. At Ninevah, where the documents were existed in the form of clay tablets, and such libraries were basically repositories in their nature as they preserved the literature for the posterity. However, modern libraries, besides being repositories, also have been bestowed with various other functions, particularly as the information providers to the community. As we know, all the libraries are categorised broadly into public, academic and special libraries. They may be of local, state, regional and national level, or they may be either government or privately managed libraries. Thus, in the present world we find various kinds of libraries.

2.2.1 Meaning

Libraries are basically store houses of documents, organised systematically, in order to retrieve their collections as and when needed by the users. Information is available in the libraries, in recorded form, i.e. documents. These documents generally constitute books, serials, pamphlets, theses, dissertations, maps, standards, discs, microforms, audio-visual materials etc.

2.2.2 Objectives and Functions

Supply of documents and information to the users is the basic objective of a library. In order to fulfil its objective library performs the functions such as identification and selection, acquisition,

organisation (classification, cataloguing, indexing, etc), storing, retrieving and dissemination of documents or information. Generally, the libraries offer on demand services to their users. Some academic libraries and most of the special libraries also offer the services in demand as well as in anticipation to their users.

In some of the libraries we find 'documentation centres' or documentation units'. These centres/units confine their functions mainly to selecting, acquiring, storing and retrieving of microdocuments or specific kind of documents. The centres disseminate the documents or facsimiles of them. On the other hand, libraries, traditionally, provide reference service besides lending. Due to these functional variation the libraries are differentiated from the documentation centres as they do not provide the services like abstracting, indexing etc.

2.3 DOCUMENTATION CENTRES

Documentation Centres are often found within the bigger organisations, especially in large companies, industries, where their production depends upon access to economic and technological information. Documentation centres are also depositories/ store houses of documents, like libraries. Instead of just being archival in their function, they disseminate the documents and information. Documentation centres are considered to be a kind of libraries, promoting advanced and non-traditional type of information services, using the advanced techniques and procedures of organisation and dissemination of information. The need for documentation centres was felt in view of their importance in providing quick and accurate access to the nascent micro-literature for research and other purposes.

Documentation centres are found at various levels like, local, national and international. At local level they are attached to large individual industrial, R&D, business and government departments (for example, the documentation and information unit of IICT/CCMB Library, Hyderabad). At national level they are mostly subject based or the discipline based (for eg: INSDOC, NASSDOC, SENDOC, CORD, DESIDOC, etc). These are established under government ministries or the departments concerned. At the international level, most of the networks/information systems like INIS, AGRIS, and ICSSID, which are also subject/discipline based. They function to serve the international communities with a cooperative spirit. Now let us understand the meaning, functions and purpose of the documentation centres.

2.3.1 Definition and Meaning

A documentation centre selects, acquires, organises and retrieves specific documents and information on demand by its users. It provides services to its users even in anticipation. The *Librarian's Glossary* defines documentation centre as a place where publications are received, processed, preserved, summarised, abstracted and indexed; where bulletins relating to such material are prepared for distribution to those interested; where research is undertaken, bibliographies

prepared and copies and translations are made". It is an organization that: "selects, acquires, stores and retrieves specific documents in response to requests; announces, abstracts, extracts, indexes documents; disseminates documents in response to requests for documents for content".

2.3.2 Functions and Objectives

As you have understood from the preceeding section documentation centres are located under different environments and at different levels like industrial, research and development, business institutions both private and public sector and government agencies, and also at local, national and international levels. The functions of one documentation centre may, naturally, vary from the functions of the others.

Documentation centres, generally, provide quick access to information, and particularly, the nascent micro-literature in a specialised subject or discipline. The important function of a documentation centre is to bring to the notice of specialist users, the current literature and latest advancements in their subject fields. They offer indexing, abstracting/extracting services. Information packaging, providing CAS, SDI, compilation of bibliographies, document delivery and translation services are also offered by the documentation centres. They also produce current awareness bulletins and in some instances, machine readable databases/files for sale to the subscribers.

The documentation centres and libraries can be distinguished from one another because of the objectives and services they perform. Libraries collect, organise, store (shelve) and lend primary sources of information, in the form of books, periodicals, maps, etc to the users. The users are expected to locate their needed information by themselves. For this purpose, libraries prepare catalogues and collect secondary sources such as abstracting journals, indexes and bibliographies which are made accessible to the users.

A documentation centre, on the other hand scrutinizes and evaluates primary or secondary sources of information which include commercial and trade publications and other documents usually neglected by the librarians. It retrieves specific pieces of information in answering specific questions submitted by its scientific / research / scholarly community (i.e. provision of information on demand); and it also disseminates specialised information in a highly processed form such as publication of indexes, abstracts, literature reviews, even in anticipation of the users demands. As an agent digesting the primary sources of information in its field, it offers information that can be directly used by its users. Further, translation and reprographic services are also provided by the documentation centres.

2.4 INFORMATION CENTRES / SPECIALISED INFORMATION CENTRES

Tremendous increase in scientific research and developmental activities has created increased demand for efficient and integrated information services by the scientific community, scholars,

administrators, etc. This has resulted in establishing of information centres or in order to fulfil the information demands/needs of users. They are aimed at providing right information to the right reader in a right usable form.

Information units, centred on question-answering services and the exploitation of information are often referred to as *Information Centres*. But they can take a wide variety of forms such as libraries, archives and documentation centres. Information centres are usually established with a specific mission or objective and they operate in a well-defined subject field.

2.4.1 Definition and Meaning

Information service units within an organisation are usually termed as information centres or information units or information departments. *Librarian's Glossary* defines an information centre as "usually an office, or a section of a bibliography centre, research bureau or documentation centre, which gives information about books or on a subject with which the organisation providing the facilities of the centre is concerned".

The staffing pattern of an information centre varies, but may include any or all of the following: research officers, librarians, bibliographers or trained information officers. It may include the functions of a special library and extend its activities to include collateral functions performed by machine methods and librarian research for clients.

An Information Centre is also defined as an organization that: (1) selects, acquires, stores and retrieves specific information, in response to user's requests; (2) announces information, abstracts, extracts and indexes information, and (3) disseminates information in response to requests from documents or in anticipation.

A specialised Information Centre serves the needs of the people / scholars working within a special subject field, usually a narrow field, providing comprehensive information service to those who require information irrespective of their location. They are found covering the areas of newly developing sciences, technologies and other subjects, where the existing knowledge/information is scattered over several disciplines and the literature is spread over a wide variety of sources.

2.4.2 Functions and Objectives

The basic objective of an Information Centre/Specialised Information Centre is to satisfy the information needs of members of the parent organisation. In other words it is aimed at fulfilling the information gap between information needs of users and the existence of information. Its function is to provide right information to the users in the right time and right usable form. In order to satisfy the information requirements of its users, the information centre prepares various products like indexes, abstracts, extracts and so on. It includes the functions of a special library and extend its activities to include some collateral functions, such as technical writing, abstracting, SDI and library research for users.

The services generally offered by an information centre are:

(1) Reference Service, (2) Referral Service, (3) Literature searches, (4) Translation services, (5) Researcher with information (providing solutions to research problem by analysis and correlation of information gathered from various sources), (6) Bibliographical Services, (7) Information Scouting (on keeping abreast of who wants what information and where and also to route the users requests to the appropriate person/sources), (8) Abstracting and Indexing Services, etc.

The basic distinction between libraries and information centre is that the information is the unit of service in information centres whereas documents are the unit of services in libraries. Information Centres take the responsibility of not only organising the information and documents but also locates and retrieves the information from the documents and prepares various information products/packages for easy consumption by their users.

2.5 INFORMATION ANALYSIS CENTRES / INFORMATION EVALUATION CENTRES

Information Analysis Centre or Information Evaluation Centre is an advanced kind of information centre. These centres are attached to research institutions by virtue of the functions / roles they perform. Libraries and information Centres, in general, help the users in accessing the documents needed by them. In view of enormous amount and variety of information being produced in this modern period, the need for filtering of the information/documents from the entire mass of information has been felt, to offer effectively, economically and rapidly the relevant information to scholars and other research communities. Thus have come into existence Information Analysis Centres (IACs). The Specialised Information Centres manned to a considerable extent by the subject specialists are called as IACs in USA from the mid 1960s. However, the latest name given for such centres is Information Evaluation Centres (IECs).

2.5.1 Definition and Meaning

Information Analysis Centres are the most effective systems, for making available to users authoritative, evaluated information in a convenient form. Such centres' business is to know everything that is being published in a specialised field. *Harrod's Glossary* defines an IAC as "a formally structured organisation unit specially (but necessarily exclusively) established to acquire, select, store, retrieve, evaluate, analyze and synthesize a body of information and / or data in a clearly defined specialised field, or pertaining to a specific mission with the intention of arranging and presenting the material in a most authoritative and useful form".

We have already seen that there is no greater difference between IACs and IECs and the latter name is preferred to the IACs. However, let us also examine the definition of IEC, as given in the *Harrod's Glossary*.

Information Evaluation Centre (IEC) is "an organisation which exists primarily to judge the values, validity and completeness of the information derived from experiments, research, development, test and engineering; it also undertakes the summarizing and reporting on such evaluations". Also called as Information Centre'.

2.5.2 Objectives and Functions

The basic objective is to know almost every thing published in a specialised subject field; to filter the entire mass of information; and to provide the authoritative and evaluated information in a convenient form. Critical evaluation is an important function of IACs/IECs, and it means the checking of basic facts, or assumptions made in documents, reliability of research methods, etc. Writing of state-of-the-art reports and critical reviews which are comprehensive analysis of available knowledge in a particular subject field, usually written for a particular group of users, necessitates evaluations for acceptance or rejection of particular documents as well as condensing and summarizing of the documents. Evaluations can be performed suitably by the subject specialists who are up to date in their knowledge in the subject and also in the wider field. They should possess working knowledge of library, bibliography, computer programming etc. Thus, the functions of IACs/IECs include:

- (1) Gathering everything published and unpublished in the specified subject field.
- (2) Analysing and evaluating the information, and
- (3) Condensing, storing and communicating through CAS publications etc.

The activities and products of such IACs are given in the following table:

Activities	Products
1) Selection and Collection of documents	Bibliographies, Current Awareness
2) Abstracting/Indexing	Indexed bibliographies, custom searches
3) Extraction	Descriptive Reviews, compilation (Un-evaluated)
4) Evaluation	Critical review of area Critical Compilation of data Criteria for experimentation Recommendations Solutions to (immediate) problems Correlation of data, prediction, properties

Source: ATHERTON, Pauline : *Handbook for Information Systems and Services*. pp.99

Evaluation of the information and performing the same function by the subject specialists are the two important distinguishing characteristics of IACs/IECs from other information centres and libraries. As a matter of fact, the evaluation is aimed at guarding the user against being submerged in the valley of information/literature published in his subject field.

2.6 CLEARING HOUSES OF INFORMATION

Clearing houses of information are also called as Information Clearing Houses'. According to Atherton, clearing house of information has come into existence as a hybrid information service. Its name infers a switching operation providing access through referral to appropriate sources or serving as a collection agency for special types of documentation in order to redistribute them on request.

2.6.1 Definition and Meaning

An organisation that collects and maintains records of research, development and engineering being planned, currently in progress, or completed. Such organisations provide documents derived from their activities and also provide referral services to the other sources for information relating to the activities.

These centres generally possess a small amount of documentary sources but offers consultancy/reference and referral services to the users.

2.6.2 Objectives and Functions

Besides being a depository of specialised collections, and particularly in a specialised discipline, distribution of information is the basic objective of Information Clearing Houses. It functions as a depository of collections and organizes them. It acts as a consultancy and referral centre and offers advanced kind of reference and enquiry services.

The National Translation Centre at the John Crerar Library, Chicago, which was founded in 1953 as the Translation Centre of Special Libraries Association (SLA), offers copies of unpublished translations from private and government and commercial agencies, retains them in microforms. It indexes these translations, announces them and provides to those who need them. National Technical Information Services (NTIS) is another example. Small Enterprises National Documentation Centre, Hyderabad is an excellent example of Information Centre as a clearing house of information. It offers services with the information on small industries.

2.7 REFERRAL CENTRES

Referral Centres, generally, do not offer the users with their needed information or documents, instead they direct them to the most appropriate source(s) of information. In turn the users have to obtain the required information from the directed sources. Such referral centres are some times the

only links between the user and the source of information. Referral services are those services in which the user will not be provided with his actually needed information or documents for his query, but he is referred to the sources such as secondary publications, information units, professional organizations, research institutions and individual specialists, etc. and inform the user, where to find them. They utilize directories and files on sources, if necessary specially created for the purpose.

2.7.1 Definition and Meaning

An organization for directing researches for information and data to appropriate sources, such as libraries, information evaluation centres, documents or documentation centres and individuals. A referral centre does not supply data or documents, i.e., the indication of sources, persons, institutions, publications, etc.) from which the information may be obtained on a given subject.

Referral Centres are organisations meant for indicating the information sources from which scientific information may be obtained on a given subject, that is, mechanisms for switching users to such sources.

2.7.2 Functions and Objectives

Referral Centre analyses the user's needs, maintains a file of resource profiles, and usually publishes a catalogue, index or directory of projects, programmes, persons and other means of communications. It directs users to the appropriate sources, providing names, addresses and a brief description of the recommended information source.

The functions of a referral centre include:

(1) To collect on a world wide basis, information about data and information resources within the subject or mission

(2) To provide a comprehensive inventory of the kinds of data/information/services available from various sources and to compile detailed subject indexes

(3) To guide users to the appropriate sources from which the required information can be obtained.

Referral Centres can function on their own or in cooperation with other services. Referral Centres are distinct from other information centres, basically in directing or referring the users to the appropriate sources instead of providing the users needed information or documents. Further, they provide/direct the users to the secondary sources like indexes, directories and professional organizations. Referral Centres are sometimes, the only links between the user and the source of information service.

Examples:

(1) International Referral Service (United Nations Environmental Programme) for providing all sources of environmental information.

(2) National Referral Centre for Science and Technology at the Library of Congress, Washington, D.C.

2.8 DATA BANKS / DATA CENTRES

Data is a general term of information. It is used by scientists, engineers, researchers and other groups of people frequently in their day to day activities/ pursuits. Data centres and databanks are used synonymously. But databanks are used many a time to indicate the storage of numerical data. However, they may also include other kinds of data or information.

Databank is a kind of data centre, where the raw data is stored for future consumption/use like in banks, where money is preserved. It is distinct from general banks as data on consumption / use do not replenish or exhaust unlike the money when it is used from banks. However, bigger compilations of data, tables etc may get outdated and obsolete sooner, and become a handicap for advancement of science, technology, industry, etc.

2.8.1 Definition and Meaning

A Database is a body of machine readable records, which is not created solely for a specific application, but may be regarded for some purposes as a homogeneous collection. It is also called a Databank.

According to OECD the meaning of Databank is:

- a) an organizational separation of data processing centre, that provides storage of data.
- b) data from different sources are brought together in one place, and made available to a wide variety of users, and
- c) organization of data to provide a series of outputs.

Consolidating the above characteristics, OECD defines Databank as "they are information systems for utilizing data from a variety of sources, by integrating the data into consistent sets, thereby facilitating access, manipulations and correlations of the data for a group of potential users".

Unesco defines a Data Centre as "an organization handling quantitative numerical data, which offers data services".

2.8.2 Functions and Objectives

The main objective of data centre is to maintain raw or partially processed data or its results. The other functions of data centre are data evaluation, compilation, dissemination including referral activities. They are meant precisely for handling quantitative numerical data.

Databanks generally handle multidisciplinary data of various kinds, such as administrative, statistical, techno-economic, census, management, etc., which is collected from a variety of institutions, and agencies. Whereas, the data centres handle data related to a narrow field of specialization.

Further, the translation centres, reprographic centres and the archives at various levels also form part of a national information system, as its component parts, besides the other components which were studied earlier. Archives form the principal repositories for government documents which preserve such valuable documents of administrative and other official documents for the posterity. Whereas, Translation Centres and Reprographic Centres help in acquiring, preparing, maintaining and supplying the translations and copies of documents, such as photocopies, microcopies, blue-prints and so on, in accordance with the users' demands.

2.9 LET US SUM UP

The national framework of an information system includes the information infrastructure involving the functions and services of all its components, such as libraries, documentation centres, information centres, information analysis centres, data centres/data banks, clearing house of information centres, referral centres, translation centres, etc. In providing effective and suitable information to the seekers of information, each one of these components of information system performs different functions and roles. Further, the objectives of each one of them are also distinct from one another in one respect or the other. However, the basic objective of the entire information system is to provide information effectively and efficiently to the complex society with varied kinds of interests and information needs.

2.10 REFERENCES

ATHERTON, Pauline V. *Handbook of information systems and services*. Paris : Unesco, 1977.

FAZLE RAB, Syed. *Changing frontiers of library and information science*.

HARVEY, Joan M. *Specialised information centres*. London: Clive Bingley, 1976.

2.11 GLOSSARY

Information Centre: A unit within an organization aimed at providing information services in the subject field with which the organization is concerned.

Databanks: Usually synonymous with databases and data centres, but used to specify collections of numeric data.

Information Analysis Centres: A unit meant for the purpose of acquiring, selecting, storing, retrieving, evaluating, analysing and synthesising a body of information and/or data in a clearly well-defined specialised field or pertaining to a specific mission with the intention.

2.12 ASSIGNMENT

Explain in brief the various components of national library and information system and their functions.

2.13 RECOMMENDED BOOKS

GUINCHANT, C and Menou M. *General introduction to the techniques of information and documentation work*. Paris : Unesco, 1983.

HARVEY, Joan M. *Specialised information centres*. London: Clive Bingley, 1976.

LIBRARY and information studies handbook / edited by PS Kawatra. New Delhi: Crest Publishing House, 1994.

2.14 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) What do you mean by an Information Centre ? Explain how it is different from Information Evaluation Centre .

2) What do you mean by Clearing House of Information ? Explain the functions of Clearing House of Information with examples.

II SHORT NOTES

- a) Documentation Centre
- b) Referral Centres
- c) Data Banks

UNIT-3: INFORMATION SYSTEMS AND NETWORKS - MODELS

Structure

- 3.0 Aims and Objectives
- 3.1 Introduction
- 3.2 Information Systems - Models
 - 3.2.1 Meaning of Model
 - 3.2.2 Need and Importance of Models
- 3.3 Networks
 - 3.3.1 Meaning
 - 3.3.2 Importance and Purpose of Library Networks
 - 3.3.3 Types of Networks
 - 3.3.4 Models and Topology of Networks
- 3.4 Let Us Sum Up
- 3.5 References and Recommended Books
- 3.6 Assignment
- 3.7 Model Examination Questions

3.0 AIMS AND OBJECTIVES

This unit aims to provide an over view of various models of information systems and networks.

After studying the unit, you should be in a position to

- explain the concept of a model of an information system and network
- describe an information system and also a network
- list out various models of information systems and networks
- distinguish an information system model with those of others.

3.1 INTRODUCTION

We have already learnt in Unit I of this Course, that system is a constituent of a set of interrelated entities, of which every subset is related to every other subset in the set and also has relationship with environment. We have also learnt in the same unit that an information system is an organisation of people, materials and machines that serve to facilitate the transfer of information from one person to another. And that the basic function of an information system is to provide information to the system users. We have also learnt from the same unit that library and information centres are very much viewed as Information Systems.

3.2 INFORMATION SYSTEMS - MODELS

Information systems may be operated by organisations for their own benefit or they may offer services to public on a subscription basis. The input to an information system can be either data or the requests. The data may be references to the documents. However, the output from an information system can be either a document or a computer data presented on a video display or as voice output. Information systems are useful in dealing with both the anticipated and unanticipated enquiries. Information systems aid in strategic decision making, reserved and investigation works, statistical, archival and reference applications.

3.2.1 Meaning of Model

A model is a small scale representation of an actual thing. It may represent the original in entirety or only certain isolated aspects. Chapanis has defined models as "analogies, being representations or likenesses of certain aspects of complex events, structures or systems made by using symbols or objects which in some way resemble the thing being modelled". In fact, every model is a simplification of the system it represents. However, in the models some features of actuality are correctly represented whereas others are neglected. For eg., toy car or a toy gun as a model of the actual car or gun. Thus, a model can be understood as a simplified representation of certain isolated aspects of actuality.

3.2.2 Need and Importance of Models

We know that an information system is a complex one, because of innumerable relations that exist between component concepts, and the relations between the components themselves exist in actuality. The human mind cannot manipulate the whole conceptual system in all its complexity. Science proceeds by isolating individual relations and studying them. These isolated objects of study are called as 'Conceptual Models'. The conceptual models, in fact, isolate very small aspects of complex systems.

The value of a model is that it is a representation which can be conceptually manipulated. It can be used as a tool to explore one particular aspect of actuality. In complex organisations like libraries,

the system modelling is helpful in identifying and ordering of different components (sub-systems) that reveal relationships, processes and other properties of a system or sub-systems. Thus, a model, in fact, is useful in identifying all the entities involved in a system and their respective roles and interrelationships.

Modelling is generally used in planning and assessing complex systems. They can stimulate real system events (organisational events) or transactions and they can be used to predict the consequence of actions and for contemplating the strategies during the planning process. Systems models are useful to the library managers in diagnosing and analysing the system components. The primary value of modeling is to develop a basis for the manager to predict future library events. Thus, the abstractions of reality gained from modelling can be a valuable tool in planning Library and Information Centres (LICs).

As stated precisely by PSG Kumar, the models are useful in the following aspects:

- a) in understanding the actual things,
- b) to pin-down a complex system to study it with ease
- c) in generalising and displaying consequences of using a system
- d) in identifying features common to diverse systems, and
- e) in identifying the need to explore the possibility to modify an existing system or to generate totally a new system.

3.2.3 Types of Models

Having realised the advantages and importance of models in complex information systems like libraries, now let us know the concept and characteristics of various conceptual and mathematical models as delineated by B C Vickery.

a) Spatial Models

Spatial models are the closest in type to the physical models. Spatial models are generally used for a building plan, or space layout, or a diagram illustrating a mechanism, etc. The 'Movement diagram' is another type of spatial model, which records the movements that are made by operators in carrying out a set of procedures. This type of movement diagrams are useful for revision of the layout in order to reduce the unnecessary movements.

b) Sequential Models

The Sequential Models reveal the sequence of activities in a procedure, for example, sequence of decisions taken in processing a loan request; sequence of operations/activities from selection of document to issuing it to a reader. The use of such models shall clarify the working of a system and help to simplify it.

Another type of sequential model is the 'Network diagram', which is useful in system design and construction. In this model the design and construction project is analysed into a series of activities and events. The 'activities' are operations that consume time and use resources. Whereas, the 'events' are specific situations that indicate a stage in the design process but don't consume time by themselves. Thus, a network diagram reveals activities and events in their sequential relationships. Another form of sequential model is the 'Genetic or Historical Chart' which records the developments in time of a subject of investigation, with the implication that each stage 'gives rise to the next'.

c) Structural Models

We know already that a system consists of components in relation to each other. And the relations between components constitute the structure of the system. For example, in a group of five people many patterns/structures are available in a communication network as given in the following figures. (The arrows in the model indicate the directions of communication).

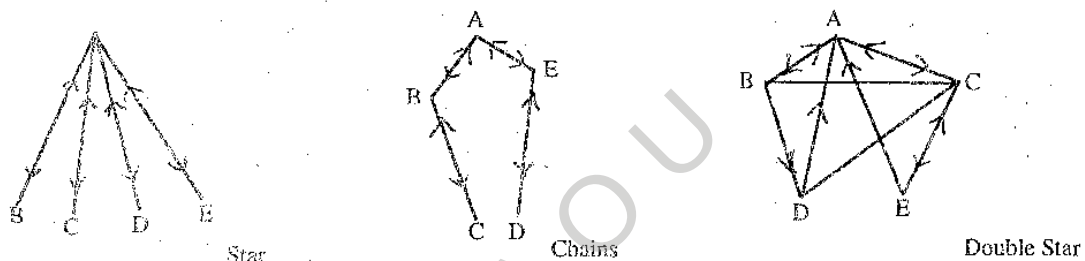


Figure-1: Source: VICKERY, B C. *Information systems*. p.166.

The Logical Relations models are characterised for using logic. And according to the laws of logic the manipulation of concepts is done in a system. Further, such concepts and its manipulations showing the interrelations between or among the concepts is represented by means of certain symbols. Such kind of symbolic representation of concept relationships is a common phenomenon in systems analysis.

'Inclusion' is a fundamental relation in logic. For example, if all members of Class B are also members of Class A, then B is included in A. The same is logically symbolised as

$$B \subset A$$

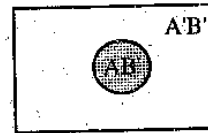
or

$$A \supset B$$

Further, it is to be understood that two Classes A and B can exist in four possible inclusion states relative to each other. They are :

1) Mutual Inclusion:

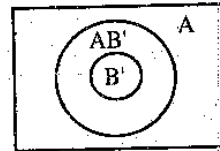
ACB and BCA



2) Complete inclusion:

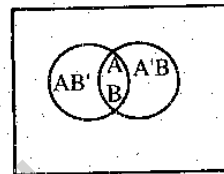
(of one another, ie all B are A)

$A \supset B$ and BCA



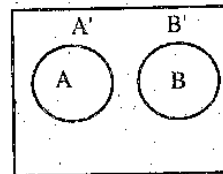
3) Partial inclusion:

(ie Some B are A and/or
Some B are not A)



4) Mutual exclusion

(ie No B are A)



Note: Here $A' = A$ not and $B' = B$ not.

Source: VICKERY, B.C.(1970). *Information Systems*.

d) Mathematical Models

Logical relations among the entities/concepts and their measures have led to the formulation of mathematical models. As we already know that a system being a complex activity and has to handle innumerable concepts, it analyses all the points before they are integrated again in a design synthesis. At this juncture mathematics being a very precise language, is used as a powerful tool to represent

the complexities of constituents. The same logical model discussed in the earlier paras can be represented in mathematical model as:

$B \subset A$ means that Class B is included in Class A

BA means the intersection of B and A. The classes of entities

$B \vee A$ means the union of B and A, the class entities that are included in either class B, class A, or both

$\bar{A}$ the complement of A, is the class of all elements not in class A.

Then the algebra used to postulate formal laws that apply to classes, eg:

antisymmetric: if $B \subset A$, and $A \supset B$

then $A = B$ (then classes are identical)

transitive : if $B \subset A$, and $A \supset C$ then $B \subset C$

communicative: $BA = AB$

$B \vee B$

From these and other postulates, the algebra develops logically necessary consequences. For eg.

if $AB = AC$ and $A \vee B = A \vee C$

then $B = C$

The development of a mathematical model comprises two stages. The first one is constructing a conceptual model and the second one to identify the concepts in the model with the concepts posted in a certain mathematical formalism.

Besides the above stated models, there exist various other models, such as probability models, linguistic models, information retrieval models, knowledge retrieval models, data retrieval models, Fairthorne model and Mooers model.

Having understood the models of information system, now let us know about the basics of networks.

3.3 NETWORKS

Networks have been playing an important role in the present day society, where not only is the information produced on a very large scale but also is in demand from various user groups from all

corners of the globe. Marriage of computers and communication technologies has resulted in the formation of information networks. Networks are in fact the communication tools. They provide a connection between two or more users, through which information may be transferred, searched and exchanged.

3.3.1 Meaning

The US National Council for Libraries and Information Services, offered a comprehensive definition of Library Network as "two or more libraries and/or other organisations engaged in a common pattern of information exchange, through communication, for some functional purpose. A network usually consists of a formal arrangement whereby materials, information and services provided by a variety of types of libraries and/or organisations are made available to all potential users. Libraries may be in different jurisdictions but agree to serve one another on the same basis as each serves its own constituents. Computers and telecommunications may be among the tools used for facilitating communications among them".

The UNISIST II Main Working Document defines Information Network as "a set of interrelated information systems associated with communication facilities, which are cooperating through more or less formal agreements and institutional agreements in order to jointly implement information handling operation, with a view to share their resources and to offer better services to the users. They generally follow identical or compatible rules and procedures.

3.3.2 Importance and Purpose of Library Networks

The exponential increase in the number of information users of all kinds and also the quantity and quality of information required to satisfy the users needs, the computer networks have become necessary. Computer-assisted information networks have removed the space and time barriers enabling the individuals to interact/communicate and exchange information from anywhere to anywhere. The transfer of information is the major concern of information professionals and the networks which are used as the means of information transfer and exchange have gained importance in the present information age. Networks of various kinds and telecommunication systems are paving way for the integration and globalisation of information access and delivery.

The basic purpose of library networks is for resource sharing among institutions, organisations, libraries, departments, etc. However the other purposes of networks are -

- a) to save time in accessing many sources
- b) to save the cost of acquiring many secondary indexes in print form
- c) to provide services better or faster or more reliably and cheaply
- d) to assist in cataloguing of documents

- e) to promote document delivery
- f) to minimise or avoid duplication
- g) to aid suitable collection development
- h) to facilitate online searching
- i) to develop databases of documents, project, institution, etc.
- j) electronic mail services, and
- k) file transfer.

Networks provide access to millions of records within a short time and with more access points. This enhances the usefulness and making the searches easy for the users. It also helps in updating the databases easily. It helps in crossing the geographical boundaries by the searches by accessing distantly held databases. Further, several users can have access to a single database at a time.

The application of networks is found these days in various areas of work and in daily life. Some of them are -

- a) airline reservations
- b) electronic mail
- c) facsimile
- d) public information services for home and office use
- e) teletext (i.e. dissemination of information from a central place to a number of nodes), and
- f) video-texts (i.e. an interactive service in which users can access large public databases and perform simple transactions like making reservations).

3.3.3 Types of Networks

The following are the three types of networks observed in general:

- 1) LAN (Local Area Network): a network that exists in a campus or an institution
- 2) MAN (Metropolitan Area Network): a geographical area network generally covering a city.
Eg: DELNET, CALIBNET, etc
- 3) WAN (Wide Area Network): Networks covering a wide geographical area concerned with financial and economic transaction of data, including academic exchanges. Eg: JANET, INFLIBNET, etc.

3.3.4 Models and Topology of Networks

Network topology/structure indicates the mode of connection of the components and equipment including the communication links in a network. To some extent the reliability and efficiency of a network is determined by its structure. Each model/structure of a network depends on the purpose for which member libraries/organisations would like to use it. As we know, networks are basically intended to facilitate better, simpler and cost-effective exchange of information. The basic anatomical structures that are identified by Kent are - Star, Hierarchical and Distributed networks. Now, let us understand the structure and characteristics of different networks.

Star Network: It is a kind of network where all communications must go to other nodes through a central point.

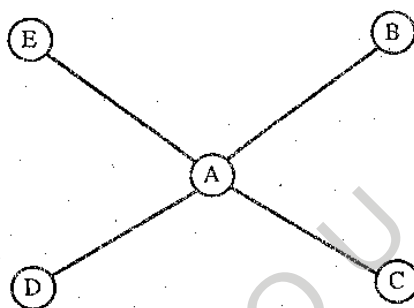


Figure-3: Star Network Structure

In this, one network member, A holds all the resources, whereas all the other network members B, C, D and E have to avail the information only through the central resource, i.e., a node. Thus, a Star network shall have a server at its centre. All messages should go through the server. When any message is going from one computer to another it must be sent to the server, which in turn transmits message to its destination. The network fails when the Server fails. It is fairly easy either to reserve or add any computer (i.e. node) to the Star network. In some topologies of Star network a central computer acts as a file server with all work stations connected to it.

Hierarchical Network: In a Hierarchical Network structure, all the network members share resources with most of the needs satisfied at their level before seeking services from the next greater resource centre. The remaining unsatisfied requests are further referred to the next higher order.

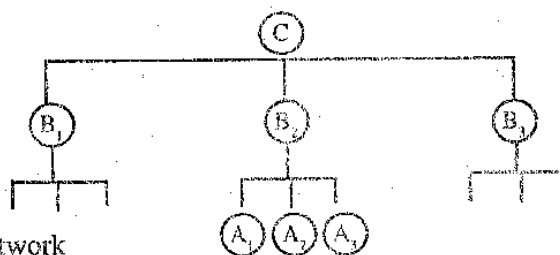
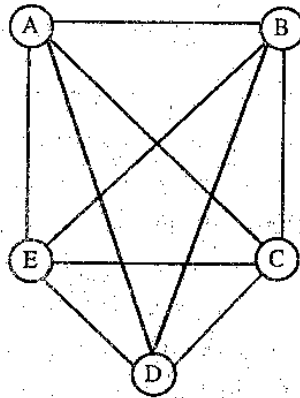


Figure-4: Hierarchical network

Distributed Networks: In a Distributed Network structure all network members (nodes) share their resources with one another. i.e., each node has direct connection with others in order to interact and exchange information or resources. These are the open-ended general purpose multiple access data paths on to which all stations/nodes are attached by short dedicated data paths.



The messages/data can travel in both directions. Besides these, one can find other topologies/structures of network such as Ring network, Bus network, Interconnecting network and Irregular network.

Bus Networks: In this network structure, all the computers (nodes) are attached to one single cable. When a computer transmits messages/data all other computers can listen simultaneously.

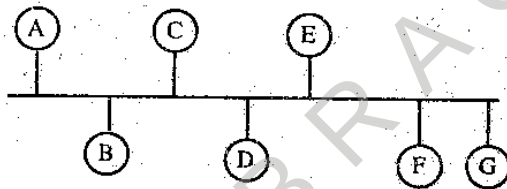


Figure-6: Bus Network Topology

In this network, the messages are sent along the bus, i.e., the cable. The computers (nodes) connected to the cable can receive the messages and determine whether it is for them or not. In a Bus network, failure of a single node/computer does not effect the performance of rest of the network.

Ring Network: The computers or nodes are arranged so that the communication links connect the nodes in a ring structure. In this network, any computer can communicate with any other by sending the messages around the ring. Each message is tagged with its destination. While the message proceeds around the ring each computer determines whether it is to be the receipt of the message, and if not, the message is sent to the next computer. All the computer/nodes take active participation

in transforming the messages from one station to the other. Moreover, the failure of a single computer will affect the entire network system.

There are also some hybrid networks, which are partly Star, partly Ring and partly Bus etc. Such networks are common in very large networks.

3.4 LET US SUM UP

Models are the analogies of actual things, which represent the original either in its entirety or only certain isolated aspects. There are various types of models such as Spatial, Sequential, Structural, Mathematical, Information Retrieval and Data Retrieval. Models representing the information systems. Similarly, the networks have been gaining greater importance in the present society for providing quantitative and qualitative information services. Basically, there are three types of networks. They are LAN, MAN and WAN. However, the structures/models of networks can be many more depending on the purpose for which they have come together as a network. There are Star, Hierarchical and Distributed Network structures, besides the other kinds of topologies such as Bus, Ring and Hybrid networks. Moreover, the simplest and the ideal network is the one in which every node (computer) has interconnection with all other nodes in the network system.

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3.6 ASSIGNMENT

Observe the LAN of your organisation/library or any other nearby organisation and explain in detail its topology and the purpose it serves ?

3.7 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) What do you mean by a 'Model' ? Explain in brief various Information System models.
- 2) What do you mean by a Network ? Explain their importance.
- 3) State different topologies of networks and explain their advantages and disadvantages.

II SHORT NOTES

- a) Bus Topology
- b) Star model

UNIT - 4 : PLANNING AND DESIGNING NATIONAL INFORMATION SYSTEM

Structure

- 4.0 Aims and Objectives
- 4.1 Introduction
- 4.2 National Information Policy
 - 4.2.1 Concept/Meaning
 - 4.2.2 Aims and Objectives
 - 4.2.3 Need
- 4.3 National Information System (NATIS)
 - 4.3.1 Concept
 - 4.3.2 Objectives
 - 4.3.3 Requirements and Components
- 4.4 Planning and Designing of NATIS
 - 4.4.1 Sub-systems and Their Terms of Reference in NATIS
 - 4.4.2 Co-ordination and Integration of Sub-systems in NATIS
- 4.5 Let Us Sum Up
- 4.6 References
- 4.7 Glossary
- 4.8 Assignment
- 4.9 Recommended Books
- 4.10 Model Examination Questions

4.0 AIMS AND OBJECTIVES

The unit aims to introduce to you the concept of National Information System (NATIS) and its planning and designing. It also aims at introducing the related concepts such as National Information Policy and explain its need in designing and planning of a NATIS.

After going through this unit, you will be able to

- explain the concept of NATIS (National Information System)
- discuss the importance of National Information Policy and National Coordinating Agency in planning and designing of NATIS
- distinguish the difference between the NATIS and National Information Policy, and
- describe the various components that constitute the NATIS.

4.1 INTRODUCTION

In Unit-1 of this course, we have presented the concept, meaning of an Information System and also various kinds of information systems. Further, we have also presented the information system in its holistic view, comprising various components such as libraries, documentation centres, information centres, information evaluation centres, databanks, referral centres, clearing houses of information, reprographic centres and translation centres which together constitute a national informational system.

The national information system is a relatively new concept and it was introduced by the Unesco in the 1970s. It was expected that by the 1980s, the diverse manifestations of library and information services of a particular country would be viewed as an organic whole and different components existing within the country shall be well designed and co-ordinated for optimum exploitation of the information resources. It is well recognized in the recent past that information is a key national resource and of crucial importance for overall productivity and advancement of nations. In view of the phenomenal growth of information, no single library how big and rich it might be, cannot boast of self-sufficiency in acquiring needed collections/information adequately and render L&I (Library and Information) services satisfactorily to its complex user groups.

Planning and designing of information system is an area of increasing importance. It is important because the information systems based on the application of computers are fast influencing the work of all members of organizations right from the top management to that of lower level members.

According to Koontz, *et al*, Planning is deciding in advance what to do, how to do it and when to do it and who is to do it. Planning may also be said to bridge the gap from where we are to where we want to go. It may be possible for things to occur which would not otherwise happen.

Planning is essentially concerned with future. It is a task or an activity which need to be taken up on a continuous basis in the management of all organizations including the library and information centres and L&I systems. Planning is basically aimed at giving a clear direction for growth and complexity. It also helps in providing a framework for service minimizing the *ad hoc* decisions. Planning is an iterative process of allocating the available resources to specific actions in order to make incremental steps towards the ultimate goal. A plan embodies a policy for given time, according to the existing conditions.

4.2 NATIONAL INFORMATION POLICY

Let us now understand in detail the national information policy and also its importance in planning and designing of a national information system. As we learnt earlier information is a vital national and international resource and a pre-requisite for the effective pursuit of national policies on economic, scientific, technological and social development.

The library and information centres which collect, store and transfer information form an essential ingredient of alround development of nations and society. National development connotes a harmonious blend of various infrastructures such as scientific, technological, medical, agricultural, literary, linguistic, religious, moral, psychological, political, economic and cultural spheres of activity planning a national information system and its infrastructures, a network of several subsystems developed out of such spheres of activities.

4.2.1 Concept and Meaning

The concept of national information policy should propose an information sector similar to that of an industrial sector or agricultural sector as a component of national development. This kind of perception helps to identify concretely the priority in the information sectors in which (i) generation of information is necessary, dissemination of information (that is, the rate of flow of information is to be speeded up or to be retarded), and (3) providing mechanism to improve the capabilities for utilisation of the information already available.

A policy is an instrument which seeks to legalize a plan or a system design. A policy may be considered basically as statement of a course of action which is formulated with different levels of generality and specificity. Depending on the hierarchy, a number of courses of action may exist in such a manner that the system as a whole is capable of realizing the overall objectives. Thus, a policy is a statement, a commitment to a generic course of action, necessary to attain the goal.

UNISIST Main Working Document defines national information policy as "a set of decisions taken by a government through the appropriate laws and regulations, to orient, the harmonious development of information transfer activities in order to satisfy the information needs of the country. It needs a provision of necessary means/instruments (financial, personnel, institutional) for complete implementation".

4.2.2 Aims and Objectives

The principal objective of a national information policy could be the provision of information and information services relevant to the present needs and also the future needs of the generators, processors, disseminators and users of information. The national information policy objective is to enable a national capability for effectively and readily meeting at a reasonable cost, the information requirements of users in the various sectors of the economy. The ultimate aim is to enable the recipients of such information to perform their respective functions more effectively in promoting national development.

Intergovernmental Conference on Scientific and Technological Information for Development (UNISIST-II) held at Paris from 28th May to 1st June 1979 expressed that the aim of a national information policy is "to identify the information requirements of the country and to ensure that they are satisfied that as fully, promptly, cheaply and conveniently as scarce resource allow".

The emphasis is clearly on the information requirements of a country and its provision for the developmental activity. The Unesco document also states that "the basic problem in successfully applying information to development is the identification of appropriate information requirements. This involves the identification of actual and potential information users and that of their specific information needs in the light of country's development goals and objectives".

4.2.3 Need for Information Policy

Information and knowledge contribute to generation of wealth as it is capable of converting natural resources into artifacts and consumable products. Possession of information is a key factor which will remain competitive in the modern world.

According to Guha and Rajan, the national information policy should provide for

- 1) Fostering, promoting, supporting and sustaining by all appropriate means, all information activities in the country.
- 2) Allocating a definite proportion of funds in relation to the gross national product.
- 3) Developing the information infrastructure around the existing institutions like libraries, documentation / information centres and also creating the other components like information analysis centres, data banks, referral centres, etc., to form a total information system.

4) Creating a national focal point which will concern itself with the issues of policy, planning and coordination of information systems developments at the national level and also have links and interact with other national and international focal points.

5) Examining ways and means to create a better awareness of the advantages and potentialities of information communication technologies and workout strategies on plan actions in selecting and applying the appropriate technology to the development of an information network.

6) Encouraging and initiating programmes for the training of information personnel on a scale adequate to fulfil the varieties of needs, to plan design and operate the national information system.

7) Building up user education programmes at different levels in educational institutions, professional organizations, research establishments etc., so that the information system is effectively used.

Information policy needs to ensure that the world's professional and specialized knowledge is fully and properly used guiding socioeconomic development. It is a major component of science and technology policy and it is an integral part of overall governmental policy linked to socioeconomic development. This is to ensure that the scientific knowledge generated out of the man's everlasting pursuit of truth is made available for generating more knowledge, without regard to race, language, caste, religion or political barriers.

4.3 NATIONAL INFORMATION SYSTEM (NATIS)

National Information System is basically concerned with all the information infrastructures existing within a country in order to provide the needed information to all those who require it for various purposes. Now, let us understand the concept, origin, functions and planning & designing of a national information system.

4.3.1 Concept

NATIS is an indispensable tool for a country's economic, cultural and social well-being, to work towards the creation of the mechanisms that could help achieve such a goal.

The concept of a National Information System (NATIS) was promoted by the Unesco. It was accepted by the *Intergovernmental Conference on Planning of the National Documentation, Library and Archives Infrastructures* (1974) at Unesco, and coined the acronym NATIS for NATIONAL Information System. Further, member states of Unesco were asked to review their overall information situation in order to improve access to information through the creation of a national capability for the specific purpose.

NATIS comprises all agencies, resources, processes and activities involved in the transfer of information within a country. NATIS constitutes all services meant to provide information for all

sectors of the country and all categories of users. The task of NATIS is to ensure that all engaged in political, economic, scientific, educational, social or cultural activities receive the required information, enabling them to render their fullest contribution to the whole community. It was brought out for greater effectiveness in the achievement of social and economical goals of a country.

4.3.2 Objectives

The primary purpose of a NATIS is to share the nation - wide resources to fulfil all information requirements of users at all levels. The *Intergovernmental Conference on Planning of National Documentation, Library and Archives and Infrastructures* held in Paris, 1974 had formulated the following 12 objectives.

- 1) Design of a National Information Policy
- 2) Instruction in the Use of information and stimulation of user awareness
- 3) Promotion of the reading habit as a pre-condition for sustained life-long self-education
- 4) Examination and thorough assessment of expressed and potential users information needs
- 5) Analyses of manpower resources as a basis for the short and long range planning of manpower requirements
- 6) Analysis of manpower resources as a basis for the short and long range planning of manpower requirements
- 7) Planning and design of the organisational structure of NATIS to facilitate efficient transfer and dissemination of information
- 8) Establishing national institutions which will train manpower to meet the requirements of NATIS
- 9) Planning for appropriate conditions which will facilitate rapid integration of new technological methods and devices into the mainstream of information activities
- 10) Establishing a legislative framework to ensure a strong national information infrastructure
- 11) Making adequate financial provision to ensure effective implementation of NATIS.
- 12) Promotion of Universal Bibliographic Control(UBC) through a National Bibliographic Control Centre in order to achieve universal availability in an internationally accepted form, of basic data on all publications.

However, precisely the basic aims of NATIS are to:

- provide necessary central library services

- provide leadership within the library component of NATIS
- participate actively in library and information activities for its overall development.

4.3.3 Requirements and Components

For planning and designing of NATIS, certain guidelines are needed at the national level. These guidelines shall help in analyzing problems facing governments trying to integrate a policy for national information systems within their general educational and R&D policy, and to point out various alternatives for policy actions. The guidelines deal with the structure and functions of NATIS which require co-ordinating machinery, be it a committee, a council or an institute. They also propose action for improving NATIS by examining the elements, the sub-systems upon which NATIS will rely. Terms of reference for various kinds of services are suggested in order to show how these services could interface with or integrate into NATIS. The ultimate aim, i.e., of linking the national systems (NATIS) with regional and international systems, is approached with reference to a certain number of principles that would form legislative framework.

i) Setting up a Central Coordinating Body

According to the NATIS document "Government should establish the appropriate organs for the operation of NATIS and clearly designate responsibilities and determine priorities at all levels, bearing in mind that coping with the quantities of documents and data now being produced far exceeds the resources of any single service acting on its own. It is, therefore, highly desirable that a central co-ordinating body (bodies) be set up to advise the government on the formulation and implementation of national information programmes and in matters related to international co-operation in these fields".

ii) Functions of the Central Co-ordinating Body

A central co-ordinating unit would be in charge of establishing the plan, acquiring resources and distributing responsibilities, as well as of international liaisons on the governmental level. It would not be expected to carry out operational activities, but rather to initiate activities by delegating them to project groups or operational agents.

The central co-ordinating body assigned to act as the NATIS agency, would have to consider both the overall information policy of the government with its international ramifications, and the functions of all decentralized activities in keeping with the infrastructures, i.e., a government department information unit, a special library, a technological documentation centre, or an archive.

The other function is to divide the activities required to fulfil the objectives and to define an organizational structure in which specific persons are responsible for the job to be done. It is suggested that the elements which already exist may be used as a basis for building upon. Further, it is essential that various existing and newly established units to provide coherent reports so that the

NATIS agency can evaluate their performance in relation to the objectives. The main function of the co-ordinating body would be to advise the government on the formulation of an information policy and to execute its implementation.

The functions of a Co-ordinating Body can briefly be stated as follows:

- 1) The setting of objectives which conform to the NATIS concept and the specific policies for educational, cultural and industrial development, and to the general policy for economic, technological and societal development of the country;
- 2) The communication of the objectives to all concerned;
- 3) The planning needed to fulfil these objectives;
- 4) The division of tasks and the overall organizational structure;
- 5) The setting of responsibilities for the job to be done;
- 6) The proposals for financial resources;
- 7) The appraisal of the performance and required reporting;
- 8) The planning of manpower development;
- 9) The international liaisons.

4.4 PLANNING AND DESIGNING OF NATIS

The precise form and character of a national information system would vary in different countries, as it would be made up of a number of elements(sub-systems) which in turn could differ in their structures. The goal here is to define the terms of reference of the existing subsystems, find out what their interfaces are and how the necessary co-ordination can be achieved. Building huge library collections does not produce information, all it produces is piles of recorded information. Modern information services need the back-up of well-organized libraries. However, the big depositories of the world's knowledge could, to a large extent, be located outside the national borders, if the strength of the communications network permits the country to tap these depositories.

The NATIS document points out that there is no one single model for a national information system with its appropriate networks and services can be designed capable of suiting the requirements of different countries in different regions.

In organizing the infrastructure for today and for the future, international co-operation be relied upon and strengthened so as to make efficient use of global stores of knowledge. Smaller countries in particular should consider the possibilities of pooling resources for the establishment of communication means and of avoiding unnecessary duplication in their national sub-systems.

4.4.1 Sub-systems and their Terms of Reference in NATIS

Since a prerequisite for better utilization of information sources is good communications, a policy for the development of the NATIS must include a reappraisal of the policy in the general field of computer and telecommunications policy. The central co-ordinating body for NATIS could contribute to a better understanding within the government of the economic and social implications of the combination of computers and telecommunications and associated technologies together with information for technological development and support to industry, to education and policy makers.

Once the government of a particular country, announces its intention to set up a new national information policy machinery for NATIS, it would then be necessary to take stock of the existing state of information in the country. As stated earlier, the precise form and character of the national information system would vary from country to country, as it would be made up of a number of elements--sub-systems--which in turn differ in their structures. Each country would have to determine its national needs and priorities in the field of information, and decide which knowledge store it cannot strategically do without, so that it could avoid placing undue reliance on other countries, while in other cases it might be desirable to pool resources together among countries in a region.

The elements of infrastructure in an information system are: information, documentation, library and archive services. It is to be understood that the phrase 'integrating the information infrastructure within a global system does not mean that all information activities should be included in a single system nor that they should be totally integrated. It is to be made clear as to which information activities should be kept together and which kept apart. The co-ordinating body has to tackle the question of how far co-ordination is to go. It is also to be understood that the NATIS on one hand and the UNISIST on the other could be seen as expressions of two Unesco programmes for global integration of information. A UNISIST document (SC/74/WS/52) expresses the point concerning the existing system as they provide the foundation for any additional activity and, properly inventoried, not only assist in the identification of gaps and deficiencies, but also indicate possible short and long term solutions. This document makes an attempt to distinguish elements of the infrastructure and existing sub-systems through the following checklist of information stores.

1) Libraries, documentation centres, archives

These represent the principal stores where most of the formal and informal literature are collected, indexed, stored and made available for retrieval. They may be grouped as:

- Academic libraries
- Public and school libraries
- Special libraries

- National libraries
- National archives
- Newspaper archives
- Institutional archives
- Document collections or documentation centres.

2) Information centres

Frequently information centres have switching and reference functions, often incorporating data collection and dissemination activities. Principally they are:

- National information centres
- Specialized information centres, mission and subject-oriented
- Industrial information centres or services
- Information analysis centres.

3) Government information sources

Important segments of the national information infrastructure are located in government and public services. Statistical, managerial and administrative data, legislative information, policy and decision papers, surveys, expert reports, etc are found in :

- Offices and various administrative units of government
- The legislative and judiciary
- Office of the State Comptroller
- Regional and local administrative units
- International agencies and foreign embassies.

4) Societies

Various types of societies / associations are useful as sources of information, because of the expertise which their members can provide and also because of various services they frequently offer. They are:

- Professional societies (eg. Chemists)
- Humanitarian societies (including funding organizations, eg: Rockefeller Foundation)
- Academic associations(e.g. Academy of Sciences)

- Technical associations (e.g. Building contractors)
- Economic associations (e.g. Banks)
- Trade unions and labour organizations

5) Publishing and Printing Industry

Printing and publishing industry is an important information source in its own right as well as by its relationship with kindred organizations inside the country and abroad. They are:

- Newspapers and magazines
- Professional publications of any type
- Book publishers and printers

4.4.2 Co-ordination and Integration of Sub-systems in NATIS

Having learnt of various components that constitute NATIS, now let us understand the establishment of the sub-systems and their co-ordination and integration into the national information system. The existing information systems are to a large extent the result of ad-hoc planning, based on traditional and insufficient concepts and theories. When it comes to the planning of a global system, they have a little to offer for the planning and design of sub-systems capable of changing their structures continually to adapt to changing user needs, new goals of society, and other environmental factors, and eventually for global integration. Nor there is a step by step procedure valid for establishing the national information systems, since such a strategy would not only serve to retrograde the country by several years and create a gap which would be difficult to fill because of the rapid changes which are continually taking place. Instead, it is preferable to create a capacity for change and adaptation, and planning should be such that a readiness is created to solve the as yet undefined problem of global system integration of national sub-systems. It is necessary to create a mechanism for influencing the sub-systems already existing, namely by using an indirect method, i.e. the planning of the planning system itself.

The planner needs a conceptual framework that should be elaborated in greater detail before concrete recommendations are brought forward. In any country, the planner can envisage two quite different situations when designing the sub-systems. One being a situation in which he must start more or less from the start. In this case, the new establishment or structure has to be designed as a sort of initial solution which will be referred to as *Initial Model*. The other situation is that of dealing with an existing system or structure which had already had an acceptable start. In such case, what is needed is a model to change its activities into the direction of NATIS. Such a model could be necessary in the developed countries especially where the presently functioning systems are characterized by great complexity so that the required changes can be made. This planning model will

be referred to as the *Diagnostic Model*. In an existing system, the more differentiated the various elements or units are, the more difficult it will be to achieve integration or co-ordination. Special mechanisms might be needed such as special co-ordinators or perhaps a whole section of integrators in the very central co-ordination body.

This conceptual model framework is of a rather general nature and could be applied in a developed country as well as in the Third world. The latter might, however, make better use of the first model, even if it could apply the second one for already existing organizations. It would be better if the basic factors influencing the implementation of these two models should be distinguished. There are three such factors, namely, the level of aspiration (which necessarily will be subjected to practical constraints), the available resources, and the environment.

The first factor being the level of aspiration is always a subjective factor depending upon the planners identification of the general objectives of the NATIS. The resources such as physical and human resources, their inertia or flexibility and whether total resource combination could be achieved to suit the planning need be looked into, as the second factor. Since the aim is to make NATIS flexible, there is no need for very specific and detailed planning from the very beginning, as the future outlook for the information sector is one of continued growth, it is always possible to find alternative uses for the resources which are allocated to such an expanding sector.

The third basic factor, the environment, has to be defined in more detail by distinguishing among the four segments applicable to NATIS:

- a) the user segment which includes both disseminators of information (gate-keepers) and the end-users of the information services;
- b) the producers and suppliers of information, as well as of technology and human resources;
- c) the societal segment made up of government policy and official attitudes towards NATIS and its services;
- d) the technological segment in which the technical advances and development trends of NATIS and alternative sectors of society are included.

Before the actual planning, an assessment of the amount of planning needed has to be made. It is practical to re-examine the knowledge so far gathered on resources and environment. The character of the required planning depends heavily on concepts and systems terms already agreed upon internationally by the Unesco NATIS programme. Therefore, now the task is to find as to how to change these terms into problem-solving terms of use in the planning process.

First of all, some estimates about the future are necessary in order to decide upon the length of the planning period. The future development within the four different segments (users, producers and

suppliers, society and technology) mentioned above will influence the planning of NATIS. Therefore, some projections of future are needed.

Before going for the organization form of the sub-systems, it should be understood that a functional organization can grow more easily by just adding new functional departments to it, while a vertical organization needs re-organization each time it is to grow by diversifying its functions. At least for the initial solution, a project organization is set up with a limited life-span.

In Yugoslavia, such a project organization approach was recently proposed in planning to achieve a strategic change towards an embryonic NATIS by the establishment of sub-systems.

Now, let us know as to how the planning is done using the two models, namely, Initial model and Diagnostic model.

i) Planning for Change Using Initial Model

We have already understood earlier that restrictions on resources and also the environment influence the planning change. It is understood that a generous environment would be beneficial to development. The planning strategy should, therefore, try to move the sub-systems into a rich and generous environment, instead of trying to design more and more elaborate systems to cope with a restricted environment with poor resources and poor outlooks for the future.

The goal of planning is to achieve an adaptive system and there must be a cohesion with the total planning of the government. Both regular adjustments of the organization structures and special re-organization programmes are used to release the full creative potential of human resources included in the subsystems. The Management by Objectives (MBO) philosophy can serve as a general guideline. In implementation of planning, the Initial planning can be used in the following three types of situations. They are:

- a) When planning the establishment of a completely new organization;
- b) For a new type of formal system in an existing organization;
- c) When an existing system functions so badly that the best alternative is to formulate a new start.

The environment of the sub-systems such as information, documentation, library and archives areas are different. Except the archival area all others are fairly complex and diverse. First an 'umbrella organization' is to be established comprising of information-documentation-library areas. It would be advantageous to have sub-systems that are not completely integrated. This will allow a reasonable degree of freedom of action.

Planning is concerned with how things ought to be, with designing structures to attain the goal. The task of the umbrella organization for the services within the information, documentation and library area is to perform medium-level planning of a coordinating nature, distinctly separate from

high-level planning which should be the task of the Co-ordinating Unit--the focal point. Depending upon the stage of development and complexity of the country, there might be a need for more than one umbrella organization for the development and integration of sub-systems. Even for archival area an umbrella organization is also beneficial. Unesco proposed a structure of a body for combined policy-making for operational services, and such a body often takes the form of a central institute. For e.g., VINITI, INSDOC, etc. Such an institute would be both an umbrella organization for co-ordination and responsible for operational activities.

The Initial Model has got several advantages. They are -

- a) Central management eliminates duplications and makes it possible to use unified routines;
- b) Concentration of funds within a single organization;
- c) An excellent basis for introducing automated routines;
- d) A unified approach and quality of services provided to the users;
- e) Consistency in fulfilling the policy set internationally and adopted by the focal point.

Establishing an institute of this nature brings in the stability. Once it comes into operation it will have catalytic effect on evolution of other services.

This model has got some disadvantages. Many research institutes and trade association services would find it cumbersome to give up their own services, which may be very highly developed, in favor of centralized services of an institute. It is also felt that the central services are always be at farther place from the frontiers of scientific research and the industrial sectors.

The establishment of an institute is one initial solution model. However, the task of planning is also that of looking for satisfactory alternatives. In providing support for scientific organisations and industry the setting up a national information/telecommunications network which can be linked internationally and to make terminals available in existing information services. The new environment which the information technology opens up, has good effects when used in existing or newly established sub-systems.

The immediate task of an umbrella organization is to design some projects and project teams for the operations. When one or more project teams are identified by the umbrella organization, for administering the projects, the planning of the projects should be put into action by releasing financial resources. There are various sources of international aid which could be approached if national funds do not suffice. In order to point out the scope of umbrella organization, which is in the area of Information, Documentation and Library Entities, the acronym IDLE is assigned to indicate that the operational activities are located elsewhere, namely, in the project teams. But the essential task for IDLE is to plan for initiation, co-ordination, problem solving when the terms are stuck, and changes

within the NATIS framework. Such an umbrella organization would represent a potential capacity for change. And the co-ordinating unit at the upper level decides to advance further towards the development of NATIS, the umbrella organization IDLE would have to undertake new planning. To assist the routine activities of IDLE, such as calling meetings, preparing budgets, surveying the projects, evaluating results, etc., a secretariat should be set up.

ii) Planning for Change Using the Diagnostic Model

The initial model is easy to apply when gaps have been identified either by scrutinizing the inventory or in the organization chart. When it comes to the NATIS objective "to encompass all services involved in the provision of information for all sectors of the community and for all categories of users", the pragmatic or heuristic approach could be helpful. When some unknown problems are to be unearthed the heuristic approach is used by generating and testing out new solutions, i.e., for testing effects of introducing sub-systems or of changing or making additions to existing sub-systems.

It is the responsibility of the central co-ordinating body to affect the functioning of existing sub-systems in keeping with NATIS recommendations, and this can only be done by diagnosing their present functioning. Because of this reason, the proposed method is called as *Diagnostic method or Diagnostic solution*. Both the inventory and the organization chart mentioned earlier are of little help for the planner, as he needs to get down to sub-system level and identify deficiencies or desired improvements in functioning and pinpoint the way in which the individual sub-system will fit into the process of change towards NATIS.

The advantage of the diagnostic model is that the planner need not have a full understanding of all the components forming the existing situation. The planner uses the diagnosis of the change process itself to generate new decisions and actions. To keep abreast of desired improvements, the planner delegates the fact-finding procedure downwards to the very sub-systems. Even if he does not understand the full complexity of the planned "unknown" system, its structure can always be understood to the extent that he can either formulate "initial solutions" or develop alternatives for improving already existing sub-system. Planning is no longer determined only by the actual present situation, but is generated by the continuous diagnosis of the change process itself. Analysis of the planning process could prove helpful:

a) An assessment of the extent and character of the change and planning needed to implement NATIS;

b) A diagnosis of the existing process of change towards NATIS ideas for improvements, testing of project proposals, etc.;

c) Decision making on the planning level, follow-up of how earlier decisions were made or implemented, their consistency with NATIS objectives, etc.;

d) The implementation of the decisions into concrete action.

It is important to realize from the above discussion that the capacity for change towards NATIS cannot be built-in once and for all, but must be continually maintained and developed. One or more umbrella organizations are needed for diagnosis and in discussions with the managers of the existing sub-systems. Such an umbrella organization has to draw upon consultants, project leaders, co-ordinators and work teams if the desired changes are to be implemented.

Further, it should be understood that in several situations these two models can be used in combination, especially in the case of existing but inefficient sub-systems. It would be wise to apply the diagnostic model for re-organization, to identify why the old system failed and to use the findings as major inputs for the planning process when formulating new initial solutions for existing systems.

To attain the objectives of NATIS, a framework for planning the needed infrastructure is required. The input factors are the planner's understanding of the level of aspiration, the resources and the environment, and two conceptual models are put forward for action. For a country for which the concept of NATIS is new, the initial solution model can be used without delay. Whereas, the diagnostic model can be applied/suitable to the development or improvement of functioning sub-systems.

4.5 LET US SUM UP

Let us recapitulate what has been discussed so far in this unit. Library and information centres form an essential ingredients in development of nations and society. For planning national information systems and its infrastructures, a national information policy is needed. Such a policy legalise a plan or a system design. Information policy is not only a major component of science and technology policy of country but also an integral component of overall government policy linked to the socio-economic development of a country. NATIS is being promoted by Unesco, and it is concerned with providing information for all sectors of the community and all categories of people in a country. The task of NATIS is to ensure that all engaged in political, economic, scientific, educational, social or cultural activities receive the required information.

A central co-ordinating committee is a requirement to advise the government on the formulation and implementation of national information programmes and also the matters related to international cooperation. The integration of the existing information infrastructures, such as, libraries, documentation centres, archives, publishing and printing industry, etc., shall form the NATIS of the country. There are two models of planning, namely, Initial Model and Diagnostic Model. Depending on the requirements, either of the two models in isolation or togetherly may be used in planning and designing of NATIS.

NATIS needs to be viewed in terms of not only as a system to meet various kinds of information needs for the development at national level, but also to have linkages with the world information systems, such as UNISIST. Further, there should be a co-ordinating machinery for linking the national and regional information systems with the world information system.

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4.7 GLOSSARY

Heuristic Model: A model which links the number of possible problem solutions investigated to a very small sub-set of the total set of possible solutions to the problem.

Holistic View: That which considers things as indivisible wholes and doesn't concern itself in viewing things in its parts.

Information System: A system which processes and provides access to bibliographic data and other recorded knowledge, such as statistical data.

Umbrella Organisation: An organisation covering in its fold several other institutions or agencies (for eg., a combined organisation covering information, documentation and library areas)

4.8 ASSIGNMENT

- 1) National Information Policy is an essential requirement in planning and designing a NATIS. Discuss.
- 2) Explain the method of planning and design of a NATIS.

4.9 RECOMMENDED BOOKS

HANDBOOK of libraries, archives and information centres in India/ edited by GUPTA, B.M. et al. New Delhi: Information Industries Publications, 1986. Vol.3.

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4.10 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) What do you mean by 'National Information Policy'? Explain its objectives and importance in information provision.
- 2) State the need and functions of a co-ordinating body in planning and design of NATIS.
- 3) Explain briefly the sub-systems and their terms of reference of NATIS.

II SHORT NOTES

- a) Differentiate a Policy from a Plan
- b) Sub-systems of a NATIS System
- c) Central Co-ordinating Body in NATIS Planning of Body text

BLOCK-II : INFORMATION SERVICES AND PRODUCTS

In Block-I, you have been introduced to the concept an information system, its characteristics, components and models. And also planning and designing of a national information system.

Information services and products play a vital role in the present day society. Though the terms 'information services' and 'information products' are used synonymously, they are distinguished by their nature. A service can be tangible or intangible, but a product is usually a tangible one. The information services are categorised into three types - Factual information/data service, Bibliographic information service and Document supply services. Depending upon the nature of information need, the L&I Centres provide the services to the users. Information products are provided in the form of Alert services, Indexing and Abstracting services, Translation services, Database services, etc. The document back-up and document delivery services are rendered by L&I centres to provide access to information to the seekers of information.

This Block aims to present an overview of various types of information services and products which are widely rendered by and used in library and information systems and centres.

Unit-5 makes a distinction between information services and products and discusses about the nature and types of information services provided by library and information centres;

Unit-6 explains how the information services such as reference, readers advisory service, literature search and referral services provided by L&I Centres.

Unit-7 presents the concept of document back-up service and provides an overview of the existing document back-up services. It also explains the significance of document delivery services in relation to Universal Availability of Publications (UAP).

Unit-8 discusses the need for standards in documentation and information field in order to facilitate the exchange of information between various information centres. It also lists out major international and national standards available in library, documentation and information fields.

UNIT - 5 : INFORMATION SERVICES AND PRODUCTS - AN OVERVIEW

Structure

- 5.0 Aims and Objectives
- 5.1 Introduction
- 5.2 Types of Information Services
 - 5.2.1 Factual Information Services
 - 5.2.2 Bibliographic Information Services
 - 5.2.3 Document Supply Services
- 5.3 Information Products
 - 5.3.1 Information Alert Services
 - 5.3.2 Indexing Services
 - 5.3.3 Abstracting Services
 - 5.3.4 Citation Indexes
 - 5.3.5 Translation Services
- 5.4 Database Services
- 5.5 Let Us Sum Up
- 5.6 Assignment
- 5.7 References and Recommended Books
- 5.8 Model Examination Questions

5.0 AIMS AND OBJECTIVES

The aim of this unit is to present an overview of various types of information services and products which are widely rendered by and used in library and information systems and centres.

After studying this unit, you should be able to

- list out various information services, such as factual data, bibliographic information and document supply services
- describe each of the information services dealt in this unit
- explain various information products with suitable examples.

5.1 INTRODUCTION

Information services and products play a very significant and vital role in the present day 'information society'. But the distinction between the two terms 'information service' and 'information product' is very difficult to make. Because, a 'service' may also be called a 'product' and a 'product' as a 'service'. Many a time these terms are used synonymously. A service may also assume the form of a product and a product is an outcome of a service. For instance, *Biological Abstracts* is an abstracting service as well as a product.

We can also make a straight forward distinction between a service and a product for our purpose. A service can be tangible and intangible, but a product is usually tangible. Therefore, information service may be one which involves provision of a required piece of information orally or otherwise to a user or an inquirer. Hence, Selective Dissemination of Information (SDI) and Current Awareness Services (CAS) are information services. The method and mode of rendering the information services may be anything. These are services, because, by and large, they are intangible. Especially, CAS provided by telephone can never be a product, it is a service only. Therefore, service is intangible one. Product being a tangible outcome of a service it ought to be tangible. For example, *Current Contents* (CC), published by Institute for Scientific Information (ISI) is a product. *Biological Abstracts*, *Chemical Abstracts*, *Psychological Abstracts*, *Index Medicus*, etc. are products and these can also be called as Services. With this distinction and understanding, we learn about various types of information services and products in the following sections.

5.2 TYPES OF INFORMATION SERVICES

In this section let us have an idea of the types of information services provided by the library and information (L&I) centres. Here we shall discuss only the services but not the products.

The information services may primarily be categorised into the following three types, based on the type of information provided by or through the information services, namely, i) Factual information/data service, ii) Bibliographic information services, and iii) Document supply services.

Usually, the users of library and information centres seek information from these centres and these centres render information services to meet the needs of their users. The types of information

services provided by these centres depend on the types of needs of their users. Depending on the types of information needs of the users, these centres provide services, such as current information service, literature search services, etc. However, the information services rendered by the L&I centres assume, basically, three forms. They are i) factual information/data services, ii) bibliographic information services, and iii) document supply services. Further, provision of these services depends on the availability of information, needs and types of the users, the time available to and the capabilities of the staff and the facilities available to render these services, etc.

5.2.1 Factual Information / Data Services

The factual information/data services aim at providing the actual information (i.e., the fact/data) required or sought by the users. Therefore, it is called *Factual Information/Data Service*. For instance, there may be a request for provision of information on atomic weight of an element, or information on per capita income of Canadians, or a description on black hole, etc. This means, the amount of information sought may be minimal or omnibus. If the L&I centre provides the specific information on such requests, the service provided may be called as Factual information/data service.

In order to render such a service, the L&I systems should be well equipped with ready reference sources and qualified and well trained reference librarians or information workers with fair knowledge of various sources of information, along with well developed and organised collection and/or a well developed factual information/ data bases.

Factual information/data services are very much helpful and useful services. By rendering these services the L&I centres project their professional image and gain appreciation and support from the society in general and the user community in particular. These services save considerable amount of time of the users, which is usually wasted for searching for information.

Factual information/data services are rendered by special libraries in order to meet the 'Every day approach' or 'Every day needs' of the scientists/researchers, etc. These services are also rendered by academic libraries to meet the every day needs of the research scholars in their research work and teachers/faculty members to support their teaching and research needs. The public libraries render these services to, absentee inquirer, newspaper office, government department, etc. This service can be rendered even by phone, by post, etc. The amount/quantity of information provided by these services may be minimal and/or large. But, it should not assume the form of document supply services. This service is synonymous with Ranganathan's Ready Reference Service. But it does not deal with referring the user to the right source of information, helping him in searching for information or setting the users on right track and training them to search for information. Thus, this service involves the process of locating the specific/required information and providing the same to the users.

In the wake of emerging information technology, provision of information service has become very easy, effective and instantaneous. There are many online factual information/data services and

they are going to be common in the present information society. Even in India, there are factual information/data services rendered by National Informatics Centre (NIC) through its GIST NIC, Teletext services and availability of factual information/data on Internet are some of the examples for online factual information/data services.

5.2.2 Bibliographic Information Services

Ever since L&I centres started rendering information services, they were primarily rendering bibliographic information services. The bibliographic information services form the basic and important information services rendered by the L&I centres. Information services which provide or deal with bibliographic information, i.e., information about books and other records of knowledge or information are called 'bibliographic information centres'. These services are very valuable and significant services, because through these services the L&I centres inform their users of the current literature available on/in their field of interest. Through these services the current information needs, particularly, regarding the current literature, are met. Thus, these services promote 'current approach' in researchers, scientists, scholars, etc. Besides, the bibliographic information services also provide information on the latest additions to the L&I collection and bibliographic information related to literature on specific subject areas.

The L&I centres, usually conduct retrospective (literature) search/literature search on the areas of interest or fields of research of their users and provide them with the results of these searches through a bibliography/ list of documents retrieved out of these searches. Through these services the L&I systems save considerable amount of time of the users. This was revealed in a survey was conducted by the Operations Research Group of the Case Institute of Technology in 1958. Although the sample of this study was a group of homogeneous users - chemists, yet some of the findings have been found to be universal. This study revealed that scientists generally spend almost half the time of their working hours in some form of communication - such as perusing literature, looking up for references, actual reading, talking or listening to a colleague and so on. Within this, only half the time is available for actual reading as the other half is spent in searching. This apportionment of time indicates a number of things. Perhaps too much time is spent in searching for information".

The above survey revealed that a considerable amount of time of the scientists is wasted in searching for information, especially, bibliographic (information) searching. This study being the pioneering one, it had suggested/implied that such wastage can be cut down by the L&I centres by conducting bibliographic searches on behalf of their users, so that the users' time may be fully utilised for actual reading and/or for their research work.

With the advent of machine readable catalogues and bibliographic databases, bibliographic searching has become relatively easier and less time consuming process. But, it requires, search skills and costs time and money, especially, when online searches are made. Therefore, well trained L&I professionals or staff conduct searches on behalf of their users. Thus, where the L&I systems do not

have machine readable catalogues or bibliographic databases, and access to online bibliographic databases, the bibliographic information services are rendered by conducting manual bibliographic searches, which usually consume considerable amount of time. Where there are computers and telecommunication facilities or autosearching facilities, the bibliographic information services are rendered more speedily and efficiently by machine searching of bibliographic information.

The bibliographic information services are usually rendered by special libraries to meet the current approach/information needs, exhaustive approach/information needs and catching-up or brushing up approaches of their users. These services are also rendered by the university libraries to facilitate research programs or work of the university research scholars and faculty.

DIALOG, BRS, MEDLINE and BLAISE-LINE are some of the example of online bibliographic (database) services. With the advent of CD-ROM bibliographic databases, there is a possibility of off-line searching of large bibliographic databases. Presently, almost all international abstracting and indexing services and bibliographies, such as *BNB*, *Books-in-Print*, *Index Medicus*, *Biological Abstracts*, etc. are available on CD-ROM form.

5.2.3 Document Supply Services

When the readers/users require large amount of information on a particular aspect or subject, the L&I systems provide them with documents on the subject. This would also assume the form of document supply service. Usually documents will be lent to the users by the L&I systems. This is called the Lending service. Instead of lending the documents, if a copy (usually a photocopy, or the copy of the document in any other form, i.e., microfiche, or any other machine readable form or an original copy itself) of the document is provided to the users, may be at some price, this is called as Document supply service. Thus, the document supply service is concerned with the supply of (copies) the documents to the users on demand either in original or its copies, i.e., its copy in print or non-print form. As mentioned above, earlier document supply services were mainly concerned with 'lending' of documents to the users for a specific period by post or through the inter-library lending services by the L&I centres from their own collection or from other centres. Now, it is not only restricted to lending or interlending or inter-library loan, but the documents can also be duplicated and permanently provided to the users. Due to modern information technological advances, the supply of the documents can also be done by digital transmission of the documents over long distances.

The document supply services are the ultimate services, rendered by the L&I systems. Because, mere provision of bibliographic information services will be of no use if the actual documents are not made available or provided to the users. Therefore, document supply services are the most crucial and significant services. The British Library Document Supply Centre (BLDSC) and ADONIS are some of the examples for document supply services. Please refer a detailed account of document supply services in Unit-7.

5.3 INFORMATION PRODUCTS

The information products contain information. However, they are not synonymous with monographs, textbooks, primary periodicals, etc. in this context. The information products are generally referred to those products or sources of information which contain professional news, current developments, state-of-the-art, etc. and to a large extent bibliographic information. In the following sections, we will learn about some of the information products which are very much prominent in science communication.

5.3.1 Information Alert Services

(1) Information Newsletters

As the name implies, information newsletters are exactly letters which contain information/news. Every profession or subject field has its own developments, activities, programmes, events, etc. The professionals will be interested in knowing the developments in their field. The best means of communication in this respect is the 'Information Newsletter'. The information newsletters are brief, periodical news publications in a field, published by the professional bodies or associations, organisations, research institutions, industries, and other institutions, to disseminate information about the latest or recent developments, activities, events, etc. in the concerned field of activity, research, production, etc. as the case may be, to the public at large, in general and the professional/members of the organisation in particular.

The information newsletters, usually contain the latest developments, events, forthcoming conferences, seminars, training programmes, personalia, etc. Commercial organisations/industries and research establishments produce newsletters to make their customers or users aware of their new products/inventions.

Newsletters are always issued regularly, they are often simple in format, they provide current and speedy information for definite or target audience. They have a short life and their bibliographic control is almost minimal.

One of the forerunners of the newsletters was the Corantos. It was a single page collection of news items from foreign journals. They were circulated by the Dutch in the early 17th century. Presently, there are several newsletters. Almost every organisation has its own newsletter. For example, *ILA Newsletter* (the newsletter of Indian Library Association), *UNISIST Newsletter* the organ of Unesco's UNISIST newsletter), *Ocean Drugs Alert* (an information newsletter of National Marine Data Centre, Department of Ocean Development, Government of India), Screening Methods and Sources of resistance to Rust and Late Leaf spot of Groundnut is an Information Bulletin No.47 (of International Crops Research Institute for the Semi-Arid Tropics, Patancheru), etc.

(2) House Bulletins

House Bulletins are in-house communication tools. Therefore, they are called House Bulletins. According to *Harrod's Glossary*, House bulletin is 'a periodical produced by a commercial or industrial organisation, either for internal distribution amongst the staff and employees or externally to customers. Its purpose is to impress upon readers in the technical side of the organisation's activities, rather than the social or personal side, which is more the concern of the 'House magazine'. The main purpose of house bulletins is to publicise or communicate about the technical aspects of the performance, functioning, programmes and activities of the organisation to the public in general, its staff, customers, dealers, retailers, shareholders and the government in particular. Thus, through the house bulletins an organisation primarily projects its image among its own personnel and secondarily, in the community at large. In view of this, house bulletins are important and prestigious internal publications of the organisations.

It is through the house bulletins the organisational communication is ensured. Organisational communication is very much essential for staff coordination, participation, unity, and so on. Therefore, house bulletins form a vital part of not only internal communication but also textual communication.

The house bulletins usually contain the message of the chairman/ managing director to motivate the staff and address the subject of interest to the staff, an editorial, various activities, programmes and land marks of the organisation, employees welfare schemes launched by the organisation, products and production of the organisation and other miscellaneous items. The house bulletins are also called as 'House Journals'.

The origin of house journals can be traced back to approximately 2000 years to the court letters of the Chinese Han dynasty in 200 B.C. These were the internal communications to keep the court informed. They became official gazettes in the seventeenth century Tang dynasty and are the forerunners of today's house journals.

House journals are broadly categorised into three types, namely, internals, externals, and combinations. Internals are published for the employees and members of the organisation. Externals are meant for customers and/or potential customers. Combinations for the both.

A forerunner of the modern internals was *Lowell Offering* of Massachusetts for mill girls who worked for the Lowell Cotton Mills, began in 1840. *NCR World* is another example. *Printer's Ink House Organ Directory* in 1944 listed over 5,200 titles. However, the bibliographic control of the house journals/house bulletins is almost minimal. As a matter of fact, almost every prestigious organisation brings out house bulletins, to ensure organisational communication, to motivate, educate and recreate its employees and others connected.

(3) Trade and Product Bulletins

Trade and Product Bulletins are promotional materials. *Harrod's Glossary* defined trade and product bulletins as "a periodical restricted to the interests of a trade or industry and including all or some of the following: news items, articles and description of foods, products and manufactured articles, lists of new publications, statistical data, patents, personal notes, legislative activities, etc". It is also called as 'Trade Paper', 'Trade Journal', etc.

Trade and Product Bulletins aim at promoting the sales of the products and/or trade by making announcements of the new products. These bulletins contain description of the latest industrial products and processes which in turn present the special features of the products, attractive photographs, drawings, including technical details of the products. These bulletins are issued at regular intervals, they assume various forms, i.e., from the form of a pamphlet, sheet, to a bound volume. From another angle, they assume the form of house journal, advertisement and announcement in a technical journal and commercial or trade magazines, manufacturer's catalogues and data sheets, product descriptions/handouts supplied at trade fairs, conventions, exhibitions, etc. Whatever might be the form of the trade and product bulletins, they are usually attractive, and aimed at promoting trade or sales of the products.

The trade and product bulletins also provide 'Buyer's Guide' or 'Directory', so as to enable the buyers to select the products of their choice. As far as detailed information about the latest industrial products and processes is concerned trade product bulletins are very important and exclusive primary sources. Besides providing information about the products and processes and how to use the products, these bulletins also provide information on manufacturers, distributors, etc.

Grogan states, "the reasons for the widespread neglect of trade literature in all, save a few libraries, are not far to seek, for it 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..... In point of fact, it is this very availability which causes one of the major difficulties like research reports trade literature is outside the usual source of literature supply, the book trade".

In view of the above and also since the trade literature is scarcely reviewed librarians in industry are better placed, as a rule, since they can often rely on exchange arrangements and contacts with visiting salesmen.

Chemical and Engineering News, *Instrument Review*, *Textile Month*, etc are some of the examples. *Industrial Product Finder* is a monthly product news magazine published from Mumbai (India). It provides description of every new product in Indian industrial market. *Indian Industrial*

Sources is a monthly magazine on machinery news from Mumbai and it is almost equivalent to its British counterpart *Machinery Market*.

The above are the general trade and product bulletins. There are also special bulletins, dealing with the products of a particular kind. For example, *Chemical Products Finder*, *Electrical Equipment*, etc. The trade and product bulletins are not bibliographically controlled.

(4) State-of-the-Art Reports

State-of-the-art reports present the current or recent developments in a specific subject field. Generally, they do not deal with historical aspects of the field. Therefore, these reports are more current and timely than the traditional reviews. The *Librarian's Glossary* defines a state-of-the art report as "an exclusive, systematic and sometimes critical, review of (mostly) published and unpublished material (largely periodical articles) on a specific subject".

The state-of-the art reports are so crucial and indispensable to keep the readers and researchers abreast of the current happenings and developments in their respective field. These reports play a very vital role in informing the current areas of development so as to enable the researchers to find the areas which are yet to be explored and also avoid duplication of research effort.

The state-of-the art reports summarise recent developments in the field. Particularly, the reports presenting the state-of-the art of a technology compare, evaluate the advances, characteristics, utilisation of a given technology, etc. besides summarising the advances or developments in the technology.

State-of-the art reports are usually general services. They are meant for every and any reader. However, some of them are also prepared for meeting individual needs. They are oriented towards meeting an individual's requirements or to a restricted audience on demand or in anticipation, such reports will be usually unpublished ones prepared by the L&I systems to serve their individual uses or user groups.

The state-of-the art reports are also called and categorised under a broader concept called '*Reviews of Progress*'. The reviews of progress are further categorised into i) Comprehensive reviews, and ii) Topical reviews.

Comprehensive reviews are thorough, systematic and condensed accounts of developments in a broad field over a narrower time interval (and sometimes within a particular geographical area). Long-established examples of study are *Annual Reports on the Progress of Chemistry* (1904), and *Annual Review of Biochemistry* (1931-), *Advances in Librarianship*, *Advances in Chromatography* are some of the examples.

Topical reviews are 'state-of-the art' reports on selected, specific topics of active current interest. Eg. *Advances in Electronics, Progress in Semiconductors, Vehicle Emissions and Control Perspectives in India: A State-of-the art Report etc.*

Usually state-of-the art reports are the reports of survey which appear annually on a particular field of study, to report the current developments or progress in the field. The state-of-the art reports are more timely than the traditional class of reviews, therefore, they serve more as current awareness tools.

(5) Trend Reports

Trend reports are little more than the state-of-the-art reports. While the state-of-the-art reports present the current developments in a specific subject field, trend reports present the trends in a field. They indicate the direction in which the field is growing and thereby the perspective ramification and growth of the field. These reports would be of immense utility, because one will understand and come to know significant directions and areas of growth in his field, so as to change his course and area(s) of action.

Trend reports are very much essential in the competitive societies and markets. Usually, every industry tries to know the trends in the consumer behaviour, market prospects, and technological developments to face the competition more efficiently. Trend reports enable us to have an idea of future projections, market, etc.

Gopinath defined trend report as "an exposition of a subject, giving an account of the general direction of research in the subject, based on a review of the documents on current developments. The trend report service is designed to help the specialist reader in the productive utilisation of his time and in the conservation of the research potential. The training of a documentalist equips him to do this service satisfactorily. However, the specialists cooperation is necessary". In the above definition the significance of the trend reports is clearly stated by pointing out that the trend report service is designed to help the specialist in the productive utilisation of his time and in the conservation of the research potential, by indicating the significant area of developments in a field of study. This would enable the researcher/specialist to avoid the wastage of his time, energies and research potentials by unnecessarily concentrating on outdated or fading areas which are losing prominence or becoming irrelevant to the future. *Trends in Developing Economies* (1989) by World Bank; *Trends in Cancer Research* by Health Organisation (WHO); *Recent Trends in Wind Energy* (1982) by S.K.Tewari, published by INSDOC are some the examples of trend reports.

(6) Technical Digests

The *Librarians' Glossary* defines a digest as "a methodically arranged compendium or summary of literary, historical, legal, scientific, or other written matter". A compendium is a "work containing in a small compass the substance or general principles of a larger work; a brief,

comprehensive summary". In the light of these definitions, a technical digest is a methodically arranged compendium or summary of various aspects of scientific and technological subjects. Being a brief and comprehensive work a technical digest is a handy and methodically presented compendium. Since it is called Digest, it is a source of information, which presents information in a more lucid and brief form, so that the users will be in a position to assimilate a comprehensively covered wide area of a subject very easily.

The technical digests present the developments, advances and current aspects in a very lucid and acceptable/understandable form. Therefore, these digests are very much essential to improve the understanding of the readers on complex and critical aspects in the concerned field. Hence, the presentation of the information in technical digests will be well classified/organised and thus methodical. Usually, the technical digests consolidate information by lucid condensation. Thus, technical digests present comprehensively covered information in a brief or condensed manner by systematic and methodical organisation.

While *Reader's Digest* is a general work, *TIDE: TERI Information Digest on Energy, R&D Digest* are some of the examples of technical digests. Of course, the *Biology Digest* and *R&D Digest* contain abstracts of current articles and research reports, but the information coverage and presentation is that of the technical digests and therefore, they are basically the digests.

5.3.2 Indexing Services

In the previous sub-section, we have learnt about various information products which present the factual information usually in the field of science and technology/industry. In this section and the following sections we shall learn about the information products which contain and present bibliographic information.

The *Librarian's Glossary* defines indexing service as "a periodical publication which regularly and systematically indexes the contents of periodicals and sometimes other forms of publication, either of a general nature or within specified subject field. They are usually cumulated at regular intervals". An index is a "systematically arranged list giving enough information for each item to be traced".

Indexing services are one of the most important bibliographic information tools for controlling, organising and dissemination of micro - literature, usually the periodical literature. Highlighting the importance of indexing services, Grogan states, "once their short period of currency is over and they have become back files or bound volumes, most journals would remain closed books, were it not for these keys to their contents - the indexes". The indexes analyse the contents of a wide range of titles usually related to a particular field of study or a group of related subjects. Eg: *British Technology Index* deals with technology only. *Index India* is an index of micro literature of various social sciences. The index/indexing services are very useful for literature searching, particularly the current

periodical literature. Hence, they serve the current information needs/approach as well as exhaustive approach or retrospective searches.

The indexing services provide sufficient bibliographic information about each item (indexed) to enable it to be identified and traced. This means, that the reference or citation provided in these services is limited to the subject heading(s) chosen and the title (or to the title alone in title-based indexes such as KWIC). However, some indexes add words and phrases to enrich the titles and provide descriptors in the citation to serve as minimal and meaningful summary of the subject contents of the items indexed. This provides more clarity and hints the users about the relevance of the items searched to their field of study or interest.

Indexing services are economical and easy to produce. Because, these services by and large contain only citation(s) part, therefore, the size of these services will be comparatively very less with that of the size of abstracting services, so these services are comparatively cheaper. Besides this, since there will be no analysis or abstracting of the subject contents of the items indexed, the indexing services are economical and easy to produce.

The entries in indexing services may be arranged in alphabetical order under subject, or classified order or alphabetico-classed order. However, in order to satisfy the other approaches of the users, they (the indexing proper) will be provided with author, title, etc indexes. But some of the indexing services will have dictionary order. Eg: *Guide to Indian Periodical Literature* in which author, title and subject entries are interfiled in one alphabetical sequence as in a dictionary catalogue.

5.3.3 Abstracting Services

Abstracting services come into picture to overcome the limitations of indexing services. As mentioned under section 5.3.2 Indexing Services, the indexing entry/entries are limited to the citation/reference part of the items indexed, excepting the subject-heading or description chosen. As far as the contents are concerned, they do not present any idea of the contents of the items indexed, this will not be sufficient to decide the rate of relevance of the item(s) to the specific field of study or research of the users. The abstracting services are such secondary sources of information which not merely provide the citations, but also they provide summaries of the contents of the items abstracted. This means that the abstracting services not only alert the users to the current literature, but they enable the users to select fully relevant items. When they are informative abstracts, the users may even do away with the actual perusal of the original documents. Thus, abstracting services manifestly organise the primary literature in more convenient and helpful form.

The definition given by the Librarian's Glossary reads as "a form of current bibliography in which sometimes books, but mainly contributions to periodicals, are summarised; they are accompanied by adequate bibliographical descriptions to enable the publications or articles to be traced, are frequently arranged in classified order. They may be in the language of the original or be translated into English or some other language".

A typical abstract contains two main parts, namely, the citation part and the abstract part. The citation part consists of the bibliographic description of the item abstracted, the item abstracted can be an article in a periodical, a book or monograph, a patent, a standard, a paper in a conference proceedings/papers, etc. in a consistent and standard form.

The abstract proper provides indicative or informative summary of the contents of the document abstracted, as per the type of the abstract.

EXAMPLES

Biological Abstracts: References, abstracts, and indexes to the world's life sciences research literature. 1927. semi-monthly. Philadelphia: BIOSIS. Available online. Vendors: CISTI, Central Institute for Scientific and Technical Information, DIMDI, STN International (BIOSIS). Abstracts are categorised in each issue under broad subject headings.

Biological Abstracts - RRM (Reports, Reviews, Meetings) references and indexes to the world's life science reports, reviews and meetings literature. 1965. semi-monthly. Provides indexed and classified bibliographic entries for research reports, reviews. books on biology and biomedicine; conference literature.

Biological and Agricultural Index: CD-ROM edition. 1964. monthly (except August). New York: H.W. Wilson Co. (Formerly: *Agricultural Index*). Provides a cumulative subject index to periodicals in the field of biology, agriculture and related sciences.

Biology Digest: 1974. Monthly (Sept. - May). New Jersey: Plexus Publishing Inc. Contains abstracts of current life science articles and research reports for high school and college students.

Chemical Abstracts: 1907. Weekly. Columbus, OH: Chemical Abstracts Service (Subsidiary of American Chemical Society). Also available online and CD-ROM. Provides summaries and indexes of disclosures in recently published scientific documents. Approximately 9000 journals, technical reports, dissertations, conference proceedings, and new books, in any of 50 languages, are monitored yearly, as are patent specifications from 27 countries and two international organisations. It is also published in different sections with the following titles:

Chemical Abstracts - Applied Chemistry and Chemical Engineering Sections. 1963. Semi-weekly. (Supersedes: *Chemical Abstracts - Applied Chemistry Sections.* *Chemical Abstracts - Biochemistry Sections* (CABS). 1963. sw *Chemical Abstracts - Macromolecular Sections* 1963. sw *Chemical Abstracts - Organic Chemistry Sections.* 1963. sw *Chemical Abstracts - Physical, Inorganic and Analytical Chemistry Sections.* 1963. sw.

Some of the Abstracting and Indexing Services name their services as 'Digests'. For example: R & D Digest on Energy; Biology Digest, etc.

LISA: Library and Information Science Abstracts. Key Title: Library and Information Science Abstracts. 1969. monthly. Bowker-Saur Ltd, England. Also available online. Indexes and abstracts 539 periodicals from 68 countries. LISA Plus. 1992. Quarterly. Available only on CD-ROM.

Index Medicus 1960. U.S. National Library of Medicine. Abstracting/ indexing, bibliography, government publications (document type). Also available online and CD-ROM. Compiles and lists articles from 3000 of the world's leading biomedical journals published in 36 languages.

Physics Abstracts (Alternative title: *INSPEC - Section A*) 1898. semi-monthly. INSPEC, England. Covers recently published primary research in all areas of physics, including particle, nuclear, atomic, molecular, fluid, plasma and solid-state physics, biophysics, geophysics, astrophysics, measurement and instrumentation.

Indian Science Abstracts 1965. Fortnightly. New Delhi: INSDOC.

Sociological Abstracts 1953. bimonthly. California: Sociological Abstracts Inc.

Sigmund Freud House Bulletin. Vienna (Austria): Sigmund Freud Gesellschaft. Contains papers on research in psychoanalysis and the history of psychoanalysis, including Freud's life and work.

Psychological Abstracts. 1927 monthly. Washington, DC: American Psychological Association. Available online and CD-ROM.

5.3.4 Citation Indexes

Citation indexes are non-conventional indexes/indexing services. A citation index is a list of cited articles, under each of which is a further list of documents where they have been cited within the period covered by the index. The manual compilation of citation index will be too burdensome, when there is increasing mass of literature, therefore, computerisation is the only way out for compilation of citation indexes. The advantage of citation indexing is that its compilation is a purely clerical operation, and no subject indexing as such is done. The author of a paper serves as his own indexer: each time he provides a citation in his paper he is indexing some aspects of his own work and re-indexing the literature. However, the success of a citation index depends on the extent to which items cited in the bibliographies to papers reflect the contents of those papers.

In order to search citation indexes a special technique is necessary, i.e., the user must know at least one article on the subject of his search, before beginning the search.

Besides helping the literature search, citation indexes furnish mass of data for bibliometric analysis. Examination of the patterns of citation within a particular subject field provides valuable insights into networks of communication among scientists, which help us in measuring the eminence of individual workers within a discipline. Citation analysis help in ranking the journals and find out the trends in the growth of literature in a subject field.

5.3.5 Translation Services

The absence of 'one world, one language' forms one of the serious barriers to communication in the intellectual and scientific world. Avoidance of duplication of research effort and universal availability of information warrant universal bibliographic coverage and control and free flow of information. Free flow of information will not be of any use if the information received is not understood, because of its availability in a form and language which are not known to the receiver. Therefore, translation services play a very vital role in eliminating language barrier to communication. Further, the need for translation services can be supported by the fact that a considerable amount of scientific literature is produced in Russian, German and French languages (other than English). *Chemical Abstracts* covers literature in more than 50 languages. This itself indicates that some of the important literature on such important subject is available in different languages and which will certainly prove to be a barrier for communication or free-flow of information.

Translation services are rendered by institutions and individual firms, universities, learned societies, research associations, government departments, documentation and translation centres and individual approved translators, e.g., the Schemes operated by the UK Atomic Energy Authority, the Chemical Society. Specialist firms produce and issue translations commercially. Eg: Brucher *Technical Translations*.

There are translation pools, which go one step further than the location index, where collections of translations are available for consultation, photocopying or loan. The British Library Document Supply Division contains over 2,50,000 translations. The European Translation Centre in the library of the Technological University of Delft in the Netherlands is both a pool and an index. The National Translation Centre at the John Crerar Library in Chicago serves as the collection centre for all non-governmental translations.

There are also cover-to-cover translation services, the advantage of such translations is that it eliminates the "hit-or-miss" selection of articles, and on the other hand ensure the availability of important foreign scientific literature. There are also translations of books. Unesco's annual *Index Translationum* is the best guide.

5.4 DATABASE SERVICES

Database is defined as "a body of machine-readable records which is not created solely for a specific application, but may be regarded for some purposes as a homogeneous collection". Here each record contains relevant or useful information. The records may contain factual information about anything. Therefore, the databases are also called as *Databanks*. However, the library and information science professionals are more interested in bibliographic databases, which contain machine-readable records of bibliographic information. In fact, the indexing and abstracting services, citation indexes, bibliographies, etc which we have studied earlier, if they are available in machine-readable

form. They will be called as *the bibliographic databases*. Almost all bibliographic databases are presently available in machine-readable form both online and offline. The online databases are highly updated ones. These databases also provide effective and speedy search facilities. Though they may be a bit costly but they are cost-effective services. Because of the databases, bibliographic information exchange has become very easy world wide. There are several commercial vendors of the bibliographic databases, through whom we can have access to their listed databases online or offline through CD-ROMs. Given below are some of the databases with their suppliers subject field.

Table- I : MAJOR DATABASES AND THEIR PUBLISHER AND ONLINE VENDORS

Name of the Database	Supplier	Subject field	Online Service Vendors
<i>ABI/Inform</i> (Abstracted Business Information/INFORM)	Data Courier Inc.(USA)	Business management administration	BRS, IRS, ORBIT DATA-STAR
<i>Agricola</i> (Agricultural on line Access)	U.S. Department of Agriculture, Science and Education Administration Technical Information Systems	Agriculture	BRS, ORBIT, DIALOG
<i>AGRIS</i> (International Information System for the Agricultural Sciences and Technology)	AGRIS	Agriculture	IAEA, DIMDI, IRS
<i>BIOSIS PREVIEWS</i>	Bio-Science Information Service of Biological Abstracts, USA	Biology & Life Sciences	BRS, DIMDI, CAN/OLE DATA-STAR, IRS, ORBIT DIALOG
<i>Books in Print</i> British Education Index CA SEARCH	R R Bowker, USA British Library, UK Chemical Abstracts Service (The American Chemical Society, USA)	All subject fields Education Chemistry	BRS, D BLAISE-LINE BRS, DIALOG, CAN/OLE DATA-STAR, IRS, ORBIT
cancerline (Cancerlit)	National Library of Medicine, USA	Cancer	BLAISE-LINK, DIMDI, NLM
catline (Cancerlit)	National Library of Medicine, USA	Medicine	BLAISE-LINK, DIMDI NLM
compendix (Computerized Engineering Index)	Engineering Information Inc. USA	Engineering	BRS, INKA, CAN/OLE, IRS, DATA-STAR, ORBIT, DIALOG
ERIC (Educational Resources Centre)	National Institute of Education, USA	Education	BRS, ORBIT, DIALOG

INSPEC (Information Service-Physics, Electrical & Electronics and Computers & Control)	INSPECT Institution of Electrical Engineers, UK.	Electrical, Electronics Computers, etc	BRS, INKA, CAN/OLE IRS, DATA-STAR, ORBIT DIALOG
Library & Information Science Abstracts(LISA)	Bowker & Saur London Information	Library &	DIALOG, ORBIT
Physics Abstracts	Inspecc (UK)	Physics	BRS, INKA, CAN/OLE IRS, DATA-STAR, ORBIT
Physics Abstracts	American Psychological Association, USA	Psychology	BRS, DIMDI, DATA-STAR, ORBIT, DIALOG
Sciseach	Institute for Scientific Information (ISI), Philadelphia, USA	Science	DIALOG, DIMDI
Sociological Abstracts	Sociological Abstracts Inc., USA	Sociology	DIALOG

The above are some of the popular abstracting & indexing and bibliographic database services. For general information or data/factual database services in India, NIC database is an example. Now the trend is towards developing full-text or textual databases. Through Internet we can also have access to various database services.

5.5 LET US SUM UP

Library and Information systems render invaluable services, particularly, the information services based on various information products. The universe of information products comprises of different types of products. Keeping aside the conventional sources of information such as monographs, reference books, periodicals, etc., there are many information products which provide crucial information for R&D work and industry. Out of these sources, information alert sources such as information Newsletters, House Bulletins, Trade and Product Bulletins, State-of-the-Art Reports, etc. are very important ones along with Indexing and Abstracting services, Citation Indexes, etc. With the help of all these sources or information products library and information centres render factual information services, bibliographic information services. Of course, of all these the task of a library and information centre ends by rendering document supply service. Presently, because of the new avenues and facilities provided by the information technologies, all these services and products can be provided instantaneously online. Particularly, the bibliographic information services have become more effective and efficient because the development and availability of innumerable databases which offer online and offline services.

5.6 ASSIGNMENT

- (1) Prepare a list of Information Alert Services with full bibliographic details and annotations.
- (2) Prepare a list of any ten Abstracting and Indexing Services with brief description of these services.

(3) Write an essay on the significance of various information services rendered by library and information centres.

(4) Present the results of searches on any two topics with the help of *Science Citation Index*.

5.7 REFERENCES AND RECOMMENDED BOOKS

ATHERTON, Pauline. *Handbook for Information Systems and Services*. Paris: Unesco, 1977.

GOPINATH, M.A. "Trend report: working paper". *DRTC Seminar on Reference Service*. Bangalore: DRTC, 1971. Chapter BL; pp.197-205

GROGAN, Dennis. *Science and Technology: an introduction to the literature*. London: Clive Bingley, 1976. pp.300-301

GUHA, B. *Documentation and information*. Calcutta: The World Press, 1976. pp.41-42

PARIDA, Baman. *Studies in Information systems, Services and programmes in India and Abroad*. Delhi : Ajanta, 1994.

WALKER, A. "House Journals". *Encyclopedia of Library and Information Science*. New York: Marcel Dekker, 1974. Vol.11; pp.61-74

5.8 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- (1) Bring out the difference between Information Services and Information Products and explain briefly various types of information services.
- (2) Explain the significance of Information Newsletters and State-of-the-Art Reports.
- (3) What are Bibliographic Information Services? Discuss the usefulness of Abstracting and Indexing Services in rendering bibliographic information services.

II SHORT NOTES

- a) Translation services
- b) Citation Indexes
- c) Alert services

UNIT - 6 : REFERENCE, LITERATURE SEARCH AND REFERRAL SERVICES

Structure

- 6.0 Aims and Objectives
- 6.1 Introduction
- 6.2 Reference Service
- 6.3 Readers Advisory Service
- 6.4 Information and Referral Service
 - 6.4.1 C A S
 - 6.4.2 S D I
- 6.5 Literature Search Services
 - 6.5.1 Retrospective
 - 6.5.2 Search Parameters
 - 6.5.3 Search Strategies
- 6.6 Referral Service
- 6.7 Let Us Sum Up
- 6.8 References
- 6.9 Assignment
- 6.10 Model Examination Questions

6.0 AIMS AND OBJECTIVES

The aims and objectives of this unit are to briefly introduce you to the important information services rendered by library and information centres (L&I Centres), namely, Reference, Literature Search and Referral Services. And also to provide explanation on how these services are rendered.

After studying this unit you should be able to

- describe what are Reference, Literature search and Referral services
- explain the mechanism of rendering such services.

6.1 INTRODUCTION

As long as libraries were considered mere collections of books, the services rendered by them were very passive and libraries remained mere store houses of books/documents. Ever since, this concept of libraries has changed, the demands and needs of library users have also changed. Consequently libraries have transformed themselves into more a service oriented active centres of knowledge and information.

The present day libraries render many useful information services. The important information services rendered by libraries are Reference Service, Information and Referral Service (I&R Service), and Literature Search services. In the following sections a brief account on these services is provided.

6.2 REFERENCE SERVICE

The earliest creator of this service was Samuel Green. He introduced this service in his library i.e. The Worcester Public Library in 1876. Most of the present I&R services find their roots in the early reference service. The meaning/definition, scope, and nature of this service underwent many changes. A comparatively recent interpretation of the service is provided by Katz, according to him, "At its most fundamental it [Reference Service] may be defined as answering questions."

Katz further clarifies that "Answer takes as many forms as questions. The librarian may point to the stairs (where is the periodical room?); look up data to answer a question about the population of California; or search diligently for books, articles, and other documents to help answer a query on the benefits and dangers of nuclear power."

The above definition by Katz indicates typical nature and scope of reference service. In view of this, Reference Service can be described as a generic or umbrella service which includes many an information retrieval, document/literature search, user advisory and general help to general reader services.

Under the concept of reference service Ranganathan (1961) identified four distinct services, namely, 1) Initiation of freshman, 2) General help to general reader, 3) Ready Reference Service, and 4) Long Range Reference Service. (All these services were already covered in the course material of Dr Ambedkar Open University BLISC Course-6: Documentation and Information Systems and Services). By and large, the philosophy of reference service is to help the users of library and

information centres in various ways. And here, it is necessary to understand that the reference service is an umbrella service which covers under its fold various user friendly and helpful services. However, of late, there is a trend of identifying the off shoot services of reference service, especially the present information or information and referral services, as distinct and independent services.

6.3 READER'S ADVISORY SERVICE

Reader's Advisory service is an important Service, because, it involves provision of guidance or an advice to individual readers with regard to their reading habits. This service is primarily meant for neo-literates in public libraries and for children in school libraries. This service can also be rendered in special and university libraries in case of freshmen or users of these libraries. This service is more of a reformative and educative service which aims at inculcating better reading habits among the library users and educate them in retrieval and use of relevant documents or information.

In order to render this service the reference librarian should have fair knowledge and awareness of the collection of the library and the psychology of the users, particularly with regard to their reading habits and/ or interests. When a reader does not know what he might read, then a reference librarian should be in a position to advise the reader by suggesting specific titles and subjects, to inculcate reading interest and/or to meet the specific needs of the users.

The reader's advisory service is a reformative service, because it aims at converting the casual fiction reading habits of the users to more serious and intensive non-fiction reading habits. Thus, its aim is to cultivate better reading habits. To render this service more efficiently and effectively there is a need to set apart a collection called *General education collection*. Further, indexes to book reviews, book selection tools, lists of best books are found highly useful for rendering this service.

6.4 INFORMATION AND REFERRAL SERVICE

Information and Referral (I&R) service is a generic or an umbrella service which includes various information services. Sometimes this is called *Community Information and Referral Service*, but essentially it is the same as I&R in its semantic or actual sense. According to Middleton, "Information and Referral is a movement to bring the library to the people who normally do not use a library. The term comes from the fact that the librarian begins by giving information, but if this is not enough, will refer the person to the proper agency or individual. The referral process may go as far as having the librarian make an appointment with an agency for the individual."

I&R services include Community Information and Referral Service in a public library. Current Awareness Services (CAS), Selective Dissemination of Information (SDI) Service, Referral Service, etc., in a special or university library.

In the following subsections we shall have a brief presentation on CAS and SDI services.

6.4.1 Current Awareness Service (CAS)

In order to satisfy the current approach (i.e. the user approach or need towards current information) of the users libraries/information centres render CAS. According to Atherton, "One of the most important functions of an information service is to review publications immediately upon receipt, selecting information pertinent to the programme of the organisation served, and note individual items to be brought to the attention, by one means or another, of those persons to whose work they are related. This is generally known as "Current-Awareness" service, and it is directed to the community as a whole or in groups. It involves a combination of processes including the selection of whatever is pertinent from periodicals, reports, patents, books and announcements of various kinds. A systematic record is made of these significant references, and in many information centres they are accumulated for periodic distribution as bulletins."

Objectives:

The CAS has the following objectives:

- 1) To keep the users abreast of current trends and developments in his/her field of operation or investigation or interest,
- 2) To save the time of the users in search of current literature or information,
- 3) To cultivate the current approach to information among its users, and
- 4) To promote quality research and avoid duplication of research effort.

Though current awareness service is very much identified with CAS list or bulletins, there are various methods of rendering CAS depending on the library and information system. The methods of rendering CAS could be:

- i) Current bibliography of recent arrivals in the library
- ii) Display of books/book jackets, periodicals, etc. which are the latest arrivals.
- iii) By phone
- iv) Periodical routing - Individual-wise routing and Group-wise routing
- v) Current Awareness List/bulletins
- vi) Other methods:
 - (a) Notice Board
 - (b) Newspaper Clipping Services
 - (c) Bulletin Board Services, etc.

Much of the CAS concentrates on the primary literature published in the form of articles in primary journals. Therefore, most of the CAS assume the form of a CAS list/bulletin. The method of presentation of a current awareness list is presented below:

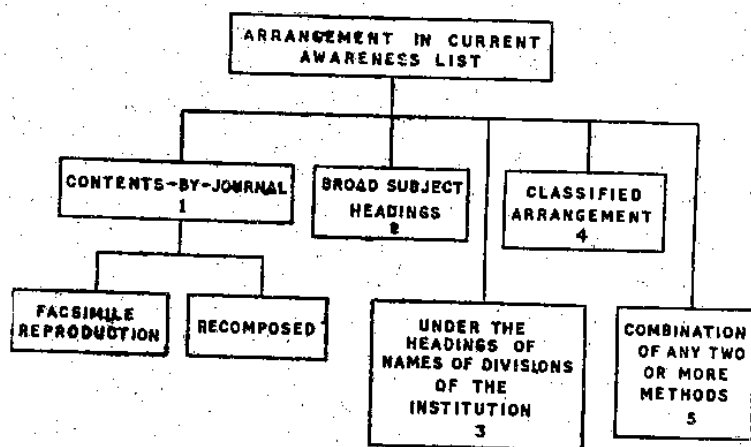


Fig.1: Method of arrangement in a current awareness list.

Source: *Documentation and Information*/by B. Guha, 1978

i) Contents-by-Journal

This method is the easiest out of the six methods. Because, it requires mere photocopying/reproduction of the contents pages of the selected periodicals and thus reproduced tables of contents or contents pages may be arranged in a preferred order and presented to the users. Facsimile reproduction means reproduction of the contents page(s) as it is. Whereas recomposed means, missions or commissions brought into the contents page and thus recomposed contents pages will be arranged in preferred order and distributed among the users.

The advantages of this method are: it is quick, cheap and needs little intellectual effort. The disadvantage is quick retrieval of required items of information will not be possible.

a) Broad Subject Headings:

By use of broad and convenient subject headings, the articles of selected periodicals may be grouped or classified and thus the information about the current micro-literature could be provided to the users under their broad area(s) of subject(s) of the users interest in a broadly classified order. This would be more convenient to the users. But it takes time of the staff of the L&I Centres.

b) Under the Headings of Names of Divisions of the Institutions:

This method of preparation is slightly a modification of the second method and is usually produced in local lists. This would be helpful because items are featured here under the names of current projects or names of project groups or names of divisions of the institution.

c) Classified Arrangement:

This method involves use of a scheme of classification for the arrangement of entries. This implies that there will be more systematic listing of items, under their subject, in a CA list.

But all the above methods though have their own advantages or disadvantages, they would not ensure effective retrieval. Therefore, combination of any two or more methods would be more preferable as it would meet various approaches of the users.

A diagrammatic representation of steps involved in producing a current awareness bulletin is presented below:

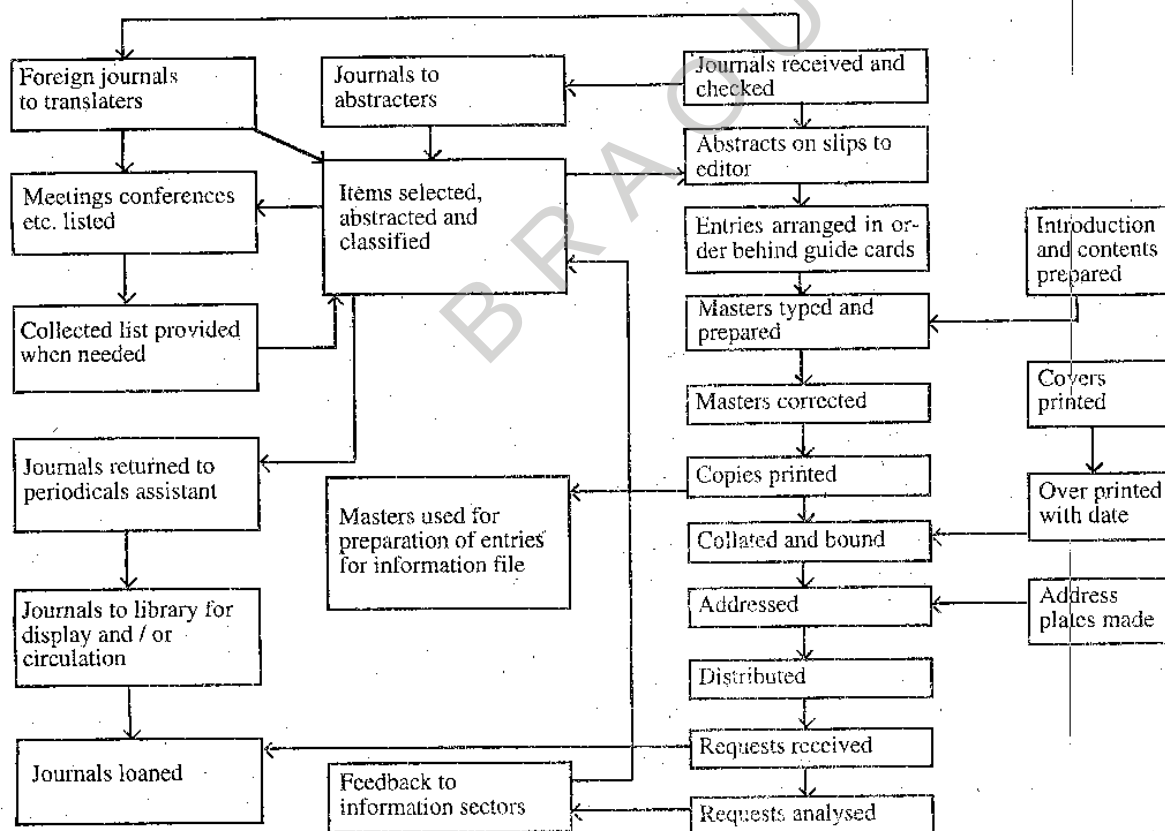


Figure : 2. Producing a current awareness bulletin

(Source : Atherton, Panline (1977). Hand book for information system and services)

The CAS is more a general appetiser in nature, because, the listing of the items is done without being selected to suit the needs of individual user, but to cultivate current approach to information among the users. Therefore, this service is also called as "Alert" Service. Some of the CAS Bulletins are titled as "Alert" Service. Almost all special libraries and university libraries render CAS services in general and to certain extent through CA bulletin in particular.

The commercial services available in the market are (current) abstracting and indexing services such as *Biological Abstracts*, *Chemical Abstracts*, *Psychological Abstracts*, *Library and Information Science Abstracts*, *Humanities Index*, *Atomic Index*, *Index Medicus*, etc. Besides these, the most popular Current Awareness Service which provides the contents pages of the journals is the *Current Contents* published by the Institute of Scientific Information, Philadelphia. This service includes the contents pages of even forthcoming issues of the periodicals covered under the service. Besides, the reproduced contents pages this service provides Author Index, Keyword Index and Directory of authors providing the addresses of the authors.

d) Notice Boards:

This is a conventional method of rendering CAS. The information about the arrival of the latest literature can be displayed on notice board. But this service has many limitations, such as, the user will have information only when they come to L&I centres and go through the Notice Board. And it has to be read by standing, hence, not according to the convenience of the readers. Further, the amount of information displayed would be limited to the size of the board. And it will not be desirable to display omnibus information.

e) Bulletin Board Services

This service is nothing but the computerised notice board (service). This is more effective and convenient, because, information is available to the users on their terminals at their desk. The amount of information provided can be more. Updating the board is also very easy and retrieval of information could be more user-friendly.

ii) Newspaper Clipping Service

It is a conventional service, which involves selection, organisation and dissemination of important news items and feature articles from current newspapers. There are several L&I centres which render this service. The Centre on Rural Documentation (CORD) of National Institute of Rural Development, Hyderabad, the Libraries of the Regional Centres of Indian Council of Social Science Research (ICSSR), The National Social Science Documentation Centre (NASSDOC), New Delhi, the Library of Indian Institute of Chemical Technology (IICT), Hyderabad, etc. do render this service.

connection with current work or interests, is high."

SDI is a refinement of the CAS that is designed to serve the individual directly. Therefore, it is a tailor-made CAS. It can also be called as "selective notification of current information". In this service, profiles of personal interests will be formulated by selecting relevant terms from a thesaurus or a code in conformity with the vocabulary used by the retrieval system. The items which match the user profile are brought to the attention of the user.

Where computers are used for this service, it can be performed more effectively as there will be sophisticated search facilities. The computer-based SDI service centres which combine several bibliographic reference files can search the title, abstract, (i.e. the free-text portions of a document description) as well as the controlled vocabulary (subject headings/descriptors, classification codes/class numbers) in the bibliographic information records of the originating source for the descriptions.

In computer-based systems word stems can be used to retrieve grammatical variations of words when searching free text. For example "ABSOR" can be used for searching "absorption", "absorbed" etc. (See fig:3). For details on search strategies/profile see Section 6.5.3.

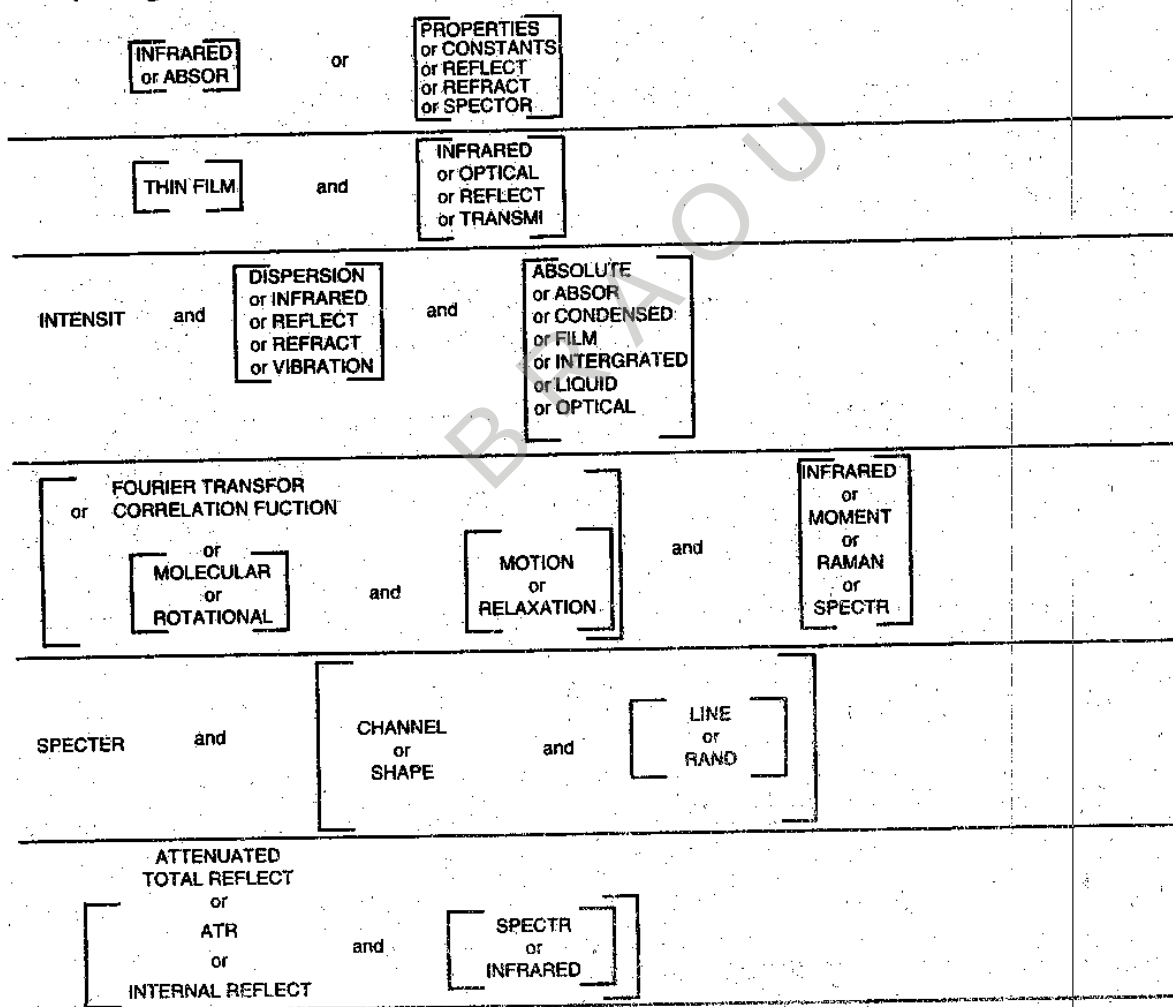


Figure-3: Example of a search profile.

Source: Atherton, Pauline (1977). *Handbook for Information systems and services*.

An SDI service can be incorporated in a library and Information centre, as an extension of the conventional reference service. To a considerable extent the special libraries do render SDI services. There are some SDI centres which often serve as "brokers" between the users and the originators of bibliographic databases from different producers in order to screen the current output of literature and find the items which suit their clientele needs. Until recently and even now, the bibliographic databases used to be searched on-line, ever since on-line facilities were available. Now it is a bit off-line with the help of the CD-ROM (Compact Disk-Read only Memory) databases. There are several national level SDI centres/services. Examples are.

The computer-based SDI service in Sweden at the Royal Institute of Technology Library which caters to the needs of the R&D units of industries, scientists from research institutions and universities who are engaged in basic as well as applied research.

As part of the UNISIST programme, the Canadian government, through the Canadian Institute for Scientific and Technical Information, provides assistance to any interested member state of Unesco in establishing national SDI services. The CAN/SDI service scans the current literature regularly from various bibliographic databases such as: *Science Citation and Source Index* (SCI); *Bibliography and Index of Geology* (GEOREF); *Biological Abstracts* (BA PREVIEWS); *Bio Research Index* (BA PREVIEWS); *Cataloguing and Indexing* (CAIN, of the US National Agricultural Library); *Chemical Abstracts* (*Chemical Abstracts CONDENSATES*; *Chemical Titles*; *Computer and Control Abstracts* (INSPEC); *Electrical and Electronics Abstracts* (INSPEC); *Physics Abstracts* (INSPEC); etc. In India, INSDOC, DESIDOC, the Library of BHEL (R&D), Hyderabad, ICRISAT Library, ICT Library, etc. render computer-based SDI services.

The CAN/SDI offers staff expertise and the training needed to establish a national SDI centre.

6.4.3 SDI and E-Mail

With the availability of E-Mail (Electronic-Mail) facility the "selective notification of the current information" can be more effectively and instantaneously done. E-mail service proves to be more time saving in the communication of graphic/textual information of any length. Of course, the service would be slightly costlier. And the pre-requisite for this service is that the user should have more or less an exclusive access to a computer/terminal.

6.5 LITERATURE SEARCH SERVICES

The most comprehensive study of communication behaviour (i.e., a survey) as conducted by the Operations Research Group of the Case Institute of Technology, Cleveland in 1958, revealed that scientists generally spend almost half the time of their working hours in some form of communication, such as perusing literature, looking up for references, actual reading and so on. Within this, only half the time is available for actual reading as the other half is spent in searching and other

communication activities. This indicates that too much time is spent in searching for information. In addition to the above finding, the changing user behaviour, needs and demands compelled the libraries to render literature search services.

Literature search services involve conduct of retrospective searches of literature on a project/subject/interest of individual user or researcher or research group. Every researcher or scientist has to conduct literature search prior to the selection of a specific research problem and also at the stage of reporting the results. Otherwise it might lead to duplication of research effort and also leads to substandard research. The literature search process consumes considerable time and energies of the researchers. In order to save the time of the users the library and information centres render literature search services.

6.5.1 Retrospective Searches

Retrospective searching refers to the process of obtaining a closed list of references to a specific or particular subject, of the user interest, covering the available literature on the subject for a specified period of time. For retrospective searches the following aspects must be taken into account:

- 1) The scope of the subject to be covered for the retrospective search,
- 2) Time-Span
- 3) Other selective criteria, e.g. author, institute, etc.,
- 4) Comprehensiveness,
- 5) Forms and languages of publication to be covered in certain cases. Because, sometimes some users may specify forms and languages of publications to be covered,
- 6) Form, arrangement of entries, annotations, indexes, etc. desired by the users, in which the results of the retrospective searches have to be provided to the users.

Every literature search implies or involves certain search parameters, strategies, aids and tools. And there is no one strategy to cover all searching problems. Therefore, it is helpful to formulate a composite search strategy and analyse the search process, isolating the relevant elements that make up a search and identifying the important decision points in the search process. The figure given below describes a general information search model which is also relevant for retrospective searching.

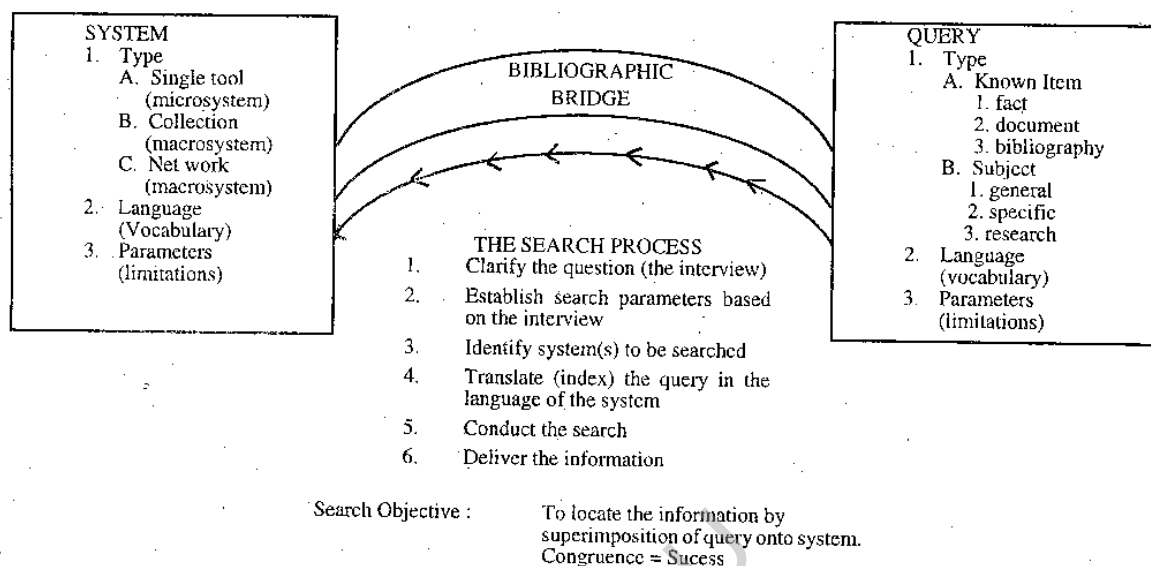


Fig. 4 : Model of the search process

(Source: Benson, James and Murray, Ruth Kay. "Principles of searching". IN *Reference and Information Sources: A reader* / edited by Bill Katz and Andrea Tarr)

The search process is nothing but building bibliographic bridge by superimposition of query into system. This may be a microsystem - a single tool, such as a bibliography, a dictionary, a state-of-the art report, etc.- or a macrosystem such as the library collection itself and/or a group of individual collections/libraries bound together by some cooperative agreement for reciprocal service. This search process is clearly described in the above diagram (Fig.4). In this fashion a search process takes place. Finally, the consequence of the search should be retrieval of relevant information.

6.5.2 Search Parameters

A parameter is determining factor or characteristic. The search parameters are the determining factor of the search which determine the scope, nature and consequence of search. In an information retrieval system both the components, system and query, have their own limitations. For instance, A

single CON, term CON (indicates that it, i.e. an index entry, constitutes a "term concept" and not a logic operator such as AND, OR, etc.), or a single NO CON term, or a set of CON terms connected by an OR operator (in case of Boolean logic searching) may be said to form a parameter. Besides the (search) term concepts the OR and AND operators form themselves as the determining factors or search parameters for determining the scope of the search. Therefore, the use of the truncation specification, boolean logic operators, etc have to be used meticulously in order to ensure retrieval precision. We may use the parameters in order to enhance the recall and precision values. Further, from another angle the search parameters also take into their fold the scope and/or limitations of the systems involved in the search process. (Heaps, H.S. *Information retrieval: Computational and theoretical Aspects*. New York: Academic Press, 1978. p.163).

In Fig-4 both the components, i.e., the system and query, have their own limitations. For instance a single tool, such as an encyclopedia, or a monograph can not give all information required by a user. Similarly a library might not have all documents required by a user. Therefore the information workers or providers who conduct (searches) have to be conscious of the limitations or scope of a single tool and also the macrosystem. There would also be limitations with regard to the precise enunciation of the information needs of the users. Therefore an interview has to be conducted to enable the user(s) to enunciate their needs precisely. Then only the search process results in success. Thus, every aspect has its own limitations, the information retrieval systems such as indexing languages do have their own parameters depending on the type of indexing system and the vocabulary the system uses. For instance, in most of the word indexes hierarchical searches or retrieval would be difficult. Now there is much work going on in this direction. Therefore, knowledge of the search parameters (i.e. the factor relevant for the successful search and/or the limitations of the information tools, systems and also the information retrieval system) is essential. Some specific parameters to illustrate the needs in an information retrieval system. Becker and Hayes provide in the form of an outline or a check list as follows:

I. Parameters related to data storage include:

- a) Number of files?
- b) Size of each file?
- c) What is the growth of the file?

II. Parameters related to data input include:

- a) Number of terms related to an individual input item,
- b) Number of separate file items generated or affected by single input item,
- c) Volume of activity

III. Parameters related to usage include.

- a) Parameters defining the character of the individual request,
- b) Volume of requests,
- c) Relationship between usage and the file itself,
- d) The character of file usage in reporting and other routine responses.

IV. Parameters related to time and cost include.

- a) Time limitations
- b) Cost limits.

6.5.3 Search Strategies

There are various search strategies, starting with author, title approach to super-imposition of the query of the user, related to subject of his/her interest, onto system. When there is a subject approach which is usually the most important and prime approach the search strategies depend on the system/type of data base which we search. If it is a conventional library catalogue or an indexing or abstracting (services) the search strategy should be in conformity with the subject cataloguing/indexing system used by the service. Because there will be pre-coordinated and post-coordinated subject headings, related terms, broad terms, 'see' and 'see also' references, chain indexing, etc. Further, as far as indexing and abstracting services are concerned, the indexing systems used by these services vary from service to service. Some services provide keyword indexes, generic indexes, ring index, systematic indexes, etc. Which also depend on the subject with which the service deals.

However, when we use the machine readable bibliographic databases, there would be more sophisticated search facilities which can not be offered by manual systems. The auto-searching or machine searching facilities are:

- 1) Boolean (logic) search
- 2) Truncated search
- 3) Free Text search

The above search facilities or strategies are briefly explained below:

i) Boolean (Logic) Search

A Boolean search of a data base is one in which "items are examined to determine whether their terms satisfy a question expressed in terms of the Boolean logic operations AND, OR, NOT, and NOR. The operation NOR is generally treated as being synonymous with OR".

Examples of Boolean searching:

If you want to find whether a database has references related to the given terms or names of the subjects of your interest, you may do so by giving two or more terms at once with Boolean logic operations as below:

traffic AND automobile

diffraction OR reflection

Light NOT heat

ii) Truncated Search

In this search facility, "to each term present in a question profile there may be attached a mode specification to indicate whether the question term is to be reached for as a complete term in the data base, or is to be searched for its appearance as a fragment of a larger term." For example: a search for ACID* (asterisk) to indicate truncation) may find (entries on) ACID, ACIDS, ACIDIC and so forth from the database. A search for *MAGNETIC may find MAGNETIC, PARAMAGNETIC but not MAGNETICS. A search for *RELATION* may find RELATION, RELATIONS, INTERRELATION, INTERRELATIONSHIP, etc.

iii) Free Text Searching

Free Text search provides the facility of searching all the fields of the database with given term/ expression.

If the search strategies to be compared should ideally represent different degrees of intellectual effort when compiling profiles and, also should require different degrees of sophistication of computer facility, the strategies selected for comparison were all variations of two basic types, viz. those consisting of a single list of terms, and those containing groups of terms, where the groups represent subject concepts in the original query. And thus free text searching is a sophistication of computer search facility to widen the search. With this search for item can be conducted with given term (s) / expression which occur in all the fields of a record in a bibliographic database including the abstract part of the record.

Besides the above, the list of search strategy types could be:

- 1) Co-ordinated matching of terms without weights (CT)
- 2) Term-weight cumulation (TWC)
- 3) Co-ordinate matching of terms with weights (CTW)
- 4) Co-ordinate matching of groups of terms without weights (CG)

- 5) Group-weight cumulation (GWC)
- 6) Group- / term - weight cumulation (GTWC)
- 7) Co-ordinate matching of groups of terms with weights (CGW)
- 8) Boolean logic with weights (BW)
- 9) Co-ordinate matching of restricted list of terms with weights (CRTW)
- 10) Controlled - language Boolean strategy (CLB)

In the preceding Section you have been introduced to three important search strategies. Now let us know about tools for conducting literature search.

6.5.4 Aids and Tools

The tools for conducting literature search are innumerable. There are a variety of tools ranging from library catalogues to online databases. The library catalogue is the first tool which could be used for literature searching. For an extensive and exhaustive search, tools such as bibliographies, indexing and abstracting services, guides to literature, reviews of literature, citation indexes can be consulted. The machine readable bibliographic databases (i.e. the machine readable forms of the above tools) may be searched online or off-line. There are several on-line (databases) services offered by Lockheed's Dialogue service, BRS, BLAISE-Line, etc.

The aids which we use for searching the above tools depend on the type of the tools, as every tool has its own indexing/retrieval system. However, the basic aids which can be used for subject wise searching could be the Glossaries/dictionaries of the subject. The best tools would be the thesaurus, which also provide us with Broad Terms (BTs), Narrow Terms (NTs) and Related Terms (RTs), etc. These would be more useful for conducting an effective search.

6.6 REFERRAL SERVICES

Let us proceed to Referral Services. The present day information needs of the users of library and information centres warrant exhaustive or comprehensive coverage of literature/information. Contrary to this no library can house every document or piece of information required by every user. The solution to this problem is the 'referral service' which aims at directing enquiries to appropriate sources of information other than the sources available within the L&I Centres.

i) Definition of Referral Service / Centre

According to Gray, "Referral services link users to appropriate sources of information on the basis of specially prepared guides." According to Murdock, "A referral centre is an organisation for directing searches for information and data to suitable sources such as libraries, document dissemination centres, information analysis centres, data exchange centres, and individuals."

The above two definitions indicate that, primarily referral service is a service which directs or links the users to appropriate source(s) of information, which may be a library, document dissemination centre, etc. on the basis of specially prepared guides. Besides directing the users to an appropriate source(s) of information, the other virtue of referral service is to ensure optimum utilisation of existing resources, may be, in a region, nation or in the world.

ii) Need for Referral Service

The following factors determine the need for Referral Service :

1) A single L & I system can not cater to the increasing and varied information needs of its users. As it can not procure, process, store and retrieve every document/unit of information produced in the world due to space, finance, etc. limitations.

2) The large amounts of money which are spent by a nation in developing the collections of its L & I systems should be put to maximum use. Thus, for optimum utilisation of the existing collections in a nation, referral service is essential.

3) The comprehensive / exhaustive coverage of literature facilitates quality research and avoidance of duplication of research effort. Referral services ensure comprehensive / exhaustive coverage of literature / information.

4) Because of referral service we can save considerable amount of time of the users. The time which is wasted in procuring a document to meet the users need can be mitigated by referring him to a nearby L&I system / centre where the document/information is readily available.

iii) Pre-requisites for Referral Service

In order to render referral service the most important pre-requisites are:

- 1) Cooperation among Library/Information centres/systems
- 2) Specially prepared guides, such as the union catalogues, directories of Library/information centres and individuals (they are the information gate-keepers).
- 3) Proper/efficient communication/transportation system,
- 4) Required finances, staff, infrastructural facilities, and formats, etc.
- 5) Establishment of Referral Centres which render referral services and also compile union catalogues/referral databases and necessary directories.

Of the above, the first two prerequisites are quite essential without which even a moderate referral service cannot be initiated. Thus, a referral service presupposes library cooperation or networks. If there is no cooperation, the directing of users will be in vain as the directed to, source

of information might not oblige the users with information. Secondly, we can not direct the information needy blindly, we should know which information centre/library/individual contains the required information, for this reason we need to have or develop the union catalogues and directories. For the preparation of union catalogues also there is a need for cooperation or proper mechanism to input the data regularly into the union catalogues for their construction and updating.

iv) Types of Referral Centres

In the following sections some of the National and International referral Centres are briefly presented :

a) International Referral Centres:

International Referral System (UNEP): Its formation was first recommended by UN conference on the Human Environment held in Stockholm in June 1972, with the general aim of providing world wide access to information about local, national and international research, application, and legislative and management experiences in environmental matters. This service is based on a network of national focal points.

IRCIHE, the UNISIST / Unesco International Referral Centre for Information Handling Equipment, at the University of Zagreb (in formerly Yugoslavia).

There are other systems being planned or developed within the Unesco - PGI frame work. Some of them are INIS, AGRIS, SPINES, and DEVSIS, WISI (World Information System in Information), ASFIS (Aquatic Sciences and Fisheries Information System), MEDI (Marine Environment Data Information), and WDRC (World Data Referral Centre). These systems are presented under Block III Unit. 9

b) National Referral System:

Centre National de Documentation Scientific et Technique (CNDST) in Belgium for medicine, physics, chemistry, engineering, agriculture, and information science.

As a part of the Scientific and Technical Information System in Canada, a referral service is proposed and it is based at CISTI, the Canadian Institute for Scientific and Technical Information.

In France a national referral service called SOSDOC has been established by Bureau National de l'Information et Technique (BNIST) at the end of 1977.

In UK there are various services, some of them are Aslib Referral Service, Small Firms Information Services, etc.

In USA there are several centres and services. Some of them are:

National Referral Centre at the Library of Congress established in 1962, it acts as the National Referral Centre for Science and Technology.

ERIC (Educational Resources Information Centre).

NAWDEX (National Water Data Exchange)

TRISNET (National Network of Transportation Research Information Services).

c) Referral Databases:

1) DARE: This is the first and largest UNESCO referral database. It contains world-wide reference to research and training institutions, specialists, course projects, etc.

2) CODATA Referral Database (CRD) Set up with UNESCO support. It covers international records describing numerical data sources in science and technology.

In India under NISSAT there are several documentation centres such as INSDOC, DESIDOC, NASSDOC, SENDOC, etc. which render referral service in their subject areas in a limited way. However, the INSDOC and NASSDOC have compiled various regional, union catalogues of serials in science and technology and social sciences respectively but these are not regularly updated. These centres have been presented in Block III Unit 12.

6.7 LET US SUM UP

Library and information centres play an important role in the society by providing information/literature support to all kinds of educational, research and development activities. In consonance with the changing information needs and information seeking behaviour of the users of the library and information centres, they have to render various user friendly and time saving personalised services. Reference, literature search and referral services are such services which save the time of the users especially in view of the unprecedented rate of explosion of information/literature.

While reference service aims at pointing at the right sources of information, at right time and in right personal way. The literature search and current awareness services aim at searching for literature and current information on behalf of the users. The referral services extends its scope to the coverage of literature available beyond a library collection.

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6.9 ASSIGNMENT

- 1) Use any one of the bibliographic databases available or accessible to you and apply all the search strategies available within the database.
- 2) Describe Reference section in action in a University Library.
- 3) Prepare a bibliography of books and if possible few articles on this unit.

6.10 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) What is reference service ? Explain its nature and scope.
- 2) Enumerate the salient features of a current awareness service and explain the methods of rendering CAS.
- 3) Write a note on literature search services.
- 4) Present an account on Referral Service.

II SHORT NOTES

- a) Reader's Advisory Service
- b) Bulletin Board Services
- c) Current Contents
- d) Free-Text Searching
- e) Truncated searching

UNIT - 7 : DOCUMENT BACK-UP SERVICES

Structure

- 7.0 Aims and Objectives
- 7.1 Introduction
- 7.2 Document Back-up Services
 - 7.2.1 Need
 - 7.2.2 Process
 - 7.2.3 Forms
 - 7.2.4 An Overview of the Existing Services
- 7.3 Document Delivery Services; UAP
- 7.4 Reprographic Service
- 7.5 Let Us Sum Up
- 7.6 References
- 7.7 Assignment
- 7.8 Model Examination Questions

7.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce you to the concept of Document Back-up services, provide an overview of the existing document back-up services and explain the process of document back-up and the significance of document delivery services in relation to Universal Availability of Publications (UAP). It also aims to discuss the role of reprographic services in the process of document back-up and document delivery services.

After studying this unit you should be able to

- describe document back-up services
- explain the process of document back-up

- discuss the importance of document delivery services in relation to Universal Availability of Publications
- explain the role of reprographic services in document delivery process.

7.1 INTRODUCTION

The primary objective of any library is to provide its users with the document(s) they need to satisfy their educational, information, intellectual and research need(s). The Second Law of Library Science propounded by Dr.S.R.Ranganathan proclaims that 'Every reader his/her book'. But, this is very difficult or almost impossible to realise as no library can acquire each and every document required by its readers, because of its financial and other limitations. Therefore, in order to help its readers satisfy their needs there are referral services, inter-library loan services, etc. Even these services suffer from their own limitations. Therefore, the libraries of a region/nation may have to depend on "Document Back-up Services". The document back-up service is a service which aims at supporting individual library(ies) with required documents to meet the needs of their users. A library or a documentation centre which renders document back-up services is a document back-up centre.

Document Back-up Services are helpful, because, every nation is expected to have a national repository of documents in various disciplines, such as, National Science Library and National Medical Library. Naturally, such libraries are expected to develop collections to represent the total intellectual output of the nation and also considerable amount of literature produced elsewhere in the world in the concerned subject field. Such libraries should act as the document back-up sources/centres by rendering Document Back-up Services.

7.2 DOCUMENT BACK-UP SERVICES

Having learnt what a document back-up service is, you should understand its need, process of preparing a document back-up service and also have an overview of the existing services.

7.2.1 Need for Document Back-up Services

As mentioned earlier, Document Back-up services are essential in order to go to the rescue of an individual library in satisfying its users needs where it does not actually have a document of its users interest. Besides this, the need for Document Back-up services is to:

- 1) Ensure comprehensive coverage of literature by every researcher, scientist, scholar in the field of his/her study or investigation. This is quite essential for avoiding duplication of research effort and promote quality of research.

2) There will be no meaning in every library procuring every document published in the world. This would create space problems and document organisation problems in individual libraries. Above all, the finances of every individual library pose severe constraints on document acquisition. Therefore, it will be meaningful if every individual library develops a moderate collection and depends on a national repository or back-up source for comprehensive coverage.

3) A library needs to develop a core collection. There is no need to acquire a document which is rarely consulted. For such peripheral collection Document Back-up services are essential.

Thus, the document back-up services ensure comprehensive literature coverage by the researchers, scientists, and readers, saves money of individual libraries on acquisition of peripheral collection, solves space and organisation problems in individual libraries.

7.2.2 Process of Document Back-Up

The process of Document Back-up has to be discussed from the point of view of the system of Document Back-up and also from the method of Document Back-up.

i) System of Document Back-up

The system of Document Back-up in a nation or region could be (1) Centralised System, (2) Partially Centralised System, and (3) Decentralised System.

1) Centralised System:

In this system there will be only one central Document Back-up library. All document back-up services will be rendered by this library in the field(s) which it covers. Therefore, usually it will be a highly comprehensive collection at national level. There will be advantages and disadvantages of this system.

The advantages are

- i) It will be fairly comprehensive in coverage.
- ii) As it is the only source people need not waste their time and money for finding the documents at various centres, as in a case of decentralised system.
- iii) Since it is a dedicated centre the services will be efficient and fast.
- iv) There will be less burden on individual libraries in relation to inter-library lending.
- v) It mitigates the problems of bibliographic organisation and control in general and compilation of union lists in particular as there will be almost minimal interlending among libraries.
- vi) The demand and supply of documents provide better idea for effective collection building in individual libraries in particular and in the centre in general.

The disadvantages are

- i) Being the only source, the number of copies available may not be adequate to meet the nationwide needs. Hence, there may be long waiting sometimes.
- ii) The management and organisation of such a huge system would be difficult and this might affect its efficiency.
- iii) This system may not be effective for back-up of all types of documents.

2) *Partially Centralised System:*

In this system a single library builds up and maintains extensive collection which will have heavy demand, on a subject or subjects. Further, it taps the resources of other libraries, which back-up the system, to meet the residual demands. Thus, all demands or requests for information or documents will be monitored and met by the centre.

The advantages are

This system has more advantages than centralised system because, the coverage could be comparatively more comprehensive and extensive, because of the back-up libraries. However, there will be a burden of interlending on back-up libraries. Thus, in this system an extensive collection building and document or literature coverage is possible at comparatively less cost.

The disadvantages would be

- i) Time consuming process, in case the items are not available with the centre. The interlending takes its own time.
- ii) It requires building up of location tools and the process of updating them would be laborious and needs use of modern technologies for instantaneous, effective and efficient updating.

3) *Decentralised System*

For this system a meticulous planning is essential in order to avoid duplication of efforts and communication gaps. In this system a group of libraries build up collections in a planned way, depending on their areas of specialisation. Each library will have a core collection so as to avoid total dependence, besides the core collection they also acquire additional material which will form a unique collection in the group. Resources of the libraries are made known to each other by a union catalogue. Thus, the libraries in the system back-up one another.

The advantages of this system are

- i) Individual library will not have much of a burden in developing comprehensive and extensive collection.

ii) Since each library specialises in one area, collection development and organisation can achieve perfection.

iii) Requests for documents can be sent directly to the individual libraries. This saves time of the users and lessens burden on every centre/library. Further it reduces interlending burden also when document delivery services are offered.

The disadvantages of this system are

i) All the libraries in the group will have to render back-up service/document supply service besides their routine functions.

ii) It will be imperative on the part of every library in the group to acquire additional sources which they may not normally require.

7.2.3 Forms of Document Back-up Services

By and large, the aim of document back-up process is to support an individual library with its required peripheral collection. Therefore, the form of services in document back-up process assumes the form of interlibrary lending services or document delivery services.

i) Inter - Library Lending

This service, as part of document back-up process, takes place in the following fashion. On request by individual library the document back-up system(s) lend the required document to the needy library, directly in case of decentralised system, through the central system in case of a centralised system. If, the document back-up system is a single mammoth library then lending of books to the needy library will be executed by such central library.

But, interlibrary loan process is outdated and also it suffers from many limitations, such as insufficient number of copies of a document at the document back-up system. Delays in the process of return of books lent on interlibrary loan facility. Damage caused to the books by various types of users and fixing up of responsibility for the same will be difficult. Above all Wessling notes that, "numbers of requests have escalated beyond a manageable quantity for even the largest operations (or especially for the largest operations) and that requests are being turned away". Therefore, document delivery is a primary service for the nineties.

ii) Document Delivery Services:

To a great extent document delivery service means that a reproduced copy of the required document or a portion of a document will be delivered or supplied or provided to the needy library. Due to the advent and availability of advanced reprographic technologies and relaxed copyright implications. There is considerable increase in document delivery services. Almost all document back-up systems render document delivery services. Therefore, document back-up services can

almost be identified with document delivery services and the Interlibrary loan had evolved into library document delivery.

Besides the above mentioned systems of document back-up process, at the level of execution there are various process or methods of making request and document supply. The requests may be sent by post, telephone, fax, electronic-mail or on-line through the connected terminal(s). Documents may also be supplied by any one of the above methods. However, supply by telephone is not really meaningful, but the fax delivery makes use of telecommunication/satellite communication lines or links for digitized transmission of the images/matter contain in the documents.

7.2.3 An Overview of the Existing Document Back-up Services

When the issue of an overview of the existing Document Back-up services comes up, one has to have clear distinction between document back-up services and document supply services. Every library may render a document supply service, but it can not be a document back-up library. A document back-up library/institution is one which backs-up various library(ies) in a region, nation or the globe itself with documents to meet the needs of individual users of an individual library or a member library in a cooperative or other-wise system. Thus, every document back-up library renders document supply services/document lending services. But, every library which renders document supply services cannot be called as a document back-up system.

There are several document back-up services/systems at regional, national and international level. A brief account on some of the important systems is presented below:

1) British Library Document Supply Centre (BLDSC), Boston Spa

This centre is an example for partially centralised system, because it renders service along with some back-up libraries. But, to a large extent it meets the requirements of its clientele from its own resources. The centre was formed in 1973 as British Library Lending Division(BLLD). This centre provides most comprehensive document supply service. The centre also receives requests from various other countries in the world.

2) Indian Scientific Documentation Centre (INSDOC)

INSDOC can be identified as a document back-up centre in India in the field of Science and Technology. INSDOC renders Document Supply Services, based on a decentralised collection of resources held in major libraries in the country, since its inception in 1952. For the location of the documents, especially periodical literature, it has compiled *National Union Catalogue of Scientific Serials in India* (NUCSSI).

Recently, (in 1992) INSDOC has introduced "Contents Abstracts and Photocopies Services (CAPS). This is a form of document delivery service, extended to individuals and institutional subscribers. Under this service, the subscribers get monthly dispatches of contents of 40 journals

selected from about 50,000 core Indian and foreign journals in the field of science and technology. Subscribers can avail themselves of two types of services viz., 1) Contents only, and 2) Contents and abstracts/photocopies. On receipt of an order from the subscriber for photocopies of complete article(s) of their interest and for abstracts of the articles, INSDOC provides the same to the subscribers in the form of a paper, diskette or e-mail or fax according to the choice of the subscriber at an extra cost.

3) On-line Computer Library Centre (OCLC)

OCLC is a decentralised system. It is a non-profit making computerised library network of about 11,000 libraries in about 41 countries/territories. There is a central bibliographic database which is accessible to the participating libraries on-line through OCLC dedicated international telecommunication network and also via dial access. Borrowing libraries send on-line requests directly to the libraries which possess the required documents. Because, the Interlibrary Loan (ILL) system of OCLC is being an on-line communication mechanism, the requests will be automatically forwarded to the selected potential lending libraries. The system handles millions of requests every year.

OCLC (formerly known as Ohio College Library Centre founded in 1967) is a well-known cooperative library system/network. OCLC and Research Library and Information Network (RLIN) have cooperation to increase the number of document suppliers accessibility. In 1992 OCLC planned access through the OCLC EPIC online reference system and its end-user service, First search, to a table of contents database covering journals in science, engineering, business, and medicine. *Firstsearch*, a user friendly menu-driven programme, will allow users to search by subject for books and other material included in OCLC's bibliographic database as well as a variety of Indexing and abstracting tools. The table of contents service, *Faxon finder* will include delivery of needed articles by Fax or Faxon X Press.

4) Other Systems

As pointed out earlier document back-up services cannot be separated with Inter Library Lending (ILL). And the expanded ILL service, which can be called as Library document delivery, presently acts as an electronic guide to the user and provides a library with the means to offer easy and definite access to needed document. It broadens the current library-to-library lending system and provides a single electronic access point for users to obtain direct delivery of required items of documents.

There are several document delivery systems/services offered by various libraries at almost all levels, namely, local, regional, national and international levels. But the major known systems are the national level library and information systems.

The current document delivery service provided by National Agricultural Library, U.S. is described as one including full-text retrieval, networking, outreach, the use of document delivery vendors and wide range of technological innovation.

MELDOC programme at the University of California at Irvine, permits dial-in users of MELVYL (the University of California nine campus online union catalogue) to make requests for electronic campus delivery of specified documents. There can also be requests for ILL when the item is not available locally. The latest module adds another option for users by offering direct link with commercial document delivery suppliers for a fee for a rapid and direct delivery of selected titles.

The MELVYL document delivery request system comprises of special files such as the MEDLINE database, etc. A user can transfer a citation identified in MELVYL MEDLINE by an electronic message, which will be routed to his or her home campus library collection, where it will either be filled from that collection or referred to another campus to be filled by ILL. Contact with an outside vendor will be planned to support delivery of items which are not available within the University of California system.

The Maggies Place, an extensive computer system, of the Pikes Peak Library District in Colorado Springs, Colorado, has a component called *LINK* which permits its users to connect through any terminal on Maggie to remote computers and telecommunication networks such as DIALOG, RLIN, etc. This enables user access to the full range of document delivery sources linked with online search services.

The Grateful Med System of the National Library of Medicine (NLM, US), allows an individual user to search and identify articles in any of the NLM databases including MEDLINE, for document delivery. Actual delivery of the required article is facilitated with the link to Grateful Med, called *Loansome Doc*, which allows the user to generate an electronic request to his or her library for document delivery of specific articles. If the request cannot be fulfilled by the host library, it will be referred to another participating library. Loansome Doc supports library document delivery service to health care professionals, regardless of geographical location.

UnCover 2 is a joint project of CARL systems, Inc. (CSI) and the Colorado Alliance of Research Libraries (CARL). It demonstrates a specialised document delivery service which is tailored to provide delivery from local or coordinated holdings in libraries. The UnCover database includes the table of contents of the combined serial holdings of CARL Member Libraries. The document delivery component of Uncover promises articles delivery by fax within 24 hours. The service includes optical scanning and storage of the articles when first delivered so as to enable immediate fax delivery of subsequent requests.

There is another trend, set by the commercial online search services. In response to increased user demand, online search services, such as DIALOG, BPS, etc. are increasing the number of document delivery options available, and they are facilitating users' ability to retrieve documents. For

instance, DIALOG Information Retrieval Services link the users to about 70 document delivery services.

ADONIS, the European Article Delivery Over Network Information System project receives journals directly from publishers. These journals will be indexed by *Excerpta Medica*, assigning a specific ADONIS number, and scanned on a weekly basis. Copies of articles are stored and supplied on CD-ROM to the major document delivery centres. These centres in turn use these discs to satisfy requests from individual users.

In India almost all documentation centres and to certain extent the libraries attached to National Research Laboratories do provide document back-up services/document delivery services, perhaps in a restricted way. In principle the National Medical Library, Libraries attached to CSIR Laboratories, the NASSDOC, SENDOC, etc. also render document delivery services in their own limited way. There is a need for provision of state-of-art electronic and telecommunications technologies or facilities to enable them to render efficient document back-up/delivery services. The INFLIBNET aims at developing network of universities and college libraries primarily in order to facilitate better resource sharing among the participating libraries, through bibliographic information and document delivery services.

7.3 DOCUMENT DELIVERY SERVICES; UAP

UAP stands for Universal Availability of Publications. This is one of the programmes of the International Federation of Library Associations and Institutions (IFLA). The origins of the UAP programme can be traced back to the 39th IFLA conference in Grenoble in 1973. The theme of which was "Universal Bibliographic Control". The UBC programme emphasises the need for the promotion of a worldwide system for the exchange of bibliographic information.

The credit for creation of the concept of UAP goes to Donald Urquhart the then chairman of IFLA's Committee on International Lending and Union Catalogue as well as Director of the National Lending Library for Science and Technology, Boston Spa (the present BLDSC). He urged and strongly argued that, "it was no use, that it was indeed frustrating to extend bibliographic control and provide a faster, more complete supply of references if the documents to which they referred could not be obtained." Thus, the specific concept of UAP originated with Urquhart. This opinion of Urquhart was also shared by Maurice Line, the then Director of National Central Library, U.K. He also suggested that improved access to bibliographic information on publications must be matched by improved access to publications.

The views of Urquhart and Line found favour at Western European Seminar on Library Interlending, which was held in Banbury in 1973. The recommendations of this seminar, especially, recommendation 7.3 stated: "As an essential element in any programme of national and international planning and as a natural concomitant of Universal Bibliographic Control efforts should be made

within each country and between countries to improve access to publications by increasing the availability and speed of interlending services and by developing simple and efficient procedures. The ultimate aim should be to ensure that all individuals throughout the world should be able to obtain for personal use any publication wherever or whenever published, either in original or in copy". (IFLA Annual 1974. Proceedings of the 40th General Council Meeting.)

The above recommendation is significant and important, because it proclaims the indispensability and improvement of Universal Availability of publications of all kinds, all times and of all nations. It also signifies the role of information in the modern information age. But then, it has its own implications on copyright laws and document/publications delivery systems/services.

As long as provision of the publication in original is concerned there will be no problem. Whereas, when it is the provision of the copy of the document, it implies that to the extent possible there should be liberalised copyright laws and improvised and more efficient document delivery services by document back-up centres, library and information centres.

A brief account on the developments of the programme is presented below:

The above recommendation was officially adopted at the 40th IFLA conference in 1974 in Washington DC., and the theme of the conference was "National and International Library Planning". The concept of UAP was clearly enunciated as transcending the improvement of interlibrary loan, implying total service to users. At the same time and place the creation of an office for International Lending was approved. The office was set up in the British Library at Boston Spa, with Maurice Line as Director. The aim of the office was to promote international lending by offering practical support and collecting and publicising information of interest.

At IFLA's world-wide seminar in Seoul in 1976, it was stressed that UBC and UAP are complementary and that any improvement in availability is a step towards universability. The formulation of an interlending code was recommended as it was felt that UAP programme would mean increased interlibrary loan at the national and international levels.

In 1977 Unesco contracted to IFLA a comparative study of national interlending systems. From then on, UAP enjoyed full support of Unesco. Unesco also proposed an International congress on UAP to provide wide publicity for the programme. The approved programme and Budget of Unesco for 1981-1983 has stated that "An international congress on the UAP will be organised in Paris in cooperation with the IFLA". The International Congress on UAP was a stepping stone for the advancement of the programme. There were several seminars, conferences and publications on UAP which publicised the programme substantially. In 1986 several countries organised national meetings specially devoted to UAP. Unesco initiated a project on feasibility study of a document delivery system to support the Asian Scientific and Technical Information Network (ASTINFO) in 1986.

Thus, there are several projects, efforts and studies to promote the UAP. Many countries are presently participating in UAP programme in its true spirit. However, interlending is not a feasible activity. Therefore, presently there is a growing need for document delivery services, which imply provision of a copy of the required document to the needy. For the provision of copies of documents, in other words, document delivery services, necessary reprographic facilities must be available to the document delivery centres/libraries. And also they must render efficient reprographic services. In the following sections various reprographic services are briefly discussed.

7.4 REPROGRAPHIC SERVICES

The word reprography according to Prasher, "was first used in 1954 as a generic term for all types of facsimile reproduction of documents, including in its scope, processes and techniques associated with photocopying, microcopying, blueprinting, electrocopying, thermocopying, dyline reproduction, etc."

According to Landau, "Reprography is the art of producing single or multiple copies of document, whether by photographic or other means".

A better definition to distinguish reprography from that of reproduction or production is given by the Encyclopedia of Library and Information Science. Reprography is "in-house copying and duplicating as different from printing." A reprographic service in a library is, in-house copying (service) of documents in a library, information or documentation centre to provide the copies to the needy. The mode and form of the services depend on the reprographic facilities/processes available with the centre. The types of services can be broadly divided into two categories: 1) Macro-copying service; and 2) Micro-copying service.

1) Macro-copying includes duplicating, photocopying, etc.

2) Microcopying includes microfilm, microfiche, micro opaque, microcard, etc.

There are many a processes available. But generally, photocopying services (presently the plain paper copier) is a widely rendered service in almost all special and academic, primarily, university libraries and national and international documentation centres. Service through microcopying is not rendered by every library and information centre, as the cost of the equipment and reproduction will be too high for individual library. However, the national and international documentation and information centres/systems also render microcopying services. DESIDOC, INSDOC, NASSDOC in India have the facilities of microcopying and render these services besides macro copying services. The University Microfilm International, Michigan provides micro form of doctoral dissertations.

The Library of Congress provides its catalogue services in the form of COM fiche. Thus, there are several Library, Information and Documentation centres which render reprographic services to extend document delivery services. However, with the advent of information technologies,

document delivery service through reprographic services would be gradually replaced by Telefacsimile (fax) and digital transmission. There are already several services/projects related to digital transmission. The Research Libraries Group (RLG) has beta tested a document transmission workstation, Ariel, in the Inter Library Lending departments of Libraries in LISA. The Ariel supports digital transmission of articles over the Internet. There is another project in which North Carolina State University Libraries and the National Agricultural Library, U.S. are involved in transmission of digitized text over the Internet. The Big Ten Library project, based at Ohio State University is being beta tested at Ohio State University, University of Cincinnati, and Indiana University. It differs from other projects as it links fax technology, using a microcomputer as mediator, with Internet transmission.

Though such developments are taking place elsewhere, in the developing countries there will be still demand for reprographic services at local and national level, because of its relatively economical feature.

In the wake of Internet and the World Wide Web (WWW), the relevance and need for document back-up services/document delivery services/reprographic services might be diminished because the document will be available in electronic form to the users who have access to the Internet and the WWW.

7.5 LET US SUM UP

The intellectual output of the world would be considerably in unmanageable proportions and amounts. No library can claim to have housed the total document output even in a single discipline. Therefore, every library needs document back-up support. The problem of inadequacies in collection(s) of individual libraries can be overcome by library cooperation and document back-up services. The document back-up processes could be one-way, two-way and multi-way. However, for effective document back-up process there should be a national policy or programme. Realising the need, International Federation of Library Association and Institutions (IFLA) has initiated the programme of Universal Availability of Publications. The document back-up process takes place through Inter-library lending or document lending services. Document Delivery Services have gained more popularity. For effective and efficient document delivery services, there is a need to have advanced reprographic facilities. The present technology provides us with various reprographic facilities because of which quantitative and speedy services can be rendered.

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7.7 ASSIGNMENT

- (1) Write an essay on British Library Document Supply Centre (BLDSC).
- (2) Visit one or two special and university libraries in your city and prepare a report on their document delivery and reprographic services.

7.8 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) What is document back-up service? Explain the need for document back-up services.
- 2) Describe the process of document back-up.
- 3) Discuss the impact of information technology on document back-up services.
- 4) Narrate the relation between UAP and document delivery services.

II SHORT NOTES

- a) Document Delivery
- b) Inter Library Lending
- c) CAPS
- d) ADONIS
- e) Microcopying

UNIT - 8 : STANDARDS FOR DOCUMENTATION AND INFORMATION SERVICES

Structure

- 8.0 Aims and Objectives
- 8.1 Introduction
- 8.2 Need for Standards
- 8.3 International Standards
 - 8.3.1 ISO Standards
 - 8.3.2 Contribution of IFLA and FID
 - 8.3.3 Unesco's Contribution
- 8.4 National Standards
 - 8.4.1 United States
 - 8.4.2 United Kingdom
 - 8.4.3 India
- 8.5 Standards for Database Design & Development
 - 8.5.1 MARC
 - 8.5.2 CCF
 - 8.5.3 ISBD
- 8.6 Let Us Sum Up
- 8.7 References and Recommended Books
- 8.8 Assignment
- 8.9 Model Examination Questions

8.0 AIMS AND OBJECTIVES

The aim of this unit is to explain standards for documentation and information services. In pursuance of this aim it emphasizes the need for standards and presents a brief account on standards for information services and products.

- After studying this unit, you should be able to
- explain the need for standards for information services
- acquaint yourself with some of the important national and international standards for information services
- describe the international standards for database design and development like MARC, CCF and ISBD.

8.1 INTRODUCTION

The dictionary meaning of the term 'standard' is "something considered by an authority or by general consent as a basis for comparison"; "anything, as a rule or principle, that is used as a basis for judgement". Therefore, standard is a gauge, a basis, or a norm, which is very essential for evaluation, comparison, measurement and guidance. In a sense standards serve us as guidelines, approved models. Therefore, standards are very valuable in any activity, institution or organisation rather in all walks of human life. Library and information services/documentation services are very crucial services for socio-economic development of the human society and such services should be upto stipulated or desirable level of quality or satisfaction. Further, there should be uniform and consistent services and practices. Therefore, standards for documentation/information services are indispensable.

As far as a definition for library standards is concerned, the well quoted definition is the one presented by the South African Library Association (1968), "Library standards may be defined as the criteria by which... library services may be measured and assessed. They are determined by professional librarian in order to attain and maintain the objectives they have set themselves. Standards may be interpreted variously as the pattern of an ideal, a model procedure, a measure for appraisal, a stimulus for future development and improvement and as an instrument to assist decision and action not only by librarians themselves, but by the laymen concerned indirectly with the institution, planning, and administration of... library service".

The above definition seems to be elaborative, but it misses some of the important characteristics of standards. The basic feature of a standard is that it is the basis, the rule, the norm, etc., which is established by an authority or by custom. Whereas the above definition states that standards are determined by professional librarians. No authoritative body of any government did

show interest in establishing standards for a long time. But of late, the government institutions, i.e., standards institutions and professional associations have started showing interest in developing standards for documentation/information services.

There are various types of standards. Qureshi (1980) states that, "standards can, of course, vary in degree, they may either be standards of adequacy or standards of excellence. Standards of adequacy in one country may well be standards of excellence in another country. Standards are sanctified by authority, consensus, and custom. There are thus two types of standards: (a) Formal standards which have been adopted and propagated by a competent authority, and (b) Informal standards, which are the cumulative product of experience, but which have not received the imprimatur of authority. Standards, if they are to be really effective, must be authorised, that is, receive an imprimatur of some approved institution of national standing".

Standards may further be categorised into qualitative and quantitative standards. A quantitative standard is one which stipulates, dimension, weight and other quantitative aspects. A qualitative standard deals with qualitative aspects such purity, satisfaction, etc. As a matter of fact to a great extent for qualitative assessment quantification may be inevitable. Therefore, we often find qualitative assessment made in quantitative terms. However, standards for documentation/information services must be qualitative standards. These standards deal with the quality of the service, the form or format in which the service should be rendered, the types of service to be rendered, etc.

In the following sections, we will discuss about the need for standards and also about various standards that are in vogue for documentation/information services at international and national levels.

8.2 NEED FOR STANDARDS

Standards are needed in all spheres of human society. Whereas, standards are needed for documentation/information services for :

(1) Standards are an indispensable aid to the authorities of documentation/information centres to evaluate the quality of service.

(2) Standards can be helpful in developing adequate document stock, employing trained or efficient staff, and occupying suitable quarters.

(3) Standards bring uniformity and order in the service and products which facilitate exchange of services and products between and among documentation/information centres at international as well as national levels.

(4) Standards are also necessary as a guide for the establishment of new library/documentation/information centres and for improvement of the existing ones.

(5) They are also required as a guide to the level of financial, material and human support necessary. Otherwise, the funding bodies or the administration may not provide the library/documentation centres with required financial, material and human support.

Lack of standards may lead to unsatisfactory services or sub-standard services. Standards for documentation/information services and product will be inevitable for free flow or transfer of information in general and exchange of bibliographic information in particular at international and national levels because the formats in which the bibliographic information is exchanged should be compatible, otherwise, the process of exchanging bibliographic information would be difficult and unhelpful.

8.3 INTERNATIONAL STANDARDS

International standards aim at providing standards at international level in order to bring uniformity in the documentation/information services and products at international level so that there will be compatibility of exchange of information among various countries.

For development of standards at international level, the International Organisation for Standardisation (ISO), Geneva plays a major role. This organisation is an authoritative body at international level. Besides ISO, International Federation of Library Associations and Institutions (IFLA), International Federation for Information and Documentation (FID), Unesco, etc., promote/develop standards in documentation/information services.

8.3.1 ISO Standards

The following are some of the important standards developed by International Standards Organisation:

(1) *ISO 4:1997 Information and Documentation — Rules for the abbreviation of titles words and titles of publications*

This international standard is intended to serve as a guide for the creation of title abbreviations for both serial and non-serial publications. It is regarded as code indicating the shortest form of serial publications permitted internationally. The abbreviation of titles will be used in indexing and abstracting services and also documentation lists. This standard provides the rules and mechanisms related to abbreviation of titles.

(2) *ISO 214-1976 Documentation - Abstracts for Publications and Documentation*

This international standard presents guidelines for the preparation and presentation of abstracts of documents. It emphasises on the abstracts prepared by the authors of primary documents. Therefore, prefers the publication of author abstracts because such abstracts will be more helpful to the readers. It provides the basic guidelines suitable for the preparation of abstracts by persons

other than the authors. There are also specific guidelines included for the presentation of abstracts in secondary publications/services.

(3) ISO 690-1975 Documentation - Bibliographical References - Essential and Supplementary Elements

This standard sets out the elements of bibliographical references which are essential for identification of documents together with supplementary items which may be added to indicate the character, scope, authority or availability of the work referred to.

It also provides an order of items and recommendations on the individual elements and the presentation of a bibliographical reference.

This standard is revised as follows:

ISO 690: 1987 Documentation - Bibliographic references Content, form and structure

ISO 690-2: 1997 Information and documentation- Bibliographic references — Part-2: Electronic documents or parts thereof.

(4) ISO 832 - 1994 Information and documentation - Bibliographic description and References - Rules for the abbreviation of bibliographic terms

It lists abbreviations of typical words in bibliographical references to documents listed in bibliographies, catalogues, etc. It excludes the generic names of periodicals, because it is the subject of ISO 833. Further, it provides rules for abbreviations and methods of abbreviation.

(5) ISO 833 - 1974 Documentation - International List of Periodical Titles Word Abbreviations

It is based on the rules for abbreviating words as specified in ISO 4, which is already mentioned earlier. This international list was obtained by merging the changes and additions suggested by International Council of Scientific Unions - Abstracting Board (ICSU-AB) member services to the National Clearinghouse for Periodical Title Word Abbreviations (NCPTWA) list along with the word abbreviations contained in ISO/R 833.

It provides as far as possible the forms of abbreviation used by the English, French, German and Russian languages.

The above international standards provide guidelines for uniform and consistent practice related to rendering of documentation services and presentation of documentation/information services and products.

There are other ISO standards for documentation, but they are not fully/directly related to rendering of documentation/information services. For example,

ISO 999-1975 Index of Publications;

ISO 1086-1975 Title Leaves of a Book;

ISO 2384-1977 Documentation - Presentation of Translations

ISO 2108-1972 Documentation - ISBN

ISO 3297-1975 Documentation - ISSN

(6) ISO 2709-1996 Information and documentation - Format for Information Exchange

ISO 2709-1996 is a very prominent and important standard for documentation. Earlier it was known as *ISO 2709-1973 Documentation - Format for Bibliographic Information Interchange on Magnetic Tape*. It prescribes the format for bibliographic information on magnetic tape. This international standard specifies the requirements for a generalised machine format which will hold any type of bibliographic record. It does not define the content of individual records or the meanings assigned to tags, indicators or identifiers, it only describes a generalised structure, a framework designed specially for communication between data processing systems and not for use within systems.

The standard describes a generalised structure which can be used to transmit between data processing system, records describing all forms of material capable of bibliographic description. Though the standard is designed for magnetic tape, its structure may be used for other data carriers of bibliographic description, as well as related records such as authority records. In other words, it is the information interchange which has an extended facility for holding any type of bibliographic records.

8.3.2 Contribution of IFLA and FID

The IFLA is another important body which develops international standards for documentation and information services and products. The ISBDs developed by IFLA are prominent and vital standards for bibliographic description for ensuring universal bibliographic control and organisation for bibliographic exchange. (See Section 8.5 for details on ISBDs)

The FID works in the field of documentation and knowledge organisation. The UDC which is a contribution of FID forms one of the British standards for classification. In other words, it is on information retrieval systems or knowledge/information ordering and organisation.

8.3.3 UNESCO's Contribution

Unesco plays a very crucial role in the development of the libraries and library/information services in the world and in particular in the developing countries. Through its UNISIST programme it supported many other activities as far as development of information systems and services in the

field of science and technology is concerned. It collaborated with International Council of Scientific Unions (ICSU) in the activities related to science communication. Presently, Unesco through its General Information Programme (PGI) extended its scope to cover all fields of knowledge.

The significant contributions of Unesco in the field of documentation and information services are its standards for database design and development. Unesco contributed UNISIST Reference Manual, CDS/ISIS and CCF, besides the Manifesto for Public Libraries. The *Public Library Manifesto* is often regarded as the international standard for public libraries.

i) *UNISIST Reference Manual*: This Reference Manual can be considered as a manual (i.e. 'How to do' instructional workbook) as well as a standard for bibliographic description. The basic feature of this standard is the prescription of standard format for abstracting and indexing services. Therefore, its users are the producers of indexing and abstracting services. This manual was prepared by Unesco in collaboration with ICSU-AB. (for more details see Section 2.6.4 of Course-03: Information Processing and Retrieval).

ii) *CDS/ISIS*: CDS/ISIS stands for Computerised Documentation Services - Integrated Set of Information Systems, is not actually a standard. It is a database management software for information storage, processing and retrieval of textual, non-numerical data especially meant for library and information systems. This software package is compatible with the international standards developed by Unesco.

iii) *CCF*: Common Communication Format (See Section 8.5)

8.4 NATIONAL STANDARDS

Almost every nation has its own organisation(s) for developing the standards. As far as the developed countries are concerned, there is no country with a standards organisation. The standards organisations bring out standards on all fields of national interest.

In the present information society, almost all advanced countries are conscious of the value and significance of information and information services. These countries have developed their own standards for documentation/information services. Of course, in certain cases there are also informal standards, which are widely used or applied.

8.4.1 United States

In the United States, the primary responsibility for developing and formulating standards for information systems, products, and services rests with the American National Standards Committee Z39 : Library and Information Sciences and related Publishing Practices, established in 1940 by the American Standards Association. Z39 has worked on the following standards related to

Information (Documentation) services, Bibliographic Data Identification codes for Patent Documents, Machine- Convertible Romanization Systems, Interlibrary Loan Forms and Procedures, Coded character sets for Bibliographic Information Interchange, Identification of Bibliographic Data Source Files, User/Retrieval System Interface Language, etc. As a result of its endeavour, the *ANSI Standard for Bibliographic Information Interchange*, was formulated. The ANSI Z39.2 is an important standard which prescribes standard format for bibliographic information interchange. This standard was reviewed and revised in 1980 and 1985, taking care to keep both Z39.2 and ISO 2709 in conformity.

As far as classification schemes, as information retrieval tools, are concerned United States has contributed a lot to the world library and information systems through its informal standard as reflected in the Dewey Decimal Classification scheme, the Library of Congress Classification scheme and LC List of Subject Headings. Another remarkable contribution from the United States is its role in the development of Anglo-American Cataloguing Rules, which are worth mentioning as informal standards for information storage and retrieval systems. The most renowned contribution of United States in the field of standards is its MARC format. (For more details See Section 8.5)

8.4.2 United Kingdom

In the United Kingdom, the primary responsibility for developing and formulating standards rests with the British Standards Institution (BSI). BSI has been responsible for publication of many standards in the UK. The UK also has various informal standards for documentation and information services. In this section we shall examine the most popular standards for documentation and information services developed in the UK.

UK/MARC is developed on the analogy of US/MARC. But the difference, at least in the beginning, between UK/MARC and US/MARC was concerned, both had almost same format with considerable changes in the designation of the bibliographic elements. The UK/MARC was primarily meant for the sake of production of BNB, thus it was more a format oriented to produce the national bibliography, whereas US/MARC was more a machine readable catalogue of the Library of Congress. Of late, there have been efforts to mitigate the differences and also cover the records generated by individual national MARC formats into UNIMARC format. The other important standard contributed in the area of documentation and information services by the BSI of UK, is the publication of the Universal Decimal Classification (UDC) English version.

BS 1000 M: Part-1 : 1985.

Universal Decimal Classification: International Medium

Edition - English Text. (FID Publication No.571)

Part-1: Systematic Tables.

BS 1000 M: Part-2 : 1988

Part-2 : Alphabetical Subject Index.

UDC was developed from the fifth edition of Dewey Decimal Classification. The English versions of the UDC are being prepared and published by the British Standards Institution (BSI). BSI has shown interest in preparing English versions of the UDC as it is an important and widely used classification scheme for organisation of documents and information retrieval in special libraries and documentation centres.

The BS 1000M is issued, by arrangement with the International Federation of Information and Documentation (FID) as part of the International Medium Edition (IME) of UDC, which appears in three versions (English, French and German). It comprises the following two parts:

Part-1: Systematic Tables. (It contains introduction, the auxiliary tables, special auxiliary subdivisions and the main schedules of the scheme)

Part-2: Alphabetical Subject Index

8.4.3 Indian Standards

The Bureau of Indian Standards (formerly known as Indian Standards Institution, or ISI, in short) was established on October 15, 1947 as a Technical Committee, called the Documentation Sectional Committee (EC 2), for preparing national standards for documentation. Through BIS some standards for documentation services were developed in India. Some of them are

IS: 795-1976 Guidelines for Preparation of Abstracts

IS: 382-1952 Practice of Alphabetical Arrangement

IS: 1275-1976 Rules for Making Alphabetical Indexes

IS: 11370-1985 Guide for Data elements and Record format for Computer-based Bibliographic Databases for Bibliographic Description of different kinds of documents.

The provision in the guide for bibliographic description of different kinds of documents helps in control of bibliographic records and facilitates the processing of the records for library and documentation purposes and the exchange of information between different libraries, documentation and information centres. It ensures consistency, uniformity and compatibility in the creation and utilisation of the bibliographic databases.

8.5 STANDARDS FOR DATABASE DESIGN AND DEVELOPMENT

The standards for database design and development in our context are especially meant for designing the bibliographic databases and are also aimed at compatible and efficient exchange of information in general and bibliographic information/data in particular. Therefore, these form the

standards for information services. Many of the standards discussed in Section 8.3 of this Unit are also applicable to documentation/information services. However, we will discuss about the international standards which prescribe the guidelines for design and development of bibliographic databases.

8.5.1 MARC

MARC stands for Machine Readable Cataloguing. The Library of Congress' investigation to find the possibility of using automated techniques for its internal operations began in the late 1950s. As a result of these investigations, LC planned for a pilot project in January 1966 to develop procedures and programmes for the conversion, file maintenance, and distribution of MARC data. The MARC I format was stabilised by April 1966. As it was not capable of containing bibliographic information for all forms of materials like books, serials, maps, music, journal articles, etc., MARC II was designed with an objective to have one format structure to contain bibliographic information for all forms of materials. (Refer MLS-03, Unit-2 for details regarding the MARC format).

The US-MARC formats adhere to both Z39.2 and ISO 2709 standards. It also enhanced its use internationally by the standardisation of data elements used to describe an item, viz., ISBDs. In another development, a joint project of the British Library and Library of Congress which greatly expanded the guidance for use of the UNIMARC format, resulted in several national agencies producing or committed to producing their records in UNIMARC for international exchange purposes. LC completed its programmes in 1965 to convert bibliographic records from US-MARC to UNIMARC and vice-versa, and LC bibliographic records in both US-MARC and UNIMARC are now available.

The MARC pilot project was terminated in June 1968 and in March 1969 the operational system was launched covering all English language monographs. Coverage was extended in 1973 to include French language monographs; followed in 1975, by German, Spanish and Portuguese records; in 1976, by monographs in Danish, Dutch, Finish, Italian, Norwegian, Romanian, Swedish and other Germanic and Romance language records and in 1977, records in over 120 additional languages. All these records can be utilised by the needy and respective countries to have standard bibliographic information records.

8.5.2 CCF

CCF stands for Common Communication Format. This format is another contribution by Unesco besides UNISIST Reference Manual. Unesco under its General Information Programme (PGI) sponsored an International Symposium on Bibliographic Exchange Formats, which was held in Taormina, Sicily during 27-29 April 1978. The symposium recommended development of a common bibliographic exchange format that would be useful for both libraries and other information systems/services. At the start of its deliberations the Group decided:

- * That the structure of the new format would conform to the international standard ISO 2709
- * That the core record would consist of a small number of mandatory data elements essential to bibliographic description, identified in a standard manner
- * That the core record would be augmented by additional optional data elements, identified in a standard manner
- * That a standard technique would be devised for accommodating levels, relationships, and links between bibliographic entities

In addition it was affirmed that the CCF should be more than merely a new format; it should be based on, and provide a bridge between, the major international exchange format, while taking into account the International Standard Bibliographic Description (ISBD) developed by IFLA. As a result of this Unesco/PGI formed a UNISIST Ad hoc Group on the Establishment of a Common Communication Format (CCF) in 1984 and the first edition of CCF was published in the same year. (See Section 2.6.5 of Unit 2 of MLS-3 for further details of CCF).

The CCF is more than any other format to facilitate International Information Exchange in the wake of prevalence of use of a number of national standard exchange formats. Further, the CCF was developed because of the fact that the UNIMARC primarily meant for libraries and UNISIST Reference Manual is for abstracting and indexing services. Therefore, for a comprehensive format the CCF is designed to meet the needs of all libraries and information systems. Thus, CCF permits exchange of bibliographic records/data between groups of libraries and abstracting and indexing services. Therefore, it is designed with an aim to retain the highest degree of flexibility.

CCF is more compatible format as it identifies about 500 fields. It logically defines record structure using the fourth element of the ISO 2709 directory to denote bibliographic level and field occurrence. CCF is regularly revised, its second edition was published in 1988.

8.5.3 ISBD

ISBD stands for International Standard Bibliographic Description, developed in 1969 under the auspices of IFLA. The need for ISBD was felt for the realisation of the goal of Universal Bibliographic Control (UBC). All the participants at the Paris meeting (i.e., the International Conference on Cataloguing Principles in 1961 at Paris) were nearly in agreement that a final push towards world wide standardisation was worth the effort. As a result, through the Meeting of Cataloguing Experts in Copenhagen in 1969, then in Moscow in 1971, and in Budapest in 1972, the details of International Standard Bibliographic Description (ISBD) were fully developed.

ISBD is a prescription for the generation and arrangement of bibliographic information in single and multiple volume publications. It provides generalised direction to the cataloguers. ISBD's

function of ordering and standardising categories of data assumes special significance in the struggle for international exchange of bibliographic information.

As a matter of fact the use of MARC internationally has been enhanced by the standardisation of data elements used to describe an item. After the publication of the ISBD for monographs and serials in 1974, work began on developing similar guidelines for other forms of material. The *ISBD (G): General International Standard Bibliographic Description* published in 1977, provided a framework for the developers of other ISBDs to follow. ISBDs for cartographic materials appeared in 1977; and for non-book materials in 1977; for antiquarian materials in 1980. In addition, a revised edition of ISBD(S) was published in 1977 and for ISBD(M) in 1978.

The purposes of ISBD are - (i) to standardise national practices in the content and arrangement of a bibliographic record, (ii) to facilitate recognition of data elements in any language, and (iii) to facilitate the application of computer processes to the manipulation of bibliographic data. Bibliographic Description is based on the formulation of a general framework for all bibliographic descriptions.

The description of ISBD(G) is divided into the following eight areas:

Title and statement of responsibility

Edition

Material (or type of publication) specific details

Publication, distribution, etc.

Physical description

Series

Note(s)

Standard Number

8.6 LET US SUM UP

Documentation and Information services are very crucial services in the present information society. The efficiency of these services depends on the standard and uniform practices and operations. Global information interchange and exchange require standard communication formats.

There are several international standards in the field of documentation and information. International organisations like ISO, IFLA, FID and Unesco have contributed standards for documentation and information and/or libraries. UNISIST Reference Manual acts as an instructional workbook as well as bibliographic description.

National standards for documentation and information services have been developed in almost all countries. The standards developed in USA, UK and India are explained.

All these standards are expected to improve the quality and effectiveness of information and documentation services, which in turn, promote the concept of international availability of information.

8.7 REFERENCES AND RECOMMENDED BOOKS

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8.8 ASSIGNMENTS

(1) Visit any two special libraries in your city and list out the standards they use for their documentation and information services.

(2) Write an account on the format of any one standards listed/presented in this unit.

(3) Describe UDC as a standard.

8.9 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

- 1) What are standards ? Explain the need for standards for information and documentation services.
- 2) What are formal standards and how they differ from informal standards.
- 3) Write an account of ISBDs.
- 4) Describe the role of Unesco in developing standards for information / documentation services.
- 5) Discuss the role of IFLA in developing standards in the field of information and documentation services.

II. SHORT NOTES

- a) CCF
- b) MARC
- c) ISO
- d) National Versus International Standards

8.10 APPENDIX : ISO STANDARDS

ISO STANDARDS IN DOCUMENTATION AND INFORMATION FIELDS

ISO 4:1997/A Information and documentation -- Rules for the abbreviation of title words and titles of publications

ISO 8:1977 A Documentation -- Presentation of periodicals

ISO 9:1995/A Information and documentation - Transliteration of Cyrillic characters into Latin characters -- Slavic and non-Slavic languages

ISO 18:1981/A Documentation - Contents list of periodicals

ISO 214:1976 /A Documentation -- Abstracts for publications and documentation

ISO 215:1986/A Documentation -- Presentation of contributions to periodicals and other serials

ISO 233:1984 /A Documentation - Transliteration of Arabic characters into Latin characters

ISO 233-2:1993 /A Information and documentation - Transliteration of Arabic characters into Latin characters -- Part 2: Arabic language -- Simplified transliteration

ISO/FDIS 233-3 /A Information and documentation - Transliteration of Arabic characters into Latin characters - Part 3: Persian language - Simplified transliteration

ISO 259:1984/A Documentation - Transliteration of Hebrew characters into Latin characters

ISO 259-2:1994/A Information and documentation - Transliteration of Hebrew characters into Latin characters -- Part 2: Simplified transliteration

ISO/DIS 259-3/A Information and documentation - Transliteration of Hebrew characters into Latin characters -- Part 3: Phonemic conversion

ISO 690:1987/A Documentation - Bibliographic references - Content, form and structure

ISO 690-2:1997/A Information and documentation - Bibliographic references - Part 2: Electronic documents or parts thereof

ISO 832:1994/A Information and documentation - Bibliographic description and references - Rules for the abbreviation of bibliographic terms

ISO 843:1997/A Information and documentation -- Conversion of Greek characters into Latin characters

ISO 999:1996/A Information and documentation -- Guidelines for the content, organization and presentation of indexes

ISO 1086:1991/A Information and documentation - Title leaves of books

ISO 1116:1994/A Microcopying - 16 mm and 35 mm microfilms, spools and reels

ISO 2108:1992/A Information and documentation - International standard book numbering (ISBN)

ISO 2145:1978/A Documentation -- Numbering of divisions and subdivisions in written documents

ISO 2146:1988/A Documentation - Directories of libraries, archives, information and documentation centres, and their data bases

ISO 2162-1:1993/A Technical product documentation - Springs - Part 1: Simplified representation

ISO 2162-2:1993/A Technical product documentation - Springs - Part 2: Presentation of data for cylindrical helical compression springs

ISO 2162-3:1993/A Technical product documentation - Springs - Part 3: Vocabulary

ISO 2384:1977/A Documentation - Presentation of translations

ISO 2709:1996/A Information and documentation - Format for Information Exchange

ISO 2788:1986/A Documentation - Guidelines for the establishment and development of monolingual thesauri

ISO 2789:1991/A Information and documentation - International library statistics

ISO 3098-0:1997/A Technical product documentation - Lettering - Part 0: General requirements

ISO/DIS 3098-1/A Technical product documentation - Lettering - Part 1: Latin alphabet, numerals and marks

ISO/DIS 3098-2/A Technical product documentation - Lettering - Part 2: Greek alphabet

ISO/DIS 3098-3/A Technical product documentation - Lettering - Part 3: Diacritical and particular marks for the Latin alphabet

ISO/DIS 3098-4/A Technical product documentation - Lettering - Part 4: Cyrillic alphabet

ISO 6592:1985/A> Information processing - Guidelines for the documentation of computer-based application systems

ISO/IEC DIS 6592/A> Information technology -- Guidelines for the documentation of computer-based application systems (Revision of ISO 6592:1985)

ISO 6630:1986/A> Documentation -- Bibliographic control characters

ISO 6861:1996/A> Information and documentation - Glagolitic alphabet coded character set for bibliographic information interchange

ISO 6862:1996/A> Information and documentation - Mathematical coded character set for bibliographic information interchange

ISO 7098:1991/A> Information and documentation - Romanization of Chinese

ISO 7144:1986/A> Documentation - Presentation of theses and similar documents

ISO 7154:1983/A> Documentation - Bibliographic filing principles

ISO 7176-15:1996/A> Wheelchairs - Part 15: Requirements for information disclosure, documentation and labelling

ISO 7220:1996/A> Information and documentation - Presentation of catalogues of standards

ISO 7275:1985/A> Documentation - Presentation of title information of series

ISO/TR 8393:1985/A> Documentation - ISO bibliographic filing rules (International Standard Bibliographic Filing Rules) - Exemplification of Bibliographic filing principles in a model set of rules

ISO 8439:1990/A> Forms design -- Basic layout

ISO 8459-1:1988/A> Documentation -- Bibliographic data element directory -- Part 1: Interloan applications

ISO 8459-2:1992/A> Information and documentation -- Bibliographic data element directory - Part 2: Acquisitions applications

ISO 8459-3:1994/A> Information and documentation - Bibliographic data element directory - Part 3: Information retrieval applications

ISO 8459-4:1998/A> Information and documentation - Bibliographic data element directory - Part 4: Circulation applications

ISO 8601:1988/A> Data elements and interchange formats - Information interchange - Representation of dates and times

ISO 8613-5:1989 Information processing - Text and office systems - Office Document Architecture (ODA) and interchange format - Part 5: Office Document Interchange Format (ODIF) (Provisionally retained edition)

ISO 8613-6:1989 Information processing - Text and office systems - Office Document Architecture (ODA) and interchange format - Part 6: Character content architectures (Provisionally retained edition)

ISO 8613-7:1989 Information processing - Text and office systems - Office Document Architecture (ODA) and interchange format - Part 7: Raster graphics content architectures (Provisionally retained edition)

ISO 8613-8:1989 Information processing -- Text and office systems - Office Document Architecture (ODA) and interchange format - Part 8: Geometric graphics content architectures (Provisionally retained edition)

ISO/IEC 8613-10:1991 Information processing - Text and office systems - Office Document Architecture (ODA) and interchange format - Part 10: Formal specifications (Provisionally retained edition)

ISO 8777:1993 Information and documentation - Commands for interactive text searching

ISO 8879:1986 Information processing - Text and office systems - Standard Generalized Markup Language (SGML)

ISO 8957:1996 Information and documentation - Hebrew alphabet coded character sets for bibliographic information interchange

ISO 9069:1988 Information processing -- SGML support facilities - SGML Document Interchange Format (SDIF)

ISO/IEC 9070:1991 Information technology - SGML support facilities - Registration procedures for public text owner identifiers

ISO/IEC 9075:1992 Information technology - Database languages - SQL

ISO 9127:1988 Information processing systems - User documentation and cover information for consumer software packages

ISO 9230:1991 Information and documentation - Determination of price indexes for books and serials purchased by libraries

ISO/IEC TR 9294:1990 Information technology - Guidelines for the management of software documentation

ISO/IEC TR 9573:1988/A> Information processing - SGML support facilities - Techniques for using SGML

ISO/IEC TR 9573-11:1992/A> Information processing -- SGML support facilities - Techniques for using SGML -- Part 11: Application at ISO Central Secretariat for International Standards and Technical reports

ISO/IEC TR 9573-13:1991/A> Information technology - SGML support facilities - Techniques for using SGML - Part 13: Public entity sets for mathematics and science

ISO 9706:1994/A> Information and documentation - Paper for documents - Requirements for permanence

ISO 9707:1991/A> Information and documentation - Statistics on the production and distribution of books, newspapers, periodicals and electronic publications

ISO 9984:1996/A> Information and documentation - Transliteration of Georgian characters into Latin characters

ISO 9985:1996/A> Information and documentation - Transliteration of Armenian characters into Latin characters

ISO/IEC TR 10000-1:1998/A> Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework

ISO/IEC TR †10037:1991/A> Information technology - SGML and Text-entry Systems - Guidelines for SGML Syntax-Directed Editing Systems

ISO 10160:1997/A> Information and documentation - Open Systems Interconnection - Interlibrary Loan Application Service Definition

ISO 10161-1:1997/A> Information and documentation - Open Systems Interconnection - Interlibrary Loan Application Protocol Specification - Part 1: Protocol specification

ISO †10161-2:1997/A> Information and documentation -- Open Systems Interconnection - Interlibrary Loan Application Protocol Specification - Part 2: Protocol implementation conformance statement (PICS) proforma

ISO 10163-1:1993/A> Information and documentation -- Open Systems Interconnection -- Search and Retrieve Application Protocol Specification -- Part 1: Protocol specification

ISO/IEC 10179:1996/A> Information technology - Processing languages - Document Style Semantics and Specification Language (DSSSL)

ISO/IEC 10180:1995 Information technology - Processing languages - Standard Page Description Language (SPDL)

ISO/IEC TR 10183-1:1993 Information technology - Text and office systems - Office Document Architecture (ODA) and interchange format - Technical Report on ISO 8613 implementation testing -- Part 1: Testing methodology

ISO/IEC TR 10183-2:1993 Information technology - Text and office systems -- Office Document Architecture (ODA) and interchange format - Technical Report on ISO 8613 implementation testing - Part 2: Framework for abstract test cases

ISO/DIS 10205 Classification of requirements for technical product documentation

ISO 10209-1:1992 Technical product documentation - Vocabulary - Part 1: Terms relating to technical drawings: general and types of drawings

ISO 10209-2:1993 Technical product documentation - Vocabulary - Part 2: Terms relating to projection methods

ISO/DIS 10209-4 Technical product documentation -- Vocabulary - Part 4: Terms relating to construction documentation

ISO 10324:1997 Information and documentation - Holdings statements - Summary level

ISO 10444:1994 Information and documentation - International standard technical report number (ISRN)

ISO 10585:1996 Information and documentation - Armenian alphabet coded character set for bibliographic information interchange

ISO 10586:1996 Information and documentation - Georgian alphabet coded character set for bibliographic information interchange

ISO/IEC ISP 10610-1:1993 Information technology - International Standardized Profile FOD11 - Open Document Format: Simple document structure - Character content architecture only - Part 1: Document Application Profile (DAP)

ISO/TR 10623:1991 Technical product documentation - Requirements for computer-aided design and draughting - Vocabulary

ISO 10754:1996 Information and documentation - Extension of the Cyrillic alphabet coded character set for non-Slavic languages for bibliographic information interchange

ISO 10957:1993 Information and documentation - International standard music number (ISMN)

ISO 11108:1996 Information and documentation - Archival paper - Requirements for permanence and durability

ISO/IEC ISP 11182-1:1993 Information technology - International Standardized Profile FOD36 - Open Document Format: Extended document structure - Character, raster graphics and geometric graphics content architectures - Part 1: Document Application Profile (DAP)

ISO 11252:1993 Lasers and laser-related equipment - Laser device - Minimum requirements for documentation

ISO 11442-1:1993 Technical product documentation - Handling of computer-based technical information - Part 1: Security requirements

ISO 11442-2:1993 Technical product documentation - Handling of computer-based technical information - Part 2: Original documentation

ISO 11442-3:1993 Technical product documentation - Handling of computer-based technical information -- Part 3: Phases in the product design process

ISO 11442-4:1993 Technical product documentation - Handling of computer-based technical information - Part 4: Document management and retrieval systems

ISO/DIS 11442-5 Technical product documentation - Handling of computer-based technical information - Part 5: Documentation in the conceptual design stage of the development phase

ISO 11620:1998 Information and documentation - Library performance indicators

ISO/IEC 11714-1:1996 Design of graphical symbols for use in the technical documentation of products - Part 1: Basic rules

ISO/DIS 11798 Information and documentation - Permanence and durability of writing, printing and copying on paper documents - Requirements and testing methods

ISO/DIS 11799 Information and documentation - Document storage requirements for archive and library materials

ISO 11800:1998 Information and documentation - Requirements for binding materials and methods used in the manufacture of books

ISO 11822:1996 Information and documentation - Extension of the Arabic alphabet coded character set for bibliographic information interchange

ISO 11940:1998 Information and documentation - Transliteration of Thai

ISO/TR 11941:1996 Information and documentation - Transliteration of Korean script into Latin characters

ISO 12083:1994 Information and documentation - Electronic manuscript preparation and markup (Exists also on disks (XL), price code of paper copy together with disks XP)

ISO/DIS 12200-1 Computer applications in terminology - Machine-readable terminology interchange format (MARTIF) - Part 1: Negotiated interchange

ISO/IEC TR 12382:1992 Permuted index of the vocabulary of information technology

ISO/TR 12618:1994 Computational aids in terminology - Creation and use of terminological databases and text corpora

ISO 13232-8:1996 Motorcycles - Test and analysis procedures for research evaluation of rider crash protective devices fitted to motorcycles - Part 8: Documentation and reports

ISO 13567-1:1998 Technical product documentation - Organization and naming of layers for CAD -- Part 1: Overview and principles

ISO 13567-2:1998 Technical product documentation - Organization and naming of layers for CAD -- Part 2: Concepts, format and codes used in construction documentation

ISO/DTR 13567-3 Technical product documentation - Organization and naming of layers for CAD - Part 3: Application of ISO 13567

ISO/IEC DIS 13673 Information technology - Text and Office Systems - Conformance Testing for Standard Generalized Markup Language (SGML) Systems

ISO/DIS 14416 Information and documentation - Requirements for binding of books, periodicals, serials and other paper documents for archive and library use - Methods and materials

ISO/DIS 14617-1 Graphical symbols for diagrams - Part 1: General information and indexes

ISO/DIS 15226 Technical product documentation - Life cycle model and allocation of documents

ISO/DIS 15489-1 Information and documentation - Records management - Part 1: General

ISO/DIS 15489-2 Information and documentation - Records management - Part 2: Responsibilities

ISO/DIS 15489-3 Information and documentation - Records management - Part 3: Strategies

ISO/DIS 15489-4 Information and documentation - Records Management - Part 4:
Control

ISO/DIS 15489-5 Information and documentation - Records management - Part 5:
Appraisal and disposal

ISO/DIS 15489-6 Information and documentation - Records management - Part 6: Storage

ISO/IEC DIS 15910 Information technology - Software user documentation process

ISO/DIS 16016 Technical product documentation - Protection notices for restricting the
use of documents and products

ISO 23950:1998 Information and documentation - Information retrieval (Z39.50) -
Application service definition and protocol specification

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BLOCK-III : GLOBAL AND NATIONAL INFORMATION SYSTEMS & PROGRAMMES

In Block-II you have learnt about information services and products. Information services and products are vital for providing access to all those who need information either for research, decision making or other purposes. In the present Block there are four units dealing with global and national information systems and programmes.

Information systems include the information infrastructures involving all the activities and processes in dissemination of information. Libraries, documentation and information centres, information analysis/evaluation centres, clearinghouses of information, referral centres, databanks/databases, data archives, reprographic centres, translation centres together form as different components of an information system. These components may be linked up and organised on international, regional or national levels. The information systems/networks such as UNISIST/PGI, POPIN, and UNBIS are promoted by United Nations and its specialised agencies. The information networks such as INIS, AGRIS, MEDLARS and OCLC which were started as a national information systems have extended their scope internationally in course of time. In India too we could able to establish information system in science and technology, environmental sciences (ENVIS) and biotechnology (BTIS). Social Sciences and Humanities are totally ignored in India.

Unit-9 will present you the UN and its specialised agencies based information systems and networks. It provides the structure and activities of information systems/networks, such as UNISIST/PGI, POPIN, OCLC, INIS, AGRIS, MEDLARS, etc.

In Unit-10 the regional information systems such as ASTINFO, APINESS, DEVINSA and SAARC Documentation Centre. It traces their origin, structure, activities, services and publications.

Unit-11 explains to you the major information systems/ networks in United States, United Kingdom and Japan.

Unit-12 presents an overview of documentation/information centres in India. The structure, activities and services of national information in science and technology (NISSAT) and the upcoming information systems such as BITS and ENVIS are described.

Unit-13 deals with information networks in India. INFLIBNET, metropolitan library networks (DELNET, CALIBNET, BONET, MALIBNET, PUNE-NET, etc) and communication networks (ERNET, NICNET, I-NET, INDONET) are discussed in this unit.

UNIT - 9 : UNITED NATIONS AND ITS SPECIALISED AGENCIES- BASED INFORMATION SYSTEMS AND PROGRAMMES

Structure

- 9.0 Aims and Objectives
- 9.1 Introduction
- 9.2 UN and Its Specialised Agencies Based Information Systems/Networks/Programmes
 - 9.2.1 UNBIS
 - 9.2.2 POPIN
 - 9.2.3 UNISIST and PGI
 - 9.2.4 INIS ✓
 - 9.2.5 AGRIS ✓
 - 9.2.6 CARIS
 - 9.2.7 INFOTERA, GRID and ENRIN
 - 9.2.8 UNIDO
- 9.3 Let Us Sum Up
- 9.4 Glossary
- 9.5 Assignments
- 9.6 Recommended Books
- 9.7 Model Examination Questions

9.0 AIM AND OBJECTIVES

This unit aims to provide an overview of the major, selected information systems and programmes being operated by the United Nations and its specialised agencies.

After going through this unit, you should be able to

- describe the variety of services provided by a few major international information systems/networks/programmes being administered by United Nations and its specialised agencies such as the United Nations Bibliographic Information System (UNBIS), International Nuclear Information System (INIS), the International Information System for Agricultural Science and Technology (AGRIS) and the General Information Programme (PGI)/UNISIST (World Science Information System).

9.1 INTRODUCTION

Every nation has to develop its information facilities mainly for the following two purposes:

(1) Generation, collection, organisation and utilisation of its own national information; and (2) Gaining access to scientific and technological knowledge and expertise from other nations.

This is most important for any nation's development based on socio-economic goals. In other words, provision of information support inputs is an essential requirement for the formulation, implementation and management of any nation's development plans.

In terms of development of information facilities, the Third World countries (TWCs) are lagging behind and they are mostly dependent on developed countries for scientific and technological information. With a view to bridge this gap, a number of steps have been taken by international agencies such as the United Nations (UN) and its specialised agencies with the following two major aims:

- (1) To facilitate information flow in science, technology and related fields from developed countries to TWCs to enable the latter to access information at affordable price.
- (2) Building up national capacity and strengthening the information infrastructure of TWCs to equip them to access, choose and integrate information drawn from other countries with that produced internally for optimum application and exchange.

Intergovernmental organisations (IGOs) like the United Nations (UN) and its specialised agencies, the World Bank and non-governmental organisations (NGOs) have been offering assistance -- both technical and financial -- to the TWCs in the following areas: development of libraries, information systems, archives and resource sharing.

In the present Unit, we shall discuss a few select major information systems/networks/programmes being run by the UN and some of its specialised agencies such as the Food and Agriculture Organisation (FAO), UNESCO, the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organisation (UNIDO).

A. Neelameghan has provided a useful categorisation method for international and regional cooperative information systems/networks/programmes and it is summarised in the following table.

SYSTEM	CHARACTERISTIC FEATURES	EXAMPLES
Type 1	* Inputting of data decentralised by designated national centres. * Processing of data centralised. * Access to and/or production and use of information and information products is decentralised.	* International Nuclear Information System (INIS) * International Information System for Agricultural Sciences and Technology (AGRIS) * International Development Information Network on Research in Progress (IDIN)
Type 2	* Collection, processing and preparation of databases and provision of information products and services is centralised. * National/regional centres may collect products/services to offer national/regional services.	* International Center for Living Aquatic Resources Management (ICLARM)
Type 3	* Systems and centres, having common areas of subject interest, operate independently and exchange information.	* International Chemical Information Network (ChIN) * Pan-African Geological Information System (PANGIS)
Type 4	* A programme providing a common framework for cooperation and coordination of information activities in/among participating countries and for supporting such activities and specialised sub-networks	* Regional Network for the Exchange of Information and Experience in Science and Technology in Asia and the Pacific (ASTINFO) * Programme for Cooperation in Information for Latin American and the Caribbean (INFOLAC) * Asia-Pacific Information Network in Social Sciences (APINESS) * International Agricultural Research Centres Network (IARC-NET)
Type 5	* A combination of two or more of the Types 1 to 4.	* Pan African Development Information System (PADIS)

9.2 UNITED NATIONS AND ITS SPECIALISED AGENCIES-BASED INFORMATION SYSTEMS/NETWORKS/PROGRAMMES

9.2.1 United Nations Bibliographic Information System (UNBIS)

UNBIS is a computerised search system administered by the Dag Hammarskjöld Library (the United Nations Central Library located at its headquarters in New York) in cooperation with the Electronic Services Division of the UN and with the participation of the library of the UN Office at Geneva (a member of the UNBIS network). It is an on-line information system containing bibliographic, factual, numeric, full text, authority and support files. UNBIS was launched in 1979 and it offers access to the following files:

DOCFILE: This is a bibliographic file that contains citations to UN documents and publications released at headquarters, the UN Office at Geneva, the UN Office at Vienna, the regional commissions and the affiliated bodies.

CATFILE: This is a bibliographic file providing citations to non-UN sources acquired by DHL and the library at the UN Office at Geneva. It also offers bibliographic citations to selected publications of UN specialised agencies and to articles selected from hundreds of journals.

RESFILE: This file gives full text of resolutions adopted by the General Assembly, the Economic and Social Council and Security Council.

ITP Index to Proceedings File: This is a bibliographic and factual file that provides citations to proceedings and documentation of the General Assembly, Economic and Social Council, Security Council and Trusteeship Council.

ITS Index to Speeches File: This is also a bibliographic and factual file offering citations to speeches made in the General Assembly, Economic and Social Council, Security Council and Trusteeship Council.

VOTEREC Voting Records File: It is a factual and numeric file giving information of votes taken in the General Assembly and Security Council.

THESAU UNBIS Thesaurus File: This trilingual file lists subject terms used in UNBIS files.

ATHFILE Name Authority File: This is a multilingual file enumerating standard form of names of corporate bodies, conference, etc.

SERSYM Series Symbol File: This is a support file listing the basic series symbols of UN documents.

AGE NDA Agenda Item File: This is a support file that lists agenda items numbers and titles for each session or series of meetings.

The fields covered by the above files pertain to the programmes and activities of the UN, political questions, international relations, international and national law, disarmament, economic and social development, human rights, population, energy, environment policy, the law of the seas, transport and communications, public administration, etc.

UNBIS can be accessed by the following methods:

Dialling into the computer of the New York Computing Service (NYCS)

Connecting through the International Computing Centre in Geneva through public packet-switched data network through Research Libraries Information Network--RLIN (for bibliographic files)

CD-ROM (UNBIS Plus on CD-ROM service has been started in 1994 and its periodicity is quarterly.)

9.2.2 Asia-Pacific Population Information Network (POPIN)

This is a global population information network launched by the United Nations with the aim of providing world-wide access to information relating to population growth and related matters. It offers valuable information required for the formulation of national, regional and international population policies. This is an important network particularly for the Third World countries (TWCs) as they have a deep concern for population-related issues and need a variety of data for their planning process.

9.2.3 UNISIST (World Science Information System) And The General Information Programme (PGI)

UNISIST stands for the role the organisations of the United Nations (UN) are expected to play in the promotion of a world-wide system (SIST) of information both scientific and technical (IST).

It is a joint programme launched by Unesco and the International Council for Scientific Unions (ICSU) to improve the information storage and retrieval systems at the global level. In 1967, these two organisations appointed a joint ICSU-Unesco Central Committee under the chairmanship of Harris Brown to explore the possibility of world science information system. This Committee submitted its final report titled *UNISIST, Study Report on the Feasibility of a World Science Information System in 1971*. This report felt that World Science Information System, considered as a flexible network evolving from an extension of voluntary cooperation of existing and future services, is feasible. Voluntary cooperation is a distinguishing feature of the UNISIST.

UNISIST is a contemporary expression of long-standing tradition of free interchange of information among the world's scientists. Its major function is to advance the trends towards information sharing by creating opportunities for further cooperative agreements among governments, international organisations and operating services.

UNISIST is neither a giant organisation nor a super system; it is a flexible network functioning on the basis of voluntary cooperation among existing and future services. In addition, it is not an operational information system or service devoted to any discipline, subject or mission; it is a dynamic, conceptual, catalytic and an evolving programme.

The two broad **functions** of UNISIST are:

To stimulate international cooperative agreements between autonomous information systems;
and

To encourage new projects designed to improve the world information tools and resources.

The five **programme objectives** of UNISIST are:

Improvement of tools of systems inter-communication and interconnections;

Effectiveness of information services;

Responsibilities of professional groups;

Institutional environments; and

International assistance to developing countries.

The 9th session of the General Conference of Unesco held in 1976 suggested that its two programmes, namely, UNISIST and NATIS (National Information Systems) should be merged to avoid duplication of efforts. Accordingly, in February 1977 a new programme titled General Information Programme (PGI/UNISIST II) was launched.

The 20th session of the General Conference of Unesco held in 1978 announced the following five main themes of the PGI:

Theme 5/10.1/01: *Promotion of the information policies and plans at the national, regional and international levels;*

Theme 5/10.1/02: *Promotion and dissemination of methods, norms and standards for information handling;*

Theme 5/10.1/03: *Contribution to the development of information infrastructure;*

Theme 5/10.1/04: *Development of specialised information systems in the fields of education, culture and communication and the natural and social sciences;*

Theme 5/10.1/05: Promotion of the training and education of the specialists in and users of information.

The year 1977 is regarded as a landmark in the history of UNISIST. The major achievements of UNISIST can be discussed under two phases:

Phase I (UNISIST) : 1971-76

Phase II (PGI/UNISIST II): 1977 onwards

Phase I: The achievements of UNISIST during the first phase include, among others, the following:

- * Assisting various countries in the creation of national focal points to coordinate information resources and services, especially in the fields of science and technology;
- * Supporting the development of scientific information policies and networks;
- * Provision of conceptual framework for the information systems launched by various agencies of the UN.
- * Participation in the development of international information systems such as DEVSIS and POPINS
- * Cooperating with other international organisation such as IFLA, ICSU, ISO and FID in the development of guidelines for systems inter-compatibility.
- * Establishment of International Serials Data System (ISDS) at Paris to serve as a computer-based database of serial publications.
- * Development of Broad System of Ordering (BSO) -- a broad classification scheme meant to achieve interconnectivity among systems.
- * Publication of a number of manuals, study reports and guidelines relating to information transfer and networks.
- * Support in the education and training of information specialists and users.
- * Assistance to member states through Unesco's programmes by way of field missions, consultants, services, fellowships and provision of equipment.
- * Launching of DARE (Data Retrieval System for the Social and Human Sciences)
- * Establishment of INFOTERM in Vienna in 1971 to achieve standardisation of terminology.

Phase II (PGI/UNISIST II)

In the 19th session of the General Conference of UNESCO held in 1976, it was decided to launch the General Information Programme (PGI), and UNSIST became an integral part of PGI. As already stated, activities of PGI have been grouped under five main themes. Let us now discuss the activities taken up under each theme in the Phase II.

Theme 5/10.1/01: *Promotion of the information policies and plans at the national, regional and international levels*

PGI provides assistance to member states in the development of national information policies and plans as a part of their overall policy for national development. It also encourages regional cooperation in the following areas: methodology, organisation and management of information policy and planning; and identification of obstacles in the free flow of information and steps to overcome them.

Theme 5/10.1/02: *Promotion and dissemination of methods, norms and standards for information handling*

PGI actively cooperates with ISO in the development of international standards for information handling to facilitate establishment of information systems and services which are compatible with each other. It has contributed a lot in the following areas: bibliographic descriptions, terminology, the International Serials Data System (ISDS), classification and Broad System of Ordering (BSO) and Common Communication Format (CCF). One of its important publication has been UNISIST Guide to Standards for Information Handling.

Theme 5/10.1/03: *Contribution to the development of information infrastructure*

PGI supports the development of libraries, archives and documentation centres to ensure free flow of information. Records and Archives Management Programme (RAMP) was launched within the PGI framework and a number of RAMP projects have been started in various countries.

Theme 5/10.1/04 : *Development of specialised information systems in the fields of education, culture and communication and the natural and social sciences*

PGI supports member countries to enable them to participate in international systems and to cooperate with other national, regional and international agencies in the design, implementation and evaluation of specialised information systems.

PGI support FID in the management and development of the International Information System for Research in Documentation (ISORID).

Theme 5/10.1/05 : *Promotion of training and education of the specialists in and users of information*

PGI actively participates in the development of human resources needed for the founding, management, operation and optimum utilisation of information systems and services through activities such as development of LIS education policies, coordination/organisation of training programmes in librarianship, information science and archival studies and preparation of teaching materials.

PGI, an inter-governmental programme of UNESCO, is regarded as a significant one acting as a catalyst to bring together various countries working towards breaking the barriers in the free flow of information, particularly among developing countries. PGI is making sustained efforts to realise its global mandate:

Continuous adaption and development of a conceptual and methodological framework for the establishment of scientific and technological information systems, libraries, archives, documentation and records management services in an ever-changing environment.

The priorities of PGI for 1990-1995 were :

- * The elaboration of national information policies and plans, including its regional and international aspects; and, with particular attention on the impact of information and telecommunication technologies;
- * The strengthening of the governing and consultative roles of regional and international networks, cooperative schemes and collaboration with UN agencies and non-governmental bodies;
- * The improvement of the status of information professional and the study of the blurring of tiers between librarians, information specialists and archivists.

PGI is administered by the Division of the General Information Programme, located in the Office of Information Programmes and Services (IPS) of UNESCO.

Memory of the world Programme

Launched in 1992, this Unesco programme is administered by the Division of General Information Programme. It seeks to protect and facilitate access to the world's documentary heritage. It has two objectives:

- * To safeguard endangered documentary heritage; and
- * To democratise access to it.

To achieve these objectives, it develops products such as text, sound and image banks which could be made available on local and global networks as well as on CDs, books, postcards, microfilm and other forms of reproduction and on the Internet. Under this programme, *Memory of the World Register -- an inventory of the documentary heritage of world significance* - is being maintained. A

number of projects have been launched under this programme to use advanced technology to preserve precious and fragile documents and to facilitate access to them. Some examples are:

The Library of the Russian Academy of Sciences in St. Petersburg is producing a CD-ROM of the Radzivill Chronicle, a 15th-century illuminated manuscript relating the history of Russia (5th to the 13th centuries).

Tamil palm-leaf manuscripts in India

The following databases are also being created under this programme:

An inventory of library collections and archive holdings which have suffered irreparable damage since 1990. (To be published as *Lost Memory--Libraries and Archives Destroyed in the Twentieth Century*).

A world list of endangered library collections and archive holdings.

An inventory of ongoing operations to protect documentary heritage.

UNESCO Network of associated Libraries (UNAL)

UNAL was launched in 1990 to promote library cooperation for international understanding. Its principal objective is to encourage public libraries to undertake activities related to Unesco's main goals such as the promotion of human rights and peace, cultural dialogue, protection of the environment, fight against illiteracy, etc. and to establish contacts between libraries of the North and of the South.

UNAL members organise exhibitions, literary events, debates and lectures, exchanges of material and information, seminars, twinning arrangements, usually on a voluntary basis, as a means of promoting Unesco's ideals. It publishes UNAL INFO (quarterly) in English and French. UNAL is open to all public libraries who wish to undertake activities to promote Unesco's ideals, to collaborate and carry out joint projects with libraries in other countries. UNAL has 325 libraries from 80 countries as its members.

Schools of Library and Information Science Network (SLISNET)

SLISNET was started by the Unesco General Information Programme with the aim of contributing to the education of archivists, librarians and information specialists. Its main objective is to establish links between a selected number of institutions from all over the world responsible for the education and training of information specialists (archivists, librarians and information specialists) at the university level.

SLISNET fosters practical cooperation on specific projects relating to education, research, consultancy and professional development. It encourages both North-South and South-South inter-institutional cooperation. It has an informal structure and is open to all voluntary collaborations.

9.2.4 International Nuclear Information System (INIS)

INIS is the world's leading information system on the peaceful uses of nuclear energy operated by the International Atomic Energy Agency (IAEA) in cooperation with its member states and international organisations. Located in Vienna (Austria), it provides a comprehensive information announcement service for literature in nuclear science and technology. INIS processes most of the world's scientific and technical literature falling within its subject scope, namely, peaceful uses of nuclear science and technology.

The following fields are covered by INIS:

- * Physics, including physics of elementary particles and fields, nuclear physics, atomic and molecular physics, plasma physics and fusion, physics of condensed matter, general physics;
- * Engineering and technology, including fission reactors (in general and specific types) and their associated plants, instrumentation, radioactive waste management, general engineering of relevance to nuclear activities;
- * Life and environmental sciences, including the effects and other aspects of radiation and radioisotopes in biology, applied life sciences, radiation protection and environment, radiology and nuclear medicine;
- * Chemistry and materials studies of relevance to nuclear activities;
- * Earth sciences studies of relevance to nuclear activities;
- * Isotope production and radiation sources, isotope and radiation applications;
- * Other aspects of nuclear energy, including economics and sociology, legal aspects, nuclear documentation, safeguards, mathematical methods and computer codes, other aspects relevant to nuclear activities;
- * Economic and environmental aspects of non-nuclear energy sources (from 1992).

Decentralised Approach

* Set up in 1969, the basis of INIS is international cooperation. It is the first international information system in which both the collection of input and the dissemination of output to users are decentralised. The data processing and output production are the only operations that are centralised at the INIS Secretariat located in Vienna. The decentralised method for input and output was chosen as it offers the following advantages:

- * Most comprehensive coverage of the nuclear literature.
- * Enables effective handling of information in various languages.

- * Facilitates provision of most satisfactory services to users.
- * INIS has been a highly successful information system and some of its distinguishing features are:
- * INIS file containing over 1,500,000 items.
- * Addition of around 90,000 items per year.
- * A microfiche collection of over 250,000 documents comprising of scientific reports, brochures, dissertations, patents, etc.
- * Worldwide use of INIS Atomindex--the printed abstract journal for literature of nuclear science and technology.

Membership

The membership of INIS is open to the following categories:

states who are members of the IAEA;

UN organisations; and

Other subject-oriented international or intergovernmental organisations.

About 80 member states and 16 international organisations are participating in INIS.

Operation

As already stated, INIS has adopted a decentralisation method for data input and output. INIS members share the following responsibilities:

- * Collecting descriptions of the nuclear literature produced within their national/organisational confines, both available through commercial and non-commercial channels.
- * Preparing the associated input in accordance with INIS guidelines and submitting it to the IAEA.
- * Providing INIS information services and products to users within their national/organisational confines.

INIS Secretariat collects the input submitted by INIS members, checks quality control and produces the output products. To ensure consistency in its input and output operations, INIS has prepared a series of manuals under the INIS Reference Series. INIS mostly follows international standards and implements new standards developed by the International Standards Organisation (ISO). INIS organises a number of training programmes, seminars and workshops for its members.

Creation of the INIS Record

Subject specialists in the INIS members' inputting centres select documents for input into the system and classify them according to the INIS subject categorisation scheme. Generally, an INIS record contains three parts:

- * A bibliographic description identifying author, publisher and such other details.
- * A set of descriptors identifying the subject content of the document.
- * An abstract summarising the information contained in the document.

The bibliographic description is prepared according to IAEA-INIS-1, INIS: Descriptive Cataloguing Rules. The descriptors to identify the subject content are assigned using the INIS Thesaurus. INIS Thesaurus is edited continuously and new terms are added parallel with the processing of INIS input. Revised editions of INIS Thesaurus are published once in a year.

The input is submitted by the inputting centres of INIS members either in machine-readable form or on worksheets.

INIS Output Products and Services

INIS Atomindex and Cumulative Indexes

This is a semi-monthly announcement and abstract journal. It consists of a main entry section (bibliographic description and abstract) and a number of indexes. The main entries are arranged by subject categories and within each subject category, report literature is listed first, followed by journals and books. The semi-annual Cumulative Index is available only on COM microfiche since 1988.

INIS Non-Conventional Literature on Microfiche

This service covers non-conventional literatures such as scientific and technical reports, patent documents, pre-conference papers and non-commercially published theses. The INIS Clearinghouse, a unit within the INIS Secretariat of the IAEA, provides microfiche copies of non-conventional literature announced in the INIS output products. With the help of the report, standard and patent number indexes of INIS Atomindex, one can order microfiche copies of non-conventional documents from the INIS Clearinghouse.

INIS Computer Output Management (COM) Microfiche

The INIS Clearinghouse installed a COM system to produce microfiche from machine-readable data. The following products are available on COM microfiche:

- * Cumulative Indexes to INIS Atomindex
- * Semi-annual Cumulative Index
- * Annual Cumulative Index
- * Current and back issues of INIS Atomindex

INIS Magnetic Media Service

In this service, current or back numbers of magnetic tapes or cartridges containing the checked and processed input submitted to the INIS by its members are provided.

INIS On-line Service

The INIS file is available on-line and it contains records from 1976 to the present. Updated semi-monthly, around 90,000 records are added annually.

EDIN

This is an INIS education file containing 6000 records selected from the INIS database and is made available on-line for user training without any charge.

INIS on CD-ROM

This contains records from 1976 to the present and is updated at quarterly intervals.

INIS Reference Series

This consists of rules, instructions, guides, formats and codes, etc. on which INIS is based. Some of the manuals produced by INIS are:

INIS: Descriptive Cataloguing Rules

INIS: Thesaurus

INIS: Manual for Indexing

INIS in India

The Library and Information Services Division of the Bhabha Atomic Research Centre (Mumbai) is responsible for all activities related to INIS in India. These activities can be mainly divided into:

- * Input preparation for INIS;
- * Use of INIS output products (e.g., INIS output magnetic tape for information retrieval; INIS CD-ROM for retrospective searches.)

India has been participating in INIS activities since 1970.

International Information System for Agricultural Sciences and Technology (AGRIS)

AGRIS was launched in 1975 by the Food and Agriculture Organisation of the United Nations to facilitate exchange of information and to identify world literature pertaining to all aspects of agriculture:

- * Plant and animal production and protection
- * Post harvest processing of primary agricultural products;
- * Forestry;
- * Fisheries;
- * Agricultural engineering;
- * Natural resources and the environment as related to agriculture;
- * Food;
- * Human nutrition;
- * Agricultural economics;
- * Rural development; and
- * Agricultural administration, legislation, information, education and extension.

AGRIS aims to collect bibliographic references pertaining to both conventional material like journal articles, books, and non-conventional materials (commonly referred to as 'grey literature') such as theses, reports, etc. which are not available through commercial channels. The AGRIS data base has over 2.3 million references.

Like INIS, AGRIS also operates as a cooperative system with decentralisation of its operations. The member countries contribute references of documents published in their countries to the AGRIS and in return gain access to the information provided by other participating countries.

The data contributed by participating countries is processed in Vienna at the AGRIS Processing Unit hosted by the Division of Technical Information of the IAEA.

AGRIS membership comprises of 146 national and 25 regional and international centres and they together contribute about 11,000 references every month. There are two regional centres which take care of inputting of bibliographic references pertaining nine countries in their respective regions.

AGRIS/CARIS Coordinating Group, which is a part of Library and Documentation Systems Division of FAO (Rome) manages the AGRIS. It is also responsible for the maintenance of the AGRIS methodology and working tools and for providing training/self-teaching material.

AGROVOC is a multilingual agricultural vocabulary developed by FAO and the European Community (EC) in the early 80s. Since 1986, AGRIS has been using AGROVOC for indexing and information retrieval to enable even non-English speaking users to utilise its services. AGROVOC is available in a number of language versions such as English, French, Spanish, German, Arabic and Italian.

AGRIN is a new working tool prepared for the use of the AGRIS participating centres. It is a microcomputer package based on Unesco's CDS/ISIS and it helps these centres not only to exchange data with the Coordinating Group but also to develop local databases compatible with AGRIS. AGRIS has also developed HEURISKO -- an interface also based on Unesco's CDS/ISIS and utilised for CD-ROMs produced in-house.

Products and Services

AGRIS disseminates the information to users in the following ways:

Agrindex: This is the monthly AGRIS bibliography published in three languages: English, French and Spanish. About 21% of entries in Agrindex contain abstracts.

Magnetic Tapes: The information contained in Agrindex is sent to AGRIS centres on demand in the form of magnetic tapes.

On-line access to the global AGRIS databases is offered through a number of hosts such as DIALOG and DIMDI (Cologne). The most recent portion of the AGRIS database which does not appear in the current AGRIS CD-ROM is offered on-line at IAEA (Vienna)

Internet Access to AGRIS is provided by SilverPlatter.

CD-ROM (Compact Disk Read-Only-Memory): The AGRIS databases are available on CD-ROM too covering the years 1975 to the present. The AGRIS FHN (Food and Human Nutrition) database covering the period 1975 to the present is also available on CD-ROM.

AGRIS-Fisheries and Aquaculture 1975-1993, produced at FAO, is available at the AGRIS/CARIS Coordinating Group.

AGRIS CD-ROM on Forestry with the HEURISKO interface has also been produced.

In addition to the above, AGRIS provides the following services through its national/regional/international participating centres:

- * Retrospective searches of the complete database.
- * SDI service to keep users informed of new references in their subject of interest.
- * National bibliographies consisting of all references either produced in a particular country or pertaining to that country but published outside.
- * Subject bibliographies compiled by specialised cooperating centres such as FAO divisions and IARCs.

AGLINET is a cooperative network of agricultural libraries throughout the world being developed under the umbrella of AGRIS.

The Indian Council of Agricultural Research (ICAR), Pusa, New Delhi, acts as the national focal point (NFP) for AGRIS services in India.

9.2.6 Current Agricultural Research Information System (CARIS)

CARIS was developed by FAO to identify and to facilitate the exchange of information regarding current agricultural research projects being carried out in, or on behalf of, developing countries. It covers projects dealing with all aspects of agriculture: plant and animal production and protection; post harvest processing of primary agricultural products; forestry; fisheries; agricultural engineering; natural resources and the environment as related to agriculture; food; human nutrition; agricultural economics; rural development; and agricultural administration, legislation, information, education and extension.

CARIS is an international cooperative system with member countries/institutions submitting information on research conducted within their countries/boundaries and accessing similar information provided by the other participating countries/institutions. CARIS has 121 national and 16 regional and international centres as its members. These members have submitted information on about 30,000 current active research projects. There are two regional centres collecting information on behalf of 6 countries falling within their respective regions.

The data provided for each research project includes:

- * Title and objectives of the project, beginning and ending dates and duration;
- * Name and address of the institute where carried out; and
- * Names of researchers and their specialisation.

CARIS stores the data in three languages, namely, English, French or Spanish and indexing is done using AGROVOC. This feature enables a user to retrieve information using any of these three languages.

CARIN is a microcomputer package based on Unesco's CDS/ISIS and developed by FAO to serve as a working tool for the CARIS participating centres. It helps them to exchange data with the Coordinating Group (Rome) and to develop local data bases compatible with CARIS.

Products and Services

CARIS maintains an active database; it regularly adds new research projects and deletes those projects which are completed. The data sent by participating countries is processed at FAO (Rome) and stored on a mainframe computer using CDS/ISIS.

CARIS database can be accessed in a number of ways:

- * CARIS CD-ROM 1994 lists 26,694 research projects.
- * Magnetic tapes or diskettes containing information on research projects (globally/country-wise/region-wise) in ISO-2709 format are sent to CARIS centres on request.
- * National inventories of research projects are provided to participating centres on demand. A national inventory is a master copy in ready to print form with project descriptions and full indexes.
- * On-line access to the CARIS global database is provided at FAO and the user can search by subject, country, institute and researcher.

9.2.7 Information Referral System for the Sources of Information Environment (INFOTERRA), Global Resource Information Database (GRID), and Environment and Natural Resource Information Networking (ENRIN)

Environmental information networking is a key element of United Nations Environment Programme (UNEP), Nairobi, Kenya. UNEP seeks to facilitate the collection, exchange and dissemination of environmental data and information between countries and regions for the collaborative assessment of key environmental issues related to sustainable development, to improve international policy formulation and planning and to raise public awareness.

UNEP's Environmental Information Networking (EIN) Unit in the Division of Environmental Information and Assessment (DEIA) manages the following three environment information programmes/systems/networks:

- * INFOTERRA (Informational Referral System for the Sources of Information on Environment)
- * GRID (Global Resource Information Database)
- * ENRIN (Environment and Natural Resource Information Networking)

INFOTERRA

INFOTERRA, one of the most comprehensive global environmental information exchange networks in the world, was designed by the United Nations Environment Programme (UNEP) to stimulate and support the exchange of scientific and technical information within and between nations.

The INFOTERRA network consists of 173 national focal points (NFPs) located in almost every UN member country and ten regional service centres (RSCs). It handles over 50,000 environmental-related queries per annum. It links about 8,000 national and international institutions and experts from various sectors in the UN system, NGOs, industrial, government, commercial enterprises and academia.

Since its inception in 1975, INFOTERRA has been a service-directed and results-oriented programme. It is committed to:

- * Provide better quality information for decision makers;
- * Stimulate training and building of national capacity in the NFPs;
- * Repackage information; and
- * Promote services to launch sustainable development at the country level.
- * INFOTERRA is utilising two Internet services to promote the electronic exchange of environmental information:
 - * A subscription list where users can submit or respond to queries by sending e-mail message to the list address; and
 - * Gopher host which provides information on INFOTERRA and other UNEP offices.

Both these services are managed by the Central European Data Request Facility (CEDAR), Vienna. CEDAR is INFOTERRA's regional service centre for Central and Eastern Europe.

Environmental Information System (ENVIS) at the Ministry of Environment and Forests, Government of India, New Delhi has been designated as INFOTERRA's national focal point (NFP) for India and regional service centre (RSC) for the South Asian Sub-region. It provides referral services and information in the form of bibliographies, photocopies of reports/reprints, etc.

GRID (Global Resource Information Database)

GRID is a global network of environmental data centres meant to support the generation and dissemination of key environmental geo-referenced and statistical data-sets and information products, focussing on environmental issues and natural resources. GRID centres have the ability,

expertise and specialised information technology (environmental data management, remote sensing/geographic information systems) to prepare, analyse and present environmental data and information, which are the basis for reliable environmental assessments.

ENRIN (Environment and Natural Resource Information Networking)

This programme seeks to promote development of national and sub-regional capacities in environmental data and information management to support State-of-the-Environment (SoE) and issue-based assessments by partner institutions in developing countries and countries with economies in transition.

9.2.8 UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION (UNIDO)

UNIDO is the United Nations agency responsible for promoting and speeding up the industrial development in developing countries. It holds the technology-related information in the following systems and databases:

Industrial Information System (INDIS): This is a computerised form of the Industrial Development Abstracts (IDA) and is available on-line. It covers technical and other reports, feasibility studies, working papers presented at UNIDO meetings, etc. About 100 new entries are added per month. Basically, it contains UNIDO-generated information in the form of about 16,000 titles and abstracts.

On-Line Information Key (LINK): This contains directories of R&D institutions relating to specific topics of sectors such as metallurgy, non-ferrous metals, industrial bio-mass and solar energy. It offers access to information produced outside UNIDO.

Technological Information Exchange System (TIES): This contains abstracts of technology transfer agreements of participating countries. Access is restricted; it is available to only those institutions providing such data on a confidential, reciprocal and mutually beneficial basis.

Energy Information System (EIS): This is an on-line data base of Industrial Energy Conservation Abstracts (INECA). It contains periodical reports on UNIDO's energy activities, manuals and guides on energy technologies and related areas, and information packages.

Technology Supply Database: It provides information on technology offers, joint venture prospects and requests for technology.

External Databases: It offers access to bibliographical and directory type data bases.

Access Through INTIB

Access to other UNIDO databases is provided to developing countries through INTIB as detailed below:

UNIDO Statistical Database : It acts as the central reference point for statistical data in the manufacturing sectors pertaining to about 80 countries.

Investment Promotion Information System (INPRIS): It contains the following files:

- * **Project File:** This is a database of over 2,700 industrial investment project proposals in developing countries.
- * **Investor File:** This is a directory of over 3,000 public and private enterprises.
- * **Bank File:** This is a directory of about 600 development finance institutions.
- * **Institution File:** This gives information on ministries of industry, investment promotion agencies, etc.
- * **Sponsor File:** This lists firms from developing countries which are potentially interested in redeployment opportunities.
- * **Country Investment Profiles:** This gives general country data.

The UNIDO Industrial and Technological Information Bank (INTIB) is a window on technology for developing countries. Set up in 1977, it generates a flow of specific information needed by developing countries to enable them to select the right technology for their own industrial development.

INTIB is a comprehensive service offering a combination of on- and off-line information, technical assistance, access to databases and several series of related publications. It compiles and disseminates information requested by developing countries and helps them to strengthen their own industrial and technological information systems. It also cooperates with other United Nations agencies to develop specialised information systems and databases.

The INTIB Industrial Inquiry Service (IIS) is well-known as UNIDO mail-order technical assistance. It offers developing countries access to the wealth of information held by UNIDO and a number of data banks and information sources throughout the world. IIS provides concrete, practical packaged information for industrial enterprises in response to specific questions and requirements.

Industrial Development Abstracts (IDA) and its computerised counterpart INDIS (Industrial Information System) form the basis for providing IIS. IDA and INDIS index major studies and reports, publications in series, selected articles, reports and proceedings of expert working groups, workshops and seminars, internal studies and reports related to technical assistance. IDA consists of four sections: a subject index; an author index; a document number index and bibliographic index. The descriptors are drawn from the UNIDO Thesaurus of Industrial Development Terms.

The INTIB networking system establishes linkages and communications with end-users in developing countries and strengthens their capabilities in the systematic handling of industrial

information. It comprises of national focal points (NFPs) and nodes. Nodes are information sources specialising in industry and technology such as chambers of commerce, R&D units, engineering consulting firms and development banks.

Information Systems and Databases module of INTIB promotes development of industrial and technological database -- both national and regional -- in developing countries. INTIB maintains a number of databases including Industrial Development Abstracts (IDA), Information technology suppliers and information on 20 selected industrial sectors pertaining to the UNIDO System of Consultations. INTIB is also linked to other UNIDO computerised information systems such as INDIS (IDA and LINK), TIES, ENERGY and INPRIS.

INTIB has cooperated with a number other United Nations agencies in the following projects:

- * Technological Information Pilot System (jointly with UNDP, UNFSTD and DEVNET); INFOTERRA (International Referral System for Sources of Environmental Information) (with UNEP)
- * International Information System for the Agricultural Sciences and Technology (with FAO)
- * The International Nuclear Information System (with IAEA)
- * The Energy Conservation Technology Information Exchange System (with UNESCO)
- * Patent Information System (WIPO)

9.3 LET US SUM UP

As we have seen in the previous sections, a number of major information systems/ networks/ programmes launched by the United Nations and its various specialised agencies such as Unesco, IAEA, UNEP and FAO are providing quick and easy access to information in various fields of universe of knowledge, particularly in science and technology. These systems/ networks/ programmes have evolved as vital components of the global information infrastructure and they have contributed immensely in reducing the gap between the developed and developing countries in the area of information access and in supporting free flow of scientific and technological information. They are going to play a key role in meeting the challenges and demands of information society during the 21st century. Through their pioneering efforts in the application of information and communication technologies to library and information services, adoption of decentralisation as their operational philosophy and voluntary participation involving international cooperation, these systems/ networks/ programmes had eminently succeeded in furthering access to the world's information resources in all major fields of human endeavour.

9.4 GLOSSARY

Descriptors: The basic terms in a thesaurus. They are the only terms permitted for indexing. They are the standardised expressions of the concepts used for describing all the knowledge covered by a given information system. Normally, each descriptor represents one concept.

National focal point: A central institution/agency in a country which serves as the contact point for accessing the services of an international information system. Generally, it also functions as the national centre providing inputs to the system. For example, the Library and Information Services Division of Bhabha Atomic Research Centre, Mumbai, is the national focal point for INIS services in India.

9.5 ASSIGNMENTS

- 1) Access the Memory of the World Programme's Internet site at:

<http://www.unesco.org/cii/en/accueil.html> and know about the projects that have been taken up under it.

- 2) WorldAtom is the International Atomic Energy Agency's public information Internet service on the World Wide Web. The documents available on this site are for information purposes only and are not official records. Access this site at: HYPERLINK <http://www.iaea.or.at/worldatom/> <http://www.iaea.or.at/worldatom/>. Explore the possibility of accessing INIS web site from here.

- 3) Locate the Web sites of the following information systems and learn about recent developments: UNBIS, INIS, AGRIS and PGI.

9.6 RECOMMENDED BOOKS AND OTHER READINGS

AGRIS: Update on Activities. Rome: AGRIS/CARIS Coordinating Group, 1995.

CARIS: Update on Activities. Rome: AGRIS/CARIS Coordinating Group, 1995.

The Changing Frontiers of Library and Information Science, by Syed Fazle Rab. New Delhi: Commonwealth, 1994.

Directory of United Nations Information Sources, compiled by the Advisory Committee for the Coordination of Information (ACCIS). New York: United Nations, 1994.

A Guide to Nuclear Information. Bombay: Library & Information Services Division, Bhabha Atomic Research Centre, 1995.

Handbook of Library Information Systems & Services, by J.K. Khanna. New Delhi: Beacon Books, 1996.

Library Information Technology and Networks, by Audrey N. Grosch. New York: Marcel Dekker, 1995.

Presenting INIS. Vienna: International Atomic Energy Agency, 1994.

Studies on Information Systems, Services and Programmes in India and Abroad, by Baman Parida. Delhi: Ajanta, 1993.

Technology for Developing Countries. Vienna: UNIDO, 1988.

United Nations Documentation: A Brief Guide. New York: Dag Hammarskjold Library, UN, 1994.

World Information Report 1997/98. Paris: Unesco, 1997. (see A. Neelameghan's article entitled "International Co-operation and Assistance" on pp.361-380.)

Note: The best source for up-to-the-minute and authoritative information on various information systems/networks/programmes is the Internet and World Wide Web. To know latest and additional details regarding the contents of this Unit, you can visit the Web sites created by the organisations managing these information systems/networks/programmes. Also, a number of electronic journals on library/information networks are available on the Internet.

9.7 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) "INIS is the world's leading information system on the peaceful uses of nuclear energy based on international cooperation with decentralisation as its operational philosophy." Elucidate with an overview of INIS's operations, products and services.

2) Explain the role played by AGRIS and CARIS in the dissemination of information pertaining to agriculture and related fields.

3) Describe the efforts of United Nations Environment Programme (UNEP) in the provision of environment information.

4) Outline the contribution made by the General Information Programme (PGI) and UNISIST in the development of information infrastructure facilities.

II. SHORT NOTES

a) UNBIS

b) UNAL

c) INTIB

d) SLISNET

UNIT - 10 : REGIONAL INFORMATION SYSTEMS AND NETWORKS

Structure

- 10.0 Aims and Objectives
- 10.1 Introduction
- 10.2 Need for Regional Information Systems and Networks
- 10.3 Regional Information Network for the Exchange in Information and Experiences in Science and Technology in Asia and the Pacific Region (ASTINFO)
 - 10.3.1 Objectives
 - 10.3.2 Structure and Organisation
 - 10.3.3 Activities
 - 10.3.4 Products and Services
 - 10.3.5 ASTINFO AND NISSAT Programme
- 10.4 Asia-Pacific Information Network in Social Sciences (APINESS)
 - 10.4.1 Asia Pacific Region
 - 10.4.2 Origin
 - 10.4.3 Governing Principles and Framework
 - 10.4.4 Action Programmes of APINESS
 - 10.4.5 APINESS AND India
- 10.5 Development Information Network on South Asia (DEVINSA)
 - 10.5.1 Origin
 - 10.5.2 Objectives
 - 10.5.3 Structure and Operation
 - 10.5.4 Services
- 10.6 SAARC Documentation Centre (SDC)
 - 10.6.1 Objectives
 - 10.6.2 National Focal Points
 - 10.6.2 Activities

- 10.7 Let Us Sum Up
- 10.8 Assignment
- 10.9 References and Recommended Books
- 10.10 Model Examination Questions

10.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce you to the regional information systems in various continents. After studying this unit, you should be in a position to -

describe the structure and activities of various regional information systems like ASTINFO, APINESS, DEVINSA, etc.

- explain the role of such organisations in information dissemination to the regions where they are working.

10.1 INTRODUCTION

In recent decades, the developing countries have realised the urgent need to cooperate with one another at the regional level in the economic, scientific and technological fields, which would lessen their dependence on developed countries. The two basic conditions for the development of 'Regionalism and Integration' are the geographic proximity, and a degree of economic interdependence. The other factors added to this include the historical, political and cultural issues. Thus, cooperation among the countries of a region has gained much momentum in America, South East Asia, Africa and Europe since the 1980s.

The countries of a region have more or less same problems, such as poverty, social dislocation, trade in illicit narcotics and significant debt burdens. They have limited resources which are not sufficient enough to progress along with the developed countries. The cooperative ventures would facilitate optimum use of complementary human and material resources. They opt for a number of formal strategies and also informal processes to widen the scope of geographic relationships.

The exchange of information among the nations became a vital link among the nations. The nations of regional groupings have also realised this and started promoting the infrastructural facilities among them for the constant flow of information to support their political, economic and cultural programmes.

10.2 NEED FOR REGIONAL INFORMATION SYSTEMS AND NETWORKS

The organisations under the UN system, and the organisations at the international level as well as regional levels have come forward to extend their support for the unrestricted exchange of information and experiences in various fields like agriculture, health, population control, industry, communication. The organisations felt that there is a need for setting up a network of libraries, documentation and information centres and clearinghouses for information at different levels to promote information transfer between the countries of the region.

The participating countries of a regional level cooperative ventures are more homogeneous and geographically closer to one another. This regional proximity help the regional organisations to foster coordination as well as introduction of information systems and networks.

The organisations which promote regional information systems and networks are

United Nations or UN-based organisations (like UNESCO)

International Development Research Centre, Canada

South Asian Association for Regional Cooperation (SAARC)

Let us now examine some of the regional information systems and networks promoted by these organisations. (Handbook of libraries, Archives & Information centres in India, edited by B.M. Gupta et al covered the Regional Information Systems and Networks in its volume 4)

10.3 REGIONAL INFORMATION NETWORK FOR THE EXCHANGE OF INFORMATION AND EXPERIENCES IN SCIENCE AND TECHNOLOGY IN ASIA AND THE PACIFIC (ASTINFO)

ASTIFO is a UNESCO supported Regional Network for the Exchange of Information and Experiences in Science and Technology in Asia and The Pacific.

It is a corporate programme established in 1985 as a result of the recommendations made during the Second Conference of the Science Ministers and Economic Planning Bodies in the Asia and Pacific Region (CASTASIA-II) held in Manila, the Philippines in March 1982.

The Regional Secretariat of ASTINFO is located at the Unesco Regional Office for Science and Technology for Asia and the Pacific, Jakarta (Indonesia) under the overall charge of the Regional Advisor for PGI for Asia and the Pacific located at Bangkok, Thailand.

10.3.1 Objectives of ASTINFO

ASTINFO aims to stimulate, guide and render catalytic support to its Member States in

- Developing appropriate information policies to guide the over all progress of information infrastructure and services in support of national development plans and programmes
- Strengthening the bibliographic control of its Member States' own scientific and technical output
- Establishing bibliographic databases in subject areas of interest to the region, supported by document clearinghouses and delivery services
- Stimulating and promoting the creation of non-bibliographic databases in science, technology and certain socio-economic fields of importance for the development of decision support systems
- Improving the education and training of human resources to support information programmes and activities
- Increasing awareness and use of information by vigorously promoting and marketing existing information systems and services and providing training in their use
- Strengthening at least one selected institution in each Member State to become an effective national coordinating unit
- Introducing new and innovative information services in order to gradually mainstream information in the national development process and enable active involvement of other library and information services, especially those in the rural and isolated areas, and
- Developing the technical and organisational basis for cross-border exchange of data and for sharing of information processing facilities and other information resources.

10.3.2 Structure of ASTINFO

The structure of ASTINFO consists of national coordinating unit (NCU) and associated centres and networks. There are also consultation committees constituted for specific purposes. The location of these coordinating units varies according to the countries. The units are located either in national libraries (like Australia, or Malaysia), government departments (like India or the Philippines) or in research Institutes. The role of NCUs is to identify a set of Associated Centres in respective countries to participate in and contribute to various technical programmes.

Indian National Scientific Documentation Centre (INSDOC), New Delhi and National Aeronautical Laboratory (NAL), Bangalore are the Associated Members from India.

ASTINFO has established national coordinating units with liaison officers in 18 countries for sharing of information in the Asia Pacific region. They are

- 1) National Library of Australia
- 2) Bangladesh National Scientific Documentation centre (BANSDOC), Dhaka
- 3) Institution of Science and Technical Information of China (ISTE), Beijing
- 4) Department of Scientific and Industrial Research, Government of India, New Delhi
- 5) Division for Science and Industrial Development centre for Scientific Documentation and Information, Jakarta, Indonesia.
- 6) Iranian Documentation Centre
- 7) Japanese Committee for GIP, Tokyo
- 8) Technology Division, Ministry of Science and Technology Republic of Korea (Gwachean city)
- 9) National Library of Malaysia, Kuala Lumpur
- 10) Centre for Science and Technical Information, Mongolia
- 11) Research Centre for Applied Science and Technology (RECAST), Katmandu, Nepal
- 12) New Zealand Institute for Industrial Research and Development
- 13) Ministry of Science and Technology, Islamabad, Pakistan
- 14) National Library of Papua New Guinea
- 15) Science and Technology Information Institute, Manila, (Philippines)
- 16) National Resources, Energy and Science Authority of Sri Lanka (NARESA)
- 17) National Research Council of Thailand
- 18) National Information and Documentation Centre for Science and Technology, Hanoi, Vietnam.

There are 82 national/regional institutions, information/ documentation centres, and professional associations which serve as Associated centres and networks of ASTINFO.

The liaison officers of the national coordinating units meet once in every two years to review the implementation and agreed upon activities and plans for the following biennium. These meetings are generally combined with regional seminars/workshop on a specific topic of particular interest to the members.

10.3.4 Major Activities of ASTINFO

The major activities of ASTINFO are fully and/or partially supported by Unesco. Among the benefits received by the Member States through the ASTINFO programme the following are the major ones:

- Computerization of library and information management services
- Pilot Project on specialised information systems and services
- National information policies and standards
- Innovative approaches to education and training of library and information personnel.
- Document delivery systems and services
- Communication and information exchange

ASTINFO publishes a quarterly newsletter, namely, *ASTINFO Newsletter*. It provides upto date information on programmes, projects and activities carried and proposed within the framework of ASTINFO and PGI programmes. It also includes news related to the development of libraries, documentation and information centres in countries of the Asia-Pacific region.

ASTINFO provides the following:

- Establishment of pilot projects in innovative Community Information Services (CIS)
- Continued operation of document delivery service pilot project
- Continued decentralised distribution of PGI documents in the region.
- Conduct of the ASTINFO biennial regional planning and review meetings.
- Development of computer-based databases and information services with a view to encourage wider use of networks and online systems and services.
- Development of a directory of library networks and bibliographic databases available in each Member State by the respective national agencies.
- Preparation of a directory of experts from each Member States who have demonstrated that expertise in various fields of library and information networking.

10.3.5 Other Activities of ASTINFO

At the national level, the activities are managed by a National Coordinating Unit (NCU). ASTINFO's activities are primarily directed towards the development and strengthening of regional information infrastructures within the existing national structures of Member States. These activities

support the institutions of the participating countries to share information experiences and other resources. This also allows a more balanced and free flow of technology and know how. ASTINFO helps its Member States in acquiring the necessary methodologies, guidance, and expert advice to generate, store, process, retrieve, exchange, use and share information.

The various other activities of ASTINFO Programme may be grouped under the following four main categories:

i) Seminars, Workshops and training programmes

ii) Surveys/Studies,

iii) Infrastructural projects; and

iv) Networks

1) Seminars, Workshops and Training Programmes : ASTINFO has supported the following seminars, workshops and training programmes:

(a) 2-Week National Librarian Training Workshop in Western Samoa by Australian National Commission.

(b) A Consultant Mission to Tonga, Vanutu, Kiribati and Tuvalu.

(c) A Postgraduate Course in Information Science of ten months duration at the Institute for Scientific and Technical Information of China (ISTIC), Beijing.

2) ASTINFO's Support to LIS Surveys : The ASTINFO has supported the following surveys in LIS:

a) The Survey conducted by the Library Council of Papua New Guinea on LIS Infrastructure, IT Applications and Resource Sharing Activities in South Pacific Island countries

b) IFLA's Survey on Document Delivery Facilities in selected countries to improve the DDS and UAP in the region

c) Database on information services on research-in-progress in Asia and the Pacific, created by INSDOC, New Delhi

d) Guidelines for setting up information services on research-in-progress, prepared by the National Institute of Science, Technology and Development Studies (NISTADS), New Delhi

e) The Referral database on Medicinal and Aromatic Plants, created by the Agricultural Development Bank of Asia (AIBA).

3) Infrastructural Projects

ASTINFO has been encouraging various projects on micro computer applications, setting up of facilities for online access to remote databases and demonstration of CD-ROM technologies. Under this programme it has promoted the use of CDS/ISIS software package through Pakistan Scientific and Technological Information Centre (PASTIC), Research Centre for Applied Science and Technology, Katmandu and INSDOC, New Delhi. It has also supported

a) A pilot project on computerised SDI service in Engineering commissioned at the National Engineering Centre, University of the Philippines.

b) Another pilot project on the development rural systems for centralised planning and administration commissioned in Sri Lanka.

c) Facilities for online information retrieval services have been set up at ISTIC, Beijing and NAL, Bangalore.

4) Establishment of Networks ASTINFO has taken two major projects in this area:

1) ASTINFONET, has been designed to provide data communication facility among 30 countries through INTELSAT and low-cost earth stations.

2) The Asian and Pacific Information Networks for Medicinal and Aromatic plants (APINMAP) has been set up with three regional nodes at Publication and Information Directorate (PID), New Delhi; the Chinese University of Hong Kong; and the Agricultural Information Bank for Asia (AIBA), Los Banos.

10.3.5 ASTINFO and NISSAT Programme

Both the programmes of ASTINFO and NISSAT are based on science and technology. These programmes are coordinated by an Advisory Committee in India. The Advisory Committee of NISSAT Programme also serves as the National Advisory Committee for UNISIST as well as for the National Advisory Group for ASTINFO. The Head of Executive Group of NISSAT Programme serves as the Liaison officer of ASTINFO. Thus, the activities of ASTINFO in India are closely coordinated with those of NISSAT programme.

10.4 ASIA-PACIFIC INFORMATION NETWORK IN SOCIAL SCIENCES (APINESS)

APINESS is a Unesco supported Regional Information Network in the Asia-Pacific Region, established in 1986.

The Secretariat of APINESS is presently based at Unesco's Regional Unit for Social and Human Sciences in Asia and the Pacific, Bangkok (Thailand).

10.4.1 The Asia-Pacific Region

Asia is the largest of the five continents. Asia-Pacific region contains more than half of the world's population i.e., about 2500 million people (1980). This region covers countries like Australia, New Zealand, India, China, Japan, South Korea, Thailand, Vietnam, Hong Kong, Japan, Afghanistan, Bangladesh, Burma and Pakistan. Most of the countries of this region are developing countries.

10.4.2 Origin of APINESS

Unesco organised the first Asian conference on Teaching and Research in Social Sciences in May 1973. The conference mooted the idea of Association of Asian Social Science Research Councils (AASSREC). The Conference also recommended for action plans for the promotion of exchange of information between the countries in the Asia-Pacific region. The idea of establishing a regional information network took concrete shape through a series of conferences and meetings and commissioning of a feasibility study by Unesco. The network was launched at the regional meeting of experts and representatives from 17 countries at Bangkok in May 1986.

10.4.3 Governing Principles and Framework

The broad principles governing the APINESS are -

- i) That it would encourage development of infrastructure at the national level to make up for short falls;
- ii) That it would be an inter-institutional arrangement and not a supra-national centre;
- iii) That it would coordinate rather than replace the activities of existing networks at national and regional levels;
- iv) That no single model for national infrastructure would be preferred in view of the one symmetrical levels of attainment;
- v) That system would be a decentralized are; and
- vi) That the financial resources would come from Member States and from those national, regional and inter-national agencies which are involved in and/or which support the networking activities.

The infrastructural framework of APINESS is broadly based on the ASTINFO model. Both APINESS and ASTINFO have more or less identical objectives and maintain closer cooperation in their activities of mutual interest. Most of the countries are common participants of both the networks.

The main constituents of APINESS are

- i) National Contact Points (NCP);
- ii) National Advisory Groups (NAG); and
- iii) Regional Advisory Groups (RAG)

i) National Contact Point (NCP)

Each Member State will establish or designate an existing Centre to act as a National Contact Point (NCP) within APINESS framework. About 17 countries have so far designated their NCPs. National Social Science Documentation Centre (NASSDOC) is the designated NCP in India. The NCPs of APINESS from other countries are as follows:

- 1) National Library of Australia, Canberra
- 2) Social Science Research Council of Bangladesh, Dhaka
- 3) Centre for Social Science Information and Documentation, Beijing (China)
- 4) Academy of Social Sciences, Pyongyang (Democratic People's Republic of Korea)
- 5) National Scientific Documentation Centre, Indonesian Institute of Science, Jakarta
- 6) Socioeconomic Research Unit, Kuala Lumpur (Malaysia)
- 7) Tribhuvan University, Katmandu (Nepal)
- 8) New Zealand Institute of Economic Research, Wellington
- 9) UGC, Islamabad (Pakistan)
- 10) Philippine Social Science Council, Quezon City
- 11) Information Research Centre, Korea Development Institute, Seoul (Republic of Korea)
- 12) Vietnamese National Commission for Unesco, Hanoi
- 13) Sri Lanka National Library, Colombo
- 14) Social Science Committee of the Thailand National Commission for Unesco, Bangkok

The main functions and activities of NCPs include:

- i) Promoting the concept, programmes of APINESS;
- ii) Keeping liaison with international bodies and networks;
- iii) Coordinating and monitoring the progress of networking activities; and

- iv) Collaborating with the Unesco in all matters relating to APINESS project.

The NCP of a country provides facilities and assistance for undertaking network activities through consultancy and expert missions. It also mobilises financial resources for the network activities.

ii) National Advisory Groups (NAG)

A National Advisory Group (NAG) is set up at the NCP of the country. The work of the NAG is to assist and advise NCP on the networking programmes. The structure and composition of NAG varies according to the country. The Advisory Group submits representations to the government departments, academic bodies, professional organisations and international organisations (like UN, Unesco WHO, FAO and UNIDO), which are supporting the network programmes. The Advisory Group also reviews the activities undertaken in the field.

iii) Regional Advisory Group (RAG)

The Regional Advisory Group (RAG) is formed by a combination of the representation of the NCPs of APINESS and those of the ASTINFO and AASSREC. The function of RAG is to review the network activity and recommend action programmes and priorities from time to time. The meetings of RAG are held bi-annually.

10.4.4 Action Programmes of APINESS

The action programme of APINESS are as follows:

- 1) Strengthening the core collection of social science research material in the national and participating centres
- 2) Promoting exchange of social science research material and information
- 3) Surveying the existing institutional facilities
- 4) Adoption of existing international norms and standards or development of norms and standards of information handling
- 5) Vocabulary control and refinement of terminology in social sciences
- 6) Providing exchange of research material and specialists in bilateral and cultural agreements between various states in the region
- 7) Publication of the state of the art reports and processing and repackaging of social science information research data for policy makers
- 8) Necessary hardware and software for improving the information handling and services.

9) Facilities for advanced training in documentation and data management; Training of social scientists as in the use of information.

10) Publication of *APINESS Newsletter* and publicity of APINESS activities and programmes in other bulletins.

10.4.5 APINESS in INDIA

NASSDOC is the NCP for APINESS activities in India. NASSDOC has taken up the following activities of APINESS:

- 1) Compilation of publication and distribution of *APINESS Newsletter* (3 times a year).
- 2) Compilation of *INDIA 2000 : An Annotated Bibliography* (published by Unesco Regional Office, Bangkok)
- 3) Collection of data for two Unesco world directories: *Directory of Social Science Research Institutions* and *Selective Inventory of Information Services*.
- 4) Compilation of the State-of-the-Art report on Social Science trends in India , involving analysis of social science bibliographies published in India since 1970.
- 5) Extension of support for setting up "Women Information Network" by Centre for Women's Development Studies, New Delhi.

The APINESS Newsletter is brought out from NASSDOC. The Newsletter reports the major activities relating to social science information in Asia-Pacific region.

10.5 DEVELOPMENT INFORMATION NETWORK ON SOUTH ASIA (DEVINSA)

DEVINSA was established in 1986 at the Marga Institute, Colombo (Sri Lanka). It is a mission-oriented database supported by IDRC (International Development Research Centre), Ottawa (Canada). Its parent organisation is the Committee on Studies for Cooperation in Development in South Asia (CSCD). It receives financial aid from IDRC.

DEVINSA provides an international service covering social sciences and development in South Asia. The services include library services, bibliographies and literature, and photocopies. It publishes *DEVINSA Bibliography* and *DEVINSA Abstracts*. Its services are open to all users and some are paid services. The database contains socio-economic development literature, emanating from six South Asia Countries, namely, Bangladesh, India, Maldives, Nepal, Pakistan and Sri Lanka.

DEVINSA covers socio-economic development literature published in English from South Asian region from 1981 onwards.

10.5.1 Origin of DEVINSA

The origin of DEVINSA is based on the recommendations of the Committee on Studies for Cooperation in Development in South Asia (CSCD) and Pre-project Workshop on Development of South Asia Information Network on Economic and Social Development, Colombo, 7-12 June, 1982 and supported by IDRC/UNESCO.

The need for creating a database on South Asian information was first felt by the Committee on Studies in Cooperation and Development in South Asia (CSCD). It was aimed to solve the problems in the exchange of information.

10.5.2 Objectives of DEVINSA

The main objectives of DEVINSA are to:

- 1) create a bibliographic database of unpublished literature produced in South Asia
- 2) provide information on current development activities and socio-economic research in the six countries of South Asia, and
- 3) ensure a higher level of use of available research through dissemination and document delivery and thereby help avoid or reduce duplication of research.

10.5.3 Structure and Operation

Each member participates in DEVINSA through a National Focal point (NFP). The Marga Institute, Colombo is the Coordinating Centre (CC). Financial support to meet the establishment and operational costs of DEVINSA is being provided by IDRC.

The National Focal Point (NFP) of each country is entrusted with the task of collecting the socio-economic development information, which is published or generated in that country. The NFPs provide bibliographic information and an abstract on the document to DEVINSA database.

The NFP of a country inputs data in the prescribed format to the Coordinating Centre (CC). The CC maintains the data in a machine-readable format and makes it available to users through National Focal Points (NFPs). Thus, the NFPs act as nodes for collecting as well as distribution of information to the users.

The DEVINSA database is maintained at the coordinating centre and a print out of the data will be supplied on request. Computerised indexes would be provided to facilitate the use of database. The indexes are cumulated periodically - monthly, quarterly, annually and are distributed to local points.

The National Focal Points (NEPs) of DEVINSA are -

- 1) Bangladesh Institute of Development Services, Dhaka
- 2) Jawaharlal Nehru University, New Delhi
- 3) Ministry of Planning and Development, Male, Maldives
- 4) Tribhuvan University, Khatmandu, Nepal (Centre for Economic Development and Administration)
- 5) Pakistan Institute of Development Economics, Islamabad, Pakistan
- 6) Marga Institute, Sri Lanka.

10.5.4 Services of DEVINSA

The major services of DEVINSA are:

1) *Bibliographies and Abstracts*: DEVINSA makes available monthly bibliographies and quarterly bibliographies with abstracts for the documents reported by the NFPs of the participating countries. Users may request these from the NFP of their country or the Coordinating Centre in Sri Lanka.

2) *SDI Services*: The database of DEVINSA is held in the computer system of the Coordinating Centre. Search and retrieval facilities are also available through NFPs. Users may request for information directly from the coordinating centre or through the NFP of their respective country.

3) *Document Delivery*: The NFP of a country reporting the document has a copy of the item in its holdings. A photocopy (or copy) of the document can be generally obtained by making a request to the NFP of the user's country. NFPs may levy a charge to cover the cost of this service.

10.6 SAARC DOCUMENTATION CENTRE (SDC)

The South Asian Association for Regional Co-operation (SAARC) was formed in December 1985 with the objective of consolidating peace and stability in the region and giving meaningful expression to economic and social progress in the region. As of 1998, there are seven member states in SAARC, namely, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

SAARC Documentation System (SDS) comprises of a central unit and sub-units in the member states. SAARC Documentation Centre (SDC) is the central unit and the sub-units located in the member states are the National Focal Points (NFPs).

SDC was established in June 1994 at New Delhi to enable exchange of information among the member states, particularly in the field of science and technology, industry and development matters.

10.6.1 Objectives of SDC

The major objectives of SDC are

- 1) To meet the information needs of the scholars of the region
- 2) To harness the applications of information technology in information management in member states, with particular reference to modernising libraries and information centres
- 3) To serve as a repository of all scientific, technical and developmental literature generated in the region and on the region including grey literature
- 4) To facilitate economic, social and industrial development of the member states by providing timely access to relevant and accurate information
- 5) To evolve a data network interconnecting all the SDC-NFCs, SDC, the SAARC Secretariat and other relevant regional institutions to support information exchange
- 6) To collaborate with international information agencies to evolve as an integrated part of the globalisation process in the field of information and documentation
- 7) To develop human resources in the member states in the area of information science, technology, management, systems and services to prepare the region for the impending new information era.

10.6.2 National Focal Points (NFPs)

An institution in each member state has been designated to serve as the NFP. These NFPs are responsible for carrying out the technical activities to meet the programme needs of the SDC. The NFP in India is INSDOC, New Delhi. The NFPs of other member states are:

Bangladesh National Scientific and Documentation Centre (BANSDOC), Dhaka

The Royal Institute of Management, Thimpu (Bhutan) Ministry of Planning and Environment, Male (Maldives)

The Royal Nepal Academy of Science and Technology (RONAST), Kathmandu (Nepal)

Pakistan Scientific and Technical Information Centre (PASTIC), Quaid-e-Azam University campus, Islamabad

Centre for Development Information Planning, National Planning Department, Ministry of Policy, Planning and Implementation, Colombo (Sri Lanka)

10.6.3 Activities of SDC

To fulfil the specific objective of providing information related to the South-Asian region, the SDC offers a number of information services. Besides providing document copy supply, bibliography/literature search and translation services, SDC has brought out several value-added information products. Among them

- i) Directory of Research and Industrial Institutions in SAARC Region
- ii) Select Bibliography on Alternative Systems of Medicine in the SAARC Region

SDC acts as a repository of documents/reports on scientific, technical and developmental matters produced in the region and on the region. Member states deposit with SDC one copy of all published journals and periodicals pertaining to these areas.

SDC has been imparting short-term training courses and attachment programmes. The short-term courses are designed to train to the library and information professionals in the member states, especially in the use of information technology for library, documentation and information activities. The attachment training programmes are conducted in the area of information management to impart special skills keeping in view the special requirements of each trainee.

SDC has conducted workshops in the areas of intellectual property rights, library automation and wide area network. The Centre has organised a seminar on Technology Transfer and Resources Utilisation among SAARC Member States.

SDC is also contemplating in the use of Internet and global network technologies by creating a web site of its own. This will further improve information exchange among member states.

10.7 LET US SUM UP

Let us recapitulate what has been discussed so far in this unit.

The countries of a region have more or less same problems with regard to information access. Such countries may form a regional level association for unrestricted exchange of information and experiences in various fields.

The setting up of a network of libraries, documentation centres and clearinghouses for information at different levels to promote information transfer between the countries of the region is called "Regional Information Systems or Networks".

The well known regional information systems/networks you have studied in this unit are - Asia-Pacific Information Network in Social Sciences (APINESS), Regional Information Network for the Exchange of Information and Experiences in Science and Technology (ASTINFO) and Development Information Network in South Asia (DEVINSA).

SAARC Documentaton Centre (SDC) is a central unit of SAARC Documentation System (SDS) established in 1994 in New Delhi for exchange of information among the member states of SAARC.

10.8 REFERENCES AND RECOMMENDED BOOKS

AGARWAL, S.P. and Manohar Lal. "Asia-Pacific Information Network in Social Sciences (APINESS)". (IN *Handbook of Libraries, Archives and Information Centres in India* / edited by B.M. Gupta, et al. New Delhi: Information Industry publications, 1987) pp. 199 - 214.

LAHIRI, Abhijit. "Regional Network for the Exchange of Information and Experiences in Asia and the Pacific (ASTINFO)" (IN *Handbook of Libraries, Archives & Information Centres in India*. Vol. 4: *Asia - Pacific Cooperative Information systems, Networks and Programmes* / ed. by B.M. Gupta, et al. New Delhi: Information Industry publications, 1987; p. 1 - 8.

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10.9 ASSIGNMENT

- 1) Compile a bibliography of articles on Regional information systems, covering a period of past ten years.
- 2) Propose a regional information system for South Asian Region and the Pacific on any subject you like and that is not covered so far.

10.10 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) Write an essay on the Asia-Pacific Information Network in Social Sciences (APINESS)
- 2) What is ASTINFO ? Describe its objectives structure and activities.
- 3) Discuss the role of DEVINSA in providing current development activities and socio-economic research in South Asian countries

II SHORT NOTES

- a) APINESS in India
- b) PLASTIC
- c) SAARCNET

11.11 Appendix : Regional Information Systems/ Networks in Different Counters

Regional Information Systems

Sl No	Name of the Information System/Network	Year	Sponsoring Body	Host/ Location	Subject Coverage	Geographic Coverage
1.	Caribbean Information System for Economic and Social Planning (CARISPLAN)	1979	UN/ECLAC	Caribbean Doc Centre Port-of-Spain	Economic Development Agricultural Develop- ment	Caribbean
2.	Pan - African Development Information System (PADIS)	1980	UN-ECA	UN-ECA, Addis- Ababa Ethiopia	Economic Development Social Development	Africa
3.	Regional Information Network on Integrated Rural Develop- ment (RINIRD)	1981	UN-ESCAP	Bangkok, Thailand	Rural Development; Agricultural Development	Asia and the Pacific
4.	Information System for Planning in Latin America and Caribbean (INFOPLAN)	1961	UN-ECLAC	Latin American Centre for Economic and So- cial Documentation (CLADES) Santiago, Chile	Economic Planning; Social Planning	Latin America
5.	Caribbean Network of Educa- tion Innovation for Development (CARNEID)	1981	UNESCO		Education	
6.	Asia and Pacific Information Network on Medicinal and Aromatic Plants (APINMAP)	1987	UNESCO	Philippine Connal for Health Research and Development Manila, Philippines	Medicinal Plants	Asia and the Pacific
7.	Health literature, Library & Information Services of the WHO Regional Office for South-East Asia (HELLIS)	1948	WHO	WHO Library, New Delhi	Primary Health Care	South East Asia
8.	Latin American and Caribbean Caribbean Health Sciences Information Centre (BIREME)	1969	WHO	Sao Paulo, Brazil	Health	Latin America and the Caribbean

9.	Caribbean Patent Information System (CARPAT)	1985	UN-ECLAC	Port - of - Spain Trinad & Tobago	Patents Pharmaceuticals Petroleum Industry	English-Speaking Caribbean
10.	Information Network an New and Renewable Energy Resources and Technologies for Asia and The Pacific (INNERTAP)	1983	UNESCO	Quezon City Phillippines	Renewable Energy Sources: Wind Energy Solar Energy	Asia and the Pacific
11.	Asia Pacific Population Information Network (ASIA-PACIFIC POPIN)	1983	UN-ESCAP	Bangkok, Thailand	Demography Population Studies	Asia and the Pacific
12.	Asia-Pacific Technology Information (APTIS)	1986	UN-ESCAP	New Delhi	Agro Industry; Bio-technology Food technology	Asia and the Pacific
12A.	Pan-American Network for Information on Environmental Engineering (REPIDISCA)	1981	WHO	Lima, Peru	Environmental Engineering Sanitation	Latin America
13.	Caribbean Environment Programme Decision Support Network for the Management of Marine and Coastal Resources (CEPNET)	1989	UNEP	Kingston, Jamaica	Environmental Management Marine Resources	Caribbean
14.	Regional Network for Exchange of Information and Experiences in Science and Technology in Asia and Pacific (ASTINFO)	1985	UNESCO	Bangkok, Thailand	Energy Conservation; Science & Technology	Asia and the Pacific
14A.	Women's Information Network for Asia and the Pacific (WINAP)	1986	UN-ESCAP	Bangkok, Thailand	Women's Rights Women's Studies	Asia and the Pacific

- | | | | | | | |
|-----|---|------|----------|----------------------|-----------------|----------------------------|
| 15. | Asia and Pacific Programme
of Educational Innovations
for Development (APEID) | 1973 | | | | |
| 16. | Asia Network for Industrial
Technology Information and
Extension (TECHNONET Asia) | 1973 | | | | |
| 17. | Asia-Pacific Information in
Social Sciences
(APINESS) | 1986 | UNESCO | Bangkok,
Thailand | Social Sciences | Asia
and the
Pacific |
| 18. | Association of Development
Research and Training Insti-
tute of Asia and the Pacific

(ADIPA) | 1973 | | | | |
| 19. | Socio-Economic Data Banks

Network for Asia and the
Pacific (SEDNAP) | 1984 | | | | |
| 20. | Regional Remote Sensing
Information Science
(RIS) | 1984 | UN-ESCAP | Bangkok,
Thailand | | Asia
and the
Pacific |
| 21. | ASEAN Population Information

Network(ASEAN POPIN) | 1980 | | | | |

UNIT-11 : NATIONAL INFORMATION SYSTEMS IN USA, UK, RUSSIA AND JAPAN

Structure

11.0 Aims and Objectives

11.1 Introduction

11.2 Information Systems in the USA

11.2.1 OCLC

11.2.2 ERIC

11.2.3 RLG

11.2.4 RLIN

11.2.5 USAIN

11.2.6 NTIS

11.3 Information Systems in the UK

11.3.1 BLAISE - LINE

11.3.2 JANET and Super JANET

11.4 Information Systems in Russia

11.4.1 VINITI

11.4.2 VNTIC

11.5 Information Systems in Japan

11.6 Let us sum Up

11.7 Assignments

11.8 Recommended Books

11.9 Model Examination Questions

11.0 AIM AND OBJECTIVES

This unit aims to provide an overview of the major national information systems in USA, UK, Russia and Japan.

After going through this unit, you should be able to

- describe the variety of services provided by a selected major national information systems/networks like OCLC Online Computer Library Center (OCLC), Research Libraries Group (RLG), National Technical Information Service (NTIS) and Joint Academic Network (JANET).
- discuss the latest developments in information dissemination in the present-day networked environment through study of important network services like The British Library's Automated Information Service (BLAISE-LINE) and JOIS (Japan Information Center of Science and Technology Online Information System).

11.1 INTRODUCTION

Information and Communication Technologies (ICT) are having a tremendous impact on the mode of information collection, processing, storage, retrieval and dissemination. In our march from the industrial society to the information society, we are witnessing spectacular changes in the global information infrastructure. There is a proliferation of information and communication networks in developed countries. Even in developing countries, efforts are being made to build up adequate information infrastructures to support their economies. The process of globalisation and liberalisation is facilitating the creation of networked environments. The vision of global village is becoming a reality with the advent of Internet and other advanced computer and communication technologies.

From an industrial economy, we are moving towards the "knowledge economy". In the knowledge economy (also known as "intangible economy", "the weightless economy", the "immaterial economy" or the "new economy"), ideas, images and knowledge are more predominant and accorded much importance than physical products, machines and raw materials. We have reached the stage of knowledge economy by mastering the data processing and transmission processes. According to social scientists, state the following four main elements constitute the knowledge economy:

- * Information and communications technology (ICT) and the Internet;
- * Intellectual property (patents, copyrights, brand-names, trademarks, advertising, financial and consulting services, financial exchanges, health care and education);
- * Electronic libraries and databases (including new media, video entertainment and broadcasting); and
- * Biotechnology, traditional libraries and databases and pharmaceuticals.

As is clear from the above, library and information centres play a vital role in the emerging knowledge economy. In the developed countries such as US, UK, Russia and Japan, networking of library and information centres has been one of the major trends in the information scenario and a number of well-designed and well-managed national networks have come into existence in these countries. Some of these networks such OCLC, RLG, BLAISE LINE and JANET are offering services at the global level. In course of time, these major national networks have grown and developed in a dramatic way through their pioneering efforts in new modes of information collection, organisation and transfer. In the present Unit, we will be studying about some of the major library and information networks in US, UK, Russia and Japan.

11.2 INFORMATION SYSTEMS IN THE USA

11.2.1 OCLC Online Computer Library Center, Dublin, Ohio.

OCLC is a non-profit computer service and research organisation whose network and services link more than 25,000 libraries in the US and 63 countries. The goals of OCLC are

- * furthering access to the world's information; and reducing information costs.
- * OCLC services help libraries locate, acquire, catalogue, access and lend library materials.

Services

OCLC, the world's largest library information network, offers a number of services such as the following:

World Cat (the OCLC Online Union Catalogue) is the world's largest and most comprehensive bibliographic database. Libraries use the WorldCat database and OCLC's computerised telecommunications network to process materials and share information. WorldCat is a merged electronic catalogue of libraries around the world. It offers libraries and their users resources that no single library could provide. Its salient features are:

- * 36 million records in eight bibliographic formats representing 370 languages with holdings information.
- * Growth by approximately 2 million bibliographic records each year.
- * Easy searching from FirstSearch, EPIC and other services.
- * The number of bibliographic records in WorldCat are as follows:

Books	28,937,033
Serials	1,786,063
Visual Materials	942,875
Maps	409,793
Mixed Materials	265,981
Sound Recordings	1,126,679
Scores	825,539
Computer Files	84,172
Total	34,378,135

The OCLC System offers extensive online cataloguing, interlibrary loan, union list and selection services.

OCLC FirstSearch and *OCLC EPIL* services offer online reference services that provide flexible search and subject access to over 60 databases for both library staff and end users.

OCLC FirstSearch Electronic Collections Online Service provides remote access to large collections of journals through the Web.

OCLC Access Services provides telecommunications and standalone systems that facilitate online and offline cataloguing, resource sharing, reference and selection services.

Reference Services

OCLC FirstSearch: It offers end users more than 60 databases to search, including WorldCat and the OCLC NetFirst database--bibliographic citations of Internet-accessible resources. FirstSearch also offers library holdings information, a link to OCLC's interlibrary loan, a variety of online full-text and document delivery options, and a choice of pricing structures. Libraries can offer their users access to FirstSearch from the library, home, office or school. FirstSearch is accessible from the World Wide Web.

OCLC FirstSearch Electronic Collections Online: OCLC is building on its groundbreaking work with electronic journals to develop a new electronic journals product that offers an alternative to print subscriptions, namely, Electronic Collections Online. Electronic Collections Online provides remote access to large collections of journals through the Web.

OCLC EPIC: It offers professional searchers low-cost searching of nearly 60 databases (most with holding information), including WorldCat and the OCLC ArticleFirst and OCLC ContentsFirst serials table-of-contents databases.

OCLC SiteSearch software: This is a family of information integration tools for libraries who want to build electronic library collections, to access global resources, and to make local resources available globally.

OCLC Collections and Technical Services

OCLC Cataloguing Service: By cataloguing with OCLC, libraries can gain access to over 36 million bibliographic records covering eight formats in WorldCat and to the complete Library of Congress Authority File. Using high-quality records, one can catalogue any type of material. Libraries that contribute all of their current cataloguing to WorldCat receive full membership and a voice in OCLC governance.

OCLC Selection Service: It streamlines a library's acquisition process by further automating selection and ordering procedures.

OCLC PromptCat Service: It provides automated copy cataloguing with minimal staff intervention. It works with materials supplied by participating vendors.

OCLC TechPro Service: This is a customised contract cataloguing service that helps libraries eliminate cataloguing backlog and keep current cataloguing up-to-date.

OCLC CatCD for Windows system: This is a Windows-based CD-ROM cataloguing in an offline, stand-alone environment. It contains bibliographic subsets of WorldCat and the complete Library of Congress Authority collection.

OCLC Cataloguing Micro Enhancer Software

OCLC Authority Control Service

OCLC CJK Software: This is a Microsoft Windows-based online software that allows users to catalogue and search library materials in Chinese, Japanese and Korean (CJK) languages. It is compatible with the OCLC system.

OCLC AsiaLink Service: This is a collection development and acquisitions service for CJK and Vietnamese materials.

OCLC Conversion Services: These are online and microcomputer-based retrospective conversion services to help libraries convert older cataloguing records to machine-readable form.

OCLC Resource Sharing Services

A few examples of services provided under this are listed below:

OCLC Interlibrary Loan (ILL) Service: It is an electronic network of 5,500 libraries worldwide that lend and borrow materials. It helps libraries expand their services and reduce operating costs.

Group Databases: These are geographic or topical databases for library groups created and maintained by OCLC to help libraries multiply their resources and improve user services.

OCLC Union List Service: It provides up-to-date holdings information for serials owned by union listing libraries.

OCLC Access Services

Telecommunications: OCLC provides Internet, dial access, multidrop and linking options for cataloguing, resource sharing, reference and selection services.

OCLC Passport for Windows Software: It provides tools to get maximum efficiency from both OCLC online systems and other terminal emulation-based systems.

Workstations: OCLC provides microcomputer hardware for all OCLC applications.

Research

The mission of the OCLC Office of Research is to expand knowledge towards OCLC's commitment to improve access to the world's information resources. Accordingly, it pursues this mission through research activities such as experimentation, prototype construction and research collaborations.

OCLC Forest Press Division

A division of OCLC, Forest Press publishes the Dewey Decimal Classification system, Dewey for Windows software and a variety of related materials and services that help libraries cost-effectively organise their collection.

Preservation Resources Division

This Division provides a full range of services to meet the diverse preservation needs of libraries, archives and other institutions.

OCLC provides products and services to libraries in 63 countries and territories with most activities occurring in Europe and Asia.

Membership

Libraries in North America join OCLC through their OCLC-affiliated Regional Networks. Libraries outside North America receive OCLC services through OCLC Asia Pacific Services, OCLC Europe, OCLC Latin American and the Caribbean, or via international distributors.

Cooperative Programmes

OCLC operates a number of cooperative programmes such as

Cooperative Online Serial Program (CONSER): This is a cooperative cataloguing programme that has built and continually maintains a comprehensive machine-readable database of authoritative bibliographic information for serials.

National Coordinated Cataloging Operations (NACO): OCLC supports the online cooperative contribution of new and changed authority records to the Library of Congress by the NACO libraries.

OCLC Library School Program: It helps library schools provide librarians with skills for today's libraries by providing OCLC products and services at either no charge or a reduced rate.

United States Newspaper Program (USNP): This is a national programme established to catalogue, preserve and make available US newspapers.

OCLC operates a number of OCLC-affiliated Regional Networks to provide support in training, billing and marketing of OCLC products at the regional level. OCLC is governed by a 15-member Board of Trustees.

11.2.2 Educational Resources Information Center (ERIC), Washington

ERIC is a national information system established in 1966 to provide users with easy access to education-related literature. It is supported by the US Department of Education, Office of Educational Research and Improvement.

The ERIC database is the world's largest source of education information and contains more than 850,000 abstracts of documents and journal articles on education research and practice. It can be accessed through various means such as

- * online via commercial vendors and public networks on CD-ROM
- * through the printed abstract journals, namely, *Resources in Education* and *Current Index to Journals in Education*.

The database is updated monthly for providing timely and accurate information. The users of ERIC include, among others, teachers, administrators, school board members, librarians, students, journalists, professors, researchers, parents and community members.

ERIC collects a variety of materials on a wide range of education-related topics. The material collected consists of books, research reports, monographs, speeches and conference papers, studies, instructional materials (for students), lesson plans, manuals and handbooks, bibliographies and tests.

The ERIC system offers variety of services and products with the helps of its constituents units stated below:

- * 16 Subject-specific clearinghouses (Adult, Career, and Vocational Education; Assessment and Evaluation; Community Colleges; Counseling and Student Services; Disabilities and Gifted Education; Educational Management; Elementary and Early Childhood Education; Higher Educa-

tion; Information & Technology; Languages and Linguistics; Reading, English, and Communication; Rural Education and Small School; Science, Mathematics, and Environmental Education; Social Studies/Social Science Education; Teaching and Teacher Education; and Urban Education.

* Associated adjunct clearinghouses (Adjunct ERIC Clearinghouse for Art Education; Chapter 1 (Compensatory Education); Clinical Schools; Consumer Education; ESL (English as Second Language) Literacy Education; Law-Related Education; Test Collection; U.S.-Japan Studies)

* Support components (1. ACCESS ERIC to keep the users informed, through toll-free telephone, of the wealth of information offered by the ERIC; 2. ERIC Document Reproduction Service provides full-text copies, either in microfiche or paper form, of most documents found in ERIC; and 3. ERIC Processing and Reference Facility.

The products of ERIC include research summaries, bibliographies, reference and referral services, computer searches, and document reproduction. ERIC staff guide users to appropriate sources of information and provide relevant publications. They handle over 1,20,000 queries per year. Questions relating to a specific education topic should be sent to the ERIC Clearinghouse most closely covering that topic.

In addition to acquiring and cataloguing documents for the ERIC database, the ERIC Clearinghouses produce reports, summaries, digests, and other free and low-cost resources within their subject areas.

Products

ERIC produces numerous products to help users access and use the information in the ERIC database:

a) *ERIC in Print*: ERIC produces monthly two publications that are basically print versions of the database.

Resources in Education (RIE) announces current education-related documents.

Current Index to Journals in Education (CIJE) announces education-related journal articles.

b) All About ERIC

c) Directory of ERIC Information Service Providers

d) ERIC Database Tapes

e) The ERIC Review (journal)

f) Thesaurus of ERIC Descriptors

g) ERIC Identifier Authority List

Information Retrieval Services

The ERIC database is one of the most widely used bibliographic databases in the world with users from over 90 countries accessing it through a variety of means such as online, CD-ROM, computer networks and Internet. The ERIC system also provides AskERIC, an Internet-based question-answering services.

11.2.3 Research Libraries Group (RLG), Mountain view, CA

The Research Libraries Group is a not-for-profit membership corporation of universities, archives, historical societies, museums and other institutions devoted to improving access to information that supports research and learning. It was founded in 1974 by Harvard, Yale and Columbia universities and The New York Public Library.

Objectives

The objectives of RLG are:

- * To support cooperative solutions among research libraries, archives, museums and related repositories.
- * To create an information delivery service capable of putting catalogue, index, abstract, full-text, and image information directly into the hands of scholars and students.
- * To manage coordinated preservation projects that extend models developed for brittle paper materials to photographs and electronic media.
- * To develop a local computer system serving archives, museums, and related repositories, linked to an increasingly comprehensive database of primary cultural and scientific information; and
- * To facilitate the most effective access to information resources.

RLG membership is open to any not-for-profit institution with an educational, cultural, or scientific mission and willing to share the responsibility of supporting research in the humanities, social sciences, and natural sciences. RLG acts as a catalyst in collaborative efforts of its over 120 member institutions. It is a pioneer in developing cooperative solutions to the problems faced by organisations in the acquisition, delivery, and preservation of research information.

Services

RLG provides access to millions of records from research collections and information databases throughout the world. The services of RLG may be discussed under the following five groups:

- * Searching services
- * Library and archival support services

- * Reports
- * Interlibrary loan and information delivery
- * Other services

a) Searching Services

Eureka is RLG's powerful and easy-to-use search service. It makes Research Libraries Information Network's (RLIN's) bibliographic files accessible to both campus and library/information networks.

CitaDel is the citation and document-delivery service from RLG.

Zephyr is RLG's Z39.50 service providing access to RLG's resources. Using the familiar features of one's own local computer system, a user can search RLIN and CitaDel files without having to master new commands and displays.

b) Library and Archival Support Services

These services are offered with the help of Research Libraries Information Network (RLIN).

11.2.4 Research Libraries Information Network (RLIN).

Owned and operated by the RLG, RLIN is an internationally available information management and retrieval system that serves as a platform for many of RLG's cooperative programmes and a focal point for sharing resources. The RLIN database is an online catalogue of more than 56 million items held by over 200 of the world's leading research institutions. The user community includes academic, special, corporate and public libraries, archives, information centres and individual scholars. RLIN is used for cataloguing, reader service, teaching, or personal research.

RLIN is not an image or full-text database. It provides only citations or pointers where materials can be found. In other words, it is a modern form of conventional card catalogue. But unlike card catalogue, it contains detailed descriptions of non-book materials, including photo collections, oral histories of well-known people, 3-D objects and other items which lend themselves to illustration.

RLIN contains records that describe printed books, journals, journal articles, manuscript and archival materials, photographs, films, maps and sound recordings. One can search these records by subject, title, series, author, illustrator, or translator, language, place and date of publication. RLIN is used by RLG member libraries, non-member institutions and individual researchers to create catalogues and bibliographies, to identify works on a subject or works of an author, to find translations and other editions of a title, to verify bibliographic citations, and to locate copies and call numbers.

JACKPHY Plus service provides access to the bibliographic records of RLIN in languages using Chinese, Japanese, Korean, Arabic, Hebrew and Cyrillic scripts. RLIN supports searching and input of records in all the above languages.

It has been estimated that more than 200 institutions use the RLIN library and archival support system daily for their technical processing, interlibrary loan, and archives and manuscript control.

c) Reports

RLIN Reports System (RRS) allows the user to get a variety of reports on their library's cataloguing and acquisition activities. QuickList is a service which provides easily lists of an institution's RLIN records in printed form or on diskette.

d) Interlibrary loan and information delivery

The RLIN library and archival support system supports interlibrary loan requests.

Ariel Document Delivery: This is an innovative document transmission software for use on the Internet and it functions as a stand-alone product. It is faster, more reliable and less expensive than fax and provides better quality images.

e) Other services

The RLIN Information Center is available by phone toll-free, by e-mail and by fax to answer users' queries regarding RLG's services and products and technical problems. RLG offers accredited graduate-level library school course programmes free instructional access to RLIN.

11.2.5. U.S. National Library of Medicine (NLM)

The National Library of Medicine (NLM) is located on the campus of the National Institutes of Health in Bethesda, Maryland. It is the world's largest medical library collecting materials in all major areas of the health sciences and to some extent in such areas as chemistry, physics, botany and zoology. Its collection of 5 million items includes books, journals, technical reports, manuscripts, microfilms, photographs and images. NLM also houses world's finest medical history collections of old and rare medical texts, manuscripts and incunabula. NLM serves as a national resource for all U.S. health science libraries through a National Network of Libraries of Medicine.

The Bibliographic Services Division provides access to biomedical literature. It does this primarily through MEDLARS (Medical Literature Analysis and Retrieval System).

This Division is composed of two sections:

The Index Section, which creates Index Medicus and the MEDLINE database; and

* The MEDLARS Management Section.

* Let us now more details about MEDLARS.

MEDLARS: This is the NLM's computer-based Medical Literature Analysis and Retrieval System. It allows rapid access to NLM's vast store of biomedical information.

MEDLARS is used for preparing publications like:

Index Medicus, the monthly subject/author guide to articles in 3,200 of the world's biomedical journals published in 36 languages.

International Index to Nursing Literature

Index to Dental Literatures and others

Presently, through the Internet and World Wide Web, MEDLARS search services are available throughout the world free of cost.

MEDLINE (MEDLARS online) is the most well known of NLM's databases. It is *Index Medicus* online version. It contains 9 million references dating back to mid sixties.

Other databases offer information on cataloguing (CATLINE), serials (SERLINE), toxicology (TOXLINE and TOXNET), chemical substance information (CHEMLINE), AIDS (AIDSLINE) and other specialised areas.

Online access to databases on the MEDLARS is available via a user-friendly interface called Grateful Med that is available in several versions: a WWW server interface and WINDOWS, DOS and Macintosh)

It has been estimated in January 1998 that about 300,000 MEDLINE searches are done every day through the World Wide Web site of NLM. Access to the MEDLINE database is also available through commercial networks and on CD-ROM from many private companies.

For indexing of Journal literature, MEDLARS uses Medical Subject Headings (MeSH), the controlled vocabulary which contains over 18,000 terms. Much of the preliminary indexing is done by firms under contract to the NLM and from International MEDLARS Centers.

PubMed is a free WWW service developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to their full-text versions at publishers' Web sites.

Research and Development

R&D is carried out by the following two Centers of NLM:

The Lister Hill National Center for Biomedical Communications (LHNCBC) explores the uses of computer, communication and audiovisual technologies to improve the organisation, dissemination and utilisation of biomedical information. This Center played a key role in the development of MEDLARS.

The National Center for Biotechnology Information (NCBI) is engaged in developing information services for biotechnology. NCBI distributes GenBank, a collection of all known DNA sequences and in 1996 it put the Human Gene Map on the WWW.

Toxicology and Environmental Health Program (TEHIP)

TEHIP was established at NLM in 1967. It develops databases from the literature and from files of governmental and nongovernmental organisations. TEHIP has implemented the TOXNET (Toxicology Data Network) system of 12 data banks useful in chemical emergency response and other application.

Grants Programmes

The Extramural Programs Division of NLM provides grants to support R&D activities leading to the better management, dissemination and use of biomedical knowledge.

National Network of Libraries of Medicine (NN/LM)

The National Network of Libraries of Medicine has been established with a purpose to provide health science practitioners, investigators, educators and administrators in US with timely, convenient access to biomedical and health care information resources. The network is administered by the National Library of Medicine. It consists of the following:

- * Eight Regional Medical Libraries (major institutions under contract with the National Library of Medicine.)
- * More than 140 Resource Libraries (primarily at medical schools)
- * About 4,500 Primary Access Libraries (primarily at hospitals).

The Regional Medical Libraries administer and coordinate service in the network's eight geographical regions: Middle Atlantic Region, Southeastern/Atlantic Region, Greater Midwest Region, Midcontinental Region, South Central Region, Pacific Northwest Region, Pacific Southwest Region and New England Region.

Services

The NN/LM reaches out to all health professionals irrespective of their location. It provides various options for personal access to information.

Grateful Med is a convenient method for accessing the National Library of Medicine. This user-friendly software makes searching MEDLINE easy.

With the help of *Loansome Doc*, the electronic document order feature of *Grateful Med*, one can ask for copies of articles needed. The libraries within NN/LM are linked electronically to ensure that the articles, books and audiovisuals required by users are provided in the shortest possible time.

The National Library of Medicine (NLM) is the world's largest and most prestigious medical library. The NLM serves as the overall coordinator of the NN/LM and acts as a back-up resource for all other libraries in the Network.

11.2.6 United States Agricultural Information Network (USAIN)

National Agricultural Library (NAL), established in 1862, is one of three national libraries of the US. (The other two national libraries are the Library of Congress and the National Library of Medicine.). NAL is the largest agricultural library in the world with a collection of over 2.3 million volumes including books and journals, audiovisuals, reports, theses, photos, software and laser discs. It receives 26,000 periodicals per year. It is administered by the US Department of Agriculture.

AGRICOLA (AGRICultural OnLine Access) is NAL's bibliographic database offering fast access to the NAL collection. AGRICOLA contains more than 3 million citation and it can be accessed online or through CD-ROM.

NAL is the coordinator and primary resource for a nation-wide network of State land-grant and US Department of Agriculture field libraries. NAL and these libraries constitute a document delivery service which facilitates interlibrary loan of agricultural materials.

United States Agricultural Information Network (USAIN)

Created in 1988, United States Agricultural Information Network (USAIN) provides a forum for discussion of agricultural issues, takes a leadership role in the formation of a national information policy pertaining to agriculture, makes recommendation to the National Agricultural Library on agricultural information issues, and promotes cooperation and communication among its members. Some significant contributions of USAIN are: advisory role in the National Agricultural Text Digitizing Project; drafting of agricultural preservation plan and organisation of several conferences on agricultural information.

11.2.7 National Technical Information Service (NTIS), Springfield, VA.

NTIS serves as the nation's clearinghouse for R&D results and other information produced by and for the U.S. government. NTIS is a bureau within the Technology Administration of the U.S. Department of Commerce. NTIS realises the cost of providing its services through sales of its products and services. Its collection contains over 2.5 million titles covering more than 375 scientific, technical, engineering and business-related subjects. The products of NTIS include audiocassettes, videotapes, technical reports, periodicals, databases, computer software, diskettes, CD-ROMs and on-line services.

Till 1991, NTIS depended on voluntary submission of documents by federal departments to buildup its collection. After the enactment of American Technology Preeminence Act (Public law 102-245) in 1991, NTIS's collection has increased many times. Under this Law, all federal agencies

are required to submit their federally-funded scientific, technical and engineering information to NTIS within 15 days from the date of the product being made publicly available. As a result, NTIS is able to provide its customers a varied and practical range of information.

As soon as the reports and products are submitted by the US government agencies, NTIS enters these items in its NTIS Bibliographic Database and they become a permanent part of its collection. Over 200 US government agencies contribute to the NTIS collection including the National Aeronautics and Space Administration, the Environmental Protection Agency, the National Institute of Standards and Technology, the National Institutes of Health and the Departments of Agriculture, Commerce, Defence, Energy, Health and Human Services, etc. Through a cooperative arrangement with White House, NTIS provides important White House documents too.

NTIS is the leading US government agency in international technical and business information exchange. It actively acquires and distributes information produced by a large number of foreign government departments and other organisation. NTIS has built up cooperative programmes and joint ventures with private industries to create new products from and distribution channels for US government data and software.

NTIS Bibliographic Database

This contains summaries of scientific, technical, engineering and business information products acquired by NTIS from 1964 to the present. This information is available as reports, videos, software, and datafiles and represents hundreds of billions of dollars of research sponsored by U.S. and foreign governments. This database can be searched either online or on CD-ROM.

NTIS FAX Direct service distributes directly to the user's fax machine targeted lists of the scientific, technical, engineering and business information products contained in the NTIS collection. This service provides two options:

- * Title List Service features lists of the most frequently requested NTIS titles, grouped by subject category.
- * Product Information Service provides detailed information on specific publications and products.
- * *NTIS Alerts*: NTIS adds more than 1,600 new titles to its collection every week. These titles are announced through the following publications:

a) NTIS Alerts - a fortnightly service providing customers with summaries of reports and studies sponsored by the US and selected foreign governments. Many of these titles, which include technical reports, datafiles and software products are available exclusively through NTIS.

b) The Custom NTIS Alert is another fortnightly service which provides information on new titles added pertaining to a specific topic(s).

c) **The Prepackaged NTIS Alerts:** In this service, information of new studies and R&D reports added to NTIS collection in 26 subject areas such as Agriculture & Food, Business & Economics and Communication is provided.

NTIS Published Search: These are bibliographies that contain 50-250 latest abstracts of research reports and studies available from the US government and worldwide database sources. Information specialists prepare these bibliographies on specific request from the users to provide most up-to-date and relevant data on a specific subject.

Selected Research in Microfiche (SRIM): In this service, subscribers are automatically sent microfiche copies of the full text of reports in their subject area of interest. NTIS offers more than 350 subject areas to choose from and also new subject areas can be included to meet the specific requirement of a user.

Government Reports Announcements and Index (GRA&I) Journal: Issued twice a month, this service provides summaries of US government research reports and surveys; regulations; handbooks; directories; and recently-developed computer software and datafiles. The following indexes are included: keyword, personal and corporate author, government/contract grant number and report numbers. Government Reports Annual Index is also produced.

NTIS Highlights: These are catalogues providing an easy way to find out about more than 700 government market studies, research results and scientific reviews. The following three catalogues are available: Business Highlights; Environment Highlights; and Health Highlights.

The FedWorld Information Network

The FedWorld Information Network is an on-line information service established by the NTIS to provide the general public with a user-friendly, central resource for government information in electronic formats. It offers access to an increasing range of government information sources, including gateways that connect users with more than 300 US government on-line systems and thousands of US government files, documents and databases. NTIS has provided easy access to FedWorld and tailored its services to meet customer's changing needs.

Third-Day Preview Database: In this service, customers can conduct searches on thousands of new products available from NTIS and order them online.

Locator services are provided to search and identify government information resources. The users can simply type a few key words describing their information needs and the FedWorld will do the comprehensive search and identify public information resources throughout the federal government, describe the information available in those resources and provides assistance in obtaining the information.

Users can shop for NTIS products online through the FedWorld Marketplace service.

Federal Research in Progress (FEDRIP) Database: It provides advance information about more than 150,000 research projects relating to health, physical sciences, agriculture, engineering and life sciences.

FedWorld is rapidly becoming the US government's premiere electronic marketplace for information. Continuous efforts are being made to expand the range of products offered online and also to provide information as quickly and as easily as possible.

FedWorld can be accessed by modem and Internet.

11.3 INFORMATION SYSTEMS IN THE UK

11.3.1 BLAISE-LINE (British Library Automated Information Service Online)

BLAISE-LINE is The British Library's Automated Information Service. This service, launched in 1977, aims to provide complete online bibliographic service to support various library functions such as cataloguing, information retrieval, acquisitions and bibliographic checking. It is the United Kingdom's first online database service. Presently, it has 22 databases containing over 18.5 million bibliographic citations. BLAISE-LINE comprehensively covers the British Library's holdings and hosts many external databases such as Whitaker's British Books in Print, Library of Congress and the online catalogue of The Stationery Office. Some of the databases provided by BLAISE-LINE are listed below:

Bibliographical Files

- * The British National Bibliography - BNB MARC, 1950 to date
- * Library of Congress - LCMARC, 1968 to date
- * Whitaker British Books in Print, c1965 to date
- * Her Majesty's Stationery Office - HMSO, 1976 to date
- * ISSN UK Centre for Serials - ISSN, 1974 to date

British Library Catalogues

- * The British Library Catalogue - BLC, c1215 to 1975
- * Humanities & Social Sciences - HSS, 1976 to date
- * Science Reference & Information Service - SRIS, 1974 to date
- * British Library Document Supply Centre Monographs - DSCM, 1980 to date
- * British Library Document Supply Centre Conference Proceedings - CONF, 1964 to date

- * System for Information on Grey Literature in Europe - SIGLE, 1980 to date
- * The British Library Information Sciences Service - BLISS, 1976 to date

Specialist Databases

- * Eighteenth Century Short Title Catalogue - ESTC, 1701-1800
- * Incunable Short Title Catalogue - ISTC, pre 1501
- * Higher Education Learning Programmes Information Service - HELPIS, c1980-89

BLAISE-LINE is regarded as an accurate, up-to-date source for information on world-wide publications. It serves information professionals, publishers, booksellers, researchers, academics and general public who need bibliographic information. It is an invaluable tool for subject searching, bibliographic checking, choosing forthcoming titles for new acquisitions, compiling booklists, or record supply. The salient features of information provided by BLAISE-LINE are:

- * Bibliographic records for material ranging from the very first printed books to the most up-to-date report literature.
- * Information on materials in many languages
- * Information on materials pertaining to all subjects and published in various forms such as books, reports, conference proceedings, theses, official publications, printed sheet music and maps.

BLAISE-LINE is serving 1000 subscribers worldwide and has users from all types of library and information centres. Most of the academic institutions in UK and a number of major companies are members of Blaise. A number of reputed foreign universities, companies and institutions are also its members.

BLAISE-LINE can be accessed by various means: 1) through a network or via a personal computer with a modem and telephone facility; 2) through BT's Global Network Services (such as DIALPLUS (JANET), the Internet and other world-wide connections).

BLAISE-LINK: This service, offered through the British Library's Medical Information Centre, gives access to the biomedical and toxicological file of the US National Library of Medicine. The British Library is acting as the national input centre for MEDLINE -- the world's most widely used medical database produced by the US National Library of Medicine.

In 1986, *Blaise Order service* was launched to provide a fast and effective method of sending interlibrary loan requests to the British Library's Document Supply Centre. Another major improvement was introduction of multifile searching in 1989. This facility allowed users to simultaneously search a number of databases.

Recent developments

Blaise Web was launched in 1996 to provide a user-friendly graphical interface. With the help of Blaise Web a user who is not an expert in using command language for information searching can also easily retrieve information via the World Wide Web. Blaise Web is regarded as a unique bibliographic resource on the World Wide Web and this has attracted a number of users to Blaise.

In 1997, The British Library expanded its Web-based bibliographic services with the starting of OPAC 97 service. This service offered free access to seven of the major catalogues of the British Library and about 8.5 million records. Blaise and OPAC 97 are expected to be replaced by new services in 1999 to provide better access. The new services are designed to conform to standards such as UNICODE and Z39.50 to meet the needs of services of 21st century.

11.3.2 JANET: The U.K. joint Academic Network and Superjanet

Established in 1984, JANET is the leading edge network serving the higher education and research community. In 1993, the broadband network SuperJanet was established to provide advanced services. Both these networks are interconnected and operated by the same agency, namely, UK Education and Research Networking Association (UKERNA) on behalf of the UK Higher Education Funding Councils. In the following sections, you will be introduced to JANET and SuperJANET.

Janet - History

JANET was founded in 1984 by the Computer Board for Universities and Research Councils. During the period 1984-March 1994, it was managed by the Joint Network Team (JNT), a unit located at the Rutherford Appleton Laboratory. Since April 1994, JANET has been managed by the JNT Association, which trades as UKERNA (the United Kingdom Education and Research Networking Association). UKERNA is a not-for-profit company established by the Higher Educational Funding Councils.

JANET links its users to the facilities available in over 250 institutions of UK and many more throughout the world. JANET has connected not only all universities in UK and many institutions connected with higher education but also organisations associated with academic work and research. In a sense, JANET is also regarded as a community of users, and when an organisation gets connected to JANET it gets benefit from the collective knowledge and experience of all the user community.

JANET is a private multi-protocol network offering a variety of network services such as

- * Electronic mail;
- * Interactive terminal access; and
- * File transfer

The primary means of connection is via an IP (Internet Protocol) connection. However, the network also supports X.25 and Open Systems Interconnection (OSI) protocols. It also offers a number of protocol conversion services to enable network users get access to all services on the network.

An organisation may get connected to JANET either as a primary (direct) or secondary (via a licensed primary institution) connection. JANET has established extensive links with international and other national academic networks, and to an increasing number of commercial and public networks. There is a 3.5 Mbit/s link to the NSFNET and other research networks in the US. This enables faster access for JANET users to services in the US and beyond. Also, there is a 2 Mbit/s link to the European Multiprotocol Backbone (EMPB).

JANET, well-known for its high speed and capacity, served as a good test-bed for new services. The speed of the individual connections in the network varies from 9.6 Kbit/s to 155 Mbit/s depending on the needs of the member institution.

JANET is not a public network. The staff and students are provided access to JANET at no direct cost. The network operation cost is borne by major funding agencies for academic research and teaching.

UKERNA

As we have already learnt in the previous sections, JANET is a multi-protocol network managed by UKERNA (the UK Education and Research Networking Association). In 1979, the Department of Education and Science constituted the Joint Network Team (JNT). The JNT was mainly instrumental in launching of JANET and SuperJanet as part of a major networking programme for the academic and research community. The staff of JNT moved over to UKERNA in 1994 and UKERNA was entrusted with the responsibility of continuing and expanding the already well established networking programme along with extending its services to other user groups.

The objectives of UKERNA are:

- * To take responsibility for the networking programme of the education and research community in the United Kingdom; and
- * To research, develop and provide advanced electronic communication facilities for use in that community and in industry;

Thereby facilitating the extension of many classes of trade through its own and the community's links with industry. UKERNA acts a liaising body with many European organisations and it has built up wide contacts with other similar organisations throughout the world.

The SuperJANET: The UK Information Highway for Innovation and Collaborative Research

The SuperJanet project was started in 1989. A pilot network was established in 1993 and data services commenced in 1994. The SuperJANET initiative has created a state-of-the-art national broadband network for the research and higher education community and its collaborating industry partners. As already stated, SuperJANET is being developed and operated by the UK Education and Research Networking Association (UKERNA). The final goal of Super JANET is to develop a large-scale multi-service network capable of transporting all forms of digital information including high quality video, colour images, audio and data. It provides a world class operational information superhighway for connecting all advanced research and development in the UK and in course of time to linkup with UK's partners in Europe and elsewhere.

SuperJANET had been initially funded mainly by the Joint Information Systems Committee of the UK Higher Education Funding Councils along with contributions from several other funding agencies. The Funding Councils are increasing the financial support to extend SuperJANET to all universities in the UK. The implementation of SuperJANET was the result of a successful collaborative programme with British Telecom (BT) for a four-year period. SuperJANET is regarded as a project of great significance as it occupies an important place in the practical development of information superhighways and has gained international recognition extensively. As a result, a number of equipment suppliers and IT companies are actively collaborating in this project.

It is expected that the UK industry could benefit from SuperJANET through the following ways:

- * By connecting to SuperJANET to explore, in collaboration with the UK academic and research community, the applications and frontiers of the Information Superhighway.
- * By joining in collaborative projects to develop equipment and services in the new communications and applications technologies; for example, Asynchronous Transfer Mode (ATM) and multimedia.

In some parts of UK, it is hoped that the telecommunications' suppliers will get contracts for establishment of Metropolitan Area Networks (MANs) connecting academic and research bodies and related industries. SuperJANET is expected to provide national interconnections for these MANs.

The two components of SuperJANET are:

- * A high performance data network based on the Internet Protocol (IP) serving 63 sites.
- * A 34 Mbps multi-service ATM network serving 14 sites.

The SuperJANET ATM network is being linked to the European ATM Pilot network to offer facilities for access to a wide range of ATM facilities and test beds in Europe. International access for the data network is offered through JANET's European and US connections, thereby getting

linked with Internet. SuperJANET will be part of the UK National Host that will offer services to support the European Framework IV Advanced Communication Technologies and Services (ACTS) research programmes and other relevant programmes.

SuperJANET is a private network managed by UKERNA on behalf of the higher education and research council community to further the aims and objectives of that community. A salient feature of this network is encouragement of industrial collaboration between the academic and industrial sectors.

Access to SuperJANET is provided at a prescribed fee and it varies depending on the bandwidth and the location of the connection point. Even commercial organisations are permitted to make use of SuperJANET services for their non-profit making activities and this has to be done in collaboration with one or more Higher Education Institution or Research Council establishment.

It is pertinent here to note a couple of other systems in UK which are rendering commendable services. Some of them are listed below:

NISS (National Information Service): It provides a focal point for the UK education and research communities to access information resources worldwide. In 1995, NISS started an extended Web-based service providing access for web browsers like Mosaic in addition to traditional telnet and PAD access.

BUBL Information Service: Earlier known as Bulletin Board for Libraries, it serves as a notice board for library and information science community providing information such as: news of forthcoming meetings, jobs, current research, contents pages and abstracts of over 80 library, information science and computing journals, directories, training guides and software. It provides easy access to Internet resources and services such as links to electronic journals and texts, OPACs and online databases.

BIDS (Bath Information & Data Services): Launched in 1991, this is the world's first national bibliographic database service for higher education. Almost all UK universities subscribe to this service.

Let us now know briefly about the organisations/agencies involved in development of networking in UK.

JISC (The Joint Information Systems Committee): This has funded JANET and several other information systems/services. Established in 1993, the JISC took over from the previous ISC and the Computer Board, and reports to the separate national Higher Education Funding Councils of the UK.

ISSC (Information Services Sub-Committee): This body is responsible for the JISC's Datasets and Information Services initiative.

UKOLN: the Office for Library and Information Networking: It was established to promote strategic thinking on the use of networks by the library community. Funded by the JISC and the British Library, UKOLN also provides computer support for BUBL and maintains the UK gopher national entry point.

11.4 INFORMATION SYSTEMS IN RUSSIA

11.4.1 VINITI (Vsesoyuznyi Institut Nauchnoi Tekhnicheskoi Informatsii)

The All Union Institute of Scientific and Technical Information (Vsesoyuznyi Institut Nauchnoi Tekhnicheskoi Informatsii) was founded in 1952 in Moscow. It is known throughout the world as VINITI. VINITI is managed by the USSR State Committee for Coordination of Scientific Research and the USSR Academy of Sciences (Moscow). It is regarded as the most prestigious organisation concerned with scientific and technical information of the Soviet Union. It serves as an information centre to provide latest information to the scientists, technical experts and entrepreneurs. The activities of VINITI can be classified into three groups:

- * Scientific information;
- * Research; and
- * Organisation.

VINITI is mainly responsible for the following:

- * Systematic and complete abstracting of the world literature in the field of natural sciences and technology;
- * Preparation and publication of a comprehensive abstracting journal, of review, bibliographic and reference literature and of specific information on subjects of current interest; and
- * The organisation and development of research projects aimed at improving the existing methods and equipment used in scientific information world.

For use of its Russian experts, VINITI acquires every printed document on exact, natural and technical sciences. Its collection includes Soviet and foreign titles, patents, specifications, monographs and collections of papers in 66 languages originating from 130 countries.

Since 1960, VINITI has been publishing Referativnyi Zhurnal, an abstracting journal dealing with natural and technical sciences and industrial economics. It is regarded as the most important and fundamental information service and covers 17000 foreign and 1300 Russian periodicals and more than one lakh patents. In addition, standards, specifications, reports and books are also covered. The abstracting journal is published in separate series covering various subjects such as Biology, Geology, Chemistry and Physics. In 1967 an English edition was also started.

Express Information Series (Ekspress Informatsia) is another service which publishes the abridged translations of articles, patents and other documents with relevant illustrations. It serves as a quick reference guide for latest developments. It is published in 69 series with 48 issues per year.

Achievements in Science and Technology (Itogi Nauki i Tekhniki) is an annual review being published since 1962 covering the progress achieved in 16 fields.

Signal Information Service (Signaluya Informatisia): This service, which began in 1968, is basically a current awareness titles service. It is offered in three areas: Automation and Radio Electronics; Physics and Chemistry.

VINITI has developed ASSISTANT (IE) (Avotomatiziravannaya Spravochno-informatsionnaya SISTema po Nauke i Tekhniki), an automated system for preservation and dissemination of documents. VINITI offers translation and reprographic services too. It actively collaborates with other international organisations such as UNESCO, UNIDO, IFLA, FID, ISO and International Council of Scientific Unions in R&D activities relating to information services.

11.4.2 SCIENTIFIC AND TECHNICAL INFORMATION CENTRE OF RUSSIA (abbreviated in Russian as VNTIC), Moscow

VNTIC is a nation-wide (that is, federal) information institution responsible for the maintenance of the complete all-Russia (before 1991 -- all-Union) fund for scientific R&D reports (projects) and dissertations (candidates and doctoral). All organisations engaged in state-funded scientific R&D should compulsorily deposit the documents produced by them in VNTIC. This has been made possible by the Federal Law of the Russian Federation, adopted by Russian Parliament and published on January 17, 1995.

VNTIC collection comprises of the following:

- * Human-readable full-text primary documents (reports and dissertations) stored on microfiches; and
- * Machine-readable secondary documents containing bibliographic descriptions and abstracts of the primary documents and stored in database structure to provide online information search and retrieval.

VNTIC is regarded as the original database generator. VNTIC has collected over 5 million documents in course of 25 years of its existence. These documents reflect state-of-the-art and main results of R&D activities undertaken in the former Soviet Union (FSU) and now in Russia covering all areas of universe of knowledge. The uniqueness of VNTIC collection is that the documents collected by it have not been published and circulated. Often, only two computer-written copies of a document are available -- one is with the author/source institution and the other goes to VNTIC. These documents are not available elsewhere including such famous Russia Institute for Scientific

and Technical Information (VINITI), International Centre for Scientific and Technical Information (ICSTI) and largest regional information centres.

VNTIC's collection is considered as an integral part of the national scientific and cultural wealth of Russia and has much value for both specialists and generalists. The services provided by VNTIC are:

- * Publication of VNTIC Abstracts Journals (complete 28 series in Russian and 10 series in English)
- * Partial database dissemination in machine-readable form on different subject areas.
- * Online and delay search database access.
- * Translation of abstracts of reports and dissertations into English and issuing the English language databases.
- * Publishing the Russian and English versions of the R&D organisation directories
- * Database on CD-ROM with Russian and English language documents.

11.5 INFORMATION SYSTEMS IN JAPAN

JICST (The Japan Information Center of Science and Technology)

JICST is the central organisation in Japan for provision of scientific and technical information services. Established in 1957, it gathers, processes and disseminates scientific and technical from not only Japan but also from other countries. It has a unique and comprehensive collection of Japanese information. JICST is regarded as the access point to one of the world's largest and most complete sources of scientific and technical information. It annually adds about 8,300 domestic serial titles and about 8,900 serials titles from foreign countries.

The main product of JICST is the JICST File on Science and Technology. It is considered as one of the world's largest source with about 9.7 million references. By extracting citations published in Japan from the JICST file, the English database (JICST-E) is also produced. JICST offers a variety of services through JOIS (JICST Online Information System) and STN (Scientific and Technical Information Network) with many other databases. It has photocopying and translation services too.

JOIS (JICST Online Information System) is the Japanese language online information system developed by JICST to provide easy access to the world's best scientific and technical information including the JICST File on Science and Technology, JMED (medical information) and JICST-E. Access to JOIS is provided through telephone networks.

STN International: The Scientific and Technical Information Network is an online system giving direct access to over 180 international scientific and technical databases. It is a non-profit making service and is offered jointly by the Chemical Abstracts Service (CAS), FIZ Karlsruhe and JICST. STN's databases contain bibliographic, structure, full-text and numeric files to help scholars get exact and up-to-the-minute information for undertaking quality scientific research. STN has three Service Centres to offer best possible service: Karlsruhe, Federal Republic of Germany; Columbus, Ohio, USA; and Tokyo, Japan. STN provides an almost unlimited information service for users throughout the world.

JICST produces the following files on STN International:

a) *JICST-Eplus* is an online database of scientific, technical and medical information published in Japan, including conference proceedings, technical reports, government documents, reports of research conducted by public and governmental organisations and material from about 9,000 journals and periodicals.

b) *JGRIP: The JGRIP File* (Japanese Government and Public Research in Progress) is a bibliographic database which covers the current ongoing and completed research projects from public research organisation in Japan.

JICST also offers SDI, retrospective and manual search, photocopy and translation services. Some of the publications of JICST are:

- * Current Bibliography on Science and Technology (CBST) published in 12 series (in Japanese).
- * JICST Scientific and Technological Thesaurus, 1993. (in English and Japanese)
- * JICST Scientific and Technological Classification Table, 1993. (in English and Japanese)
- * Current Science and Technology Research in Japan. Biannual. (in English and Japanese)
- * Journal of Information Processing and Management (JOHO KANRI) (in Japanese with English Abstracts)

11.6 LET US SUM UP

As we have seen in the previous sections, a number of major information systems/networks in US, UK, Russian and Japan are providing quick and easy access to information in various fields of universe of knowledge. These systems/networks have evolved as vital components of the global information infrastructure. They are going to play a key role in meeting the challenges and demands of information during the 21st century, popularly referred to as the Knowledge Millenium. Through their pioneering efforts in the application of information and communication technologies to library and information services, they had eminently succeeded in furthering access to the world's information resources.

11.7 ASSIGNMENTS

- 1) Access the web site of the National Library of Medicine at the following address and know latest developments regarding MEDLARS and the National Network of Libraries of Medicine:
HYPERLINK <http://www.nlm.nih.gov/> <http://www.nlm.nih.gov/>
- 2) Explore FedWorld Information Network, the US government's premiere electronic marketplace for information managed by NTIS, at its Web site: <http://www.fedworld.gov>
- 3) Blaise has gone on the Web. Visit the Blaise Web site and know what services it offers.

11.8 RECOMMENDED BOOKS

All About ERIC. Washington: Educational Resources Information Center, 1994.

The Changing Frontiers of Library and Information Science, by Syed Fazle Rab. New Delhi: Commonwealth, 1994.

Discovering RLIN: An Introduction to the Research Libraries Information Network, by Hilary Hannon. Mountainview, CA: The Research Libraries Group, 1992.

Handbook of Library Information Systems & Services, by J.K. Khanna. New Delhi: Beacon Books, 1996.

JANET 1995: A Library Overview, compiled by Peter Stone. 1995. (Pamphlet)

Library Information Technology and Networks, by Audrey N. Grosch. New York: Marcel Dekker, 1995.

Library, Scientific and Technical Information Services in the USSR, by Velaga Venkatappaiah. The Author, 1988.

The New British Library, by Alan Day. London: Library Association Publishing, 1994.

RLIN Focus (newsletter).

The Research Libraries Group News. (newsletter published three times a year)

Studies on Information Systems, Services and Programmes in India and Abroad, by Baman Parida. Delhi: Ajanta, 1993.

To the Next Stage of the Electronic Library: An Overview of OCLC's Products and Services. Ohio: OCLC Online Computer Library Center, 1994.

World Information Report 1997/98. Paris: Unesco, 1997.

Note: The best source for up-to-the-minute and authoritative information on various information systems/networks/programmes is the Internet and World Wide Web. To know latest and additional details regarding the contents of this Unit, you can visit the Web sites created by the organisations managing these information systems/networks/programmes. Also, a number of electronic journals on library/information networks are available on the Internet.

11.9 MODEL EXAMINATION QUESTIONS

I. ESSAY TYPE

- 1) "OCLC Online Computer Library Center occupies a pride of place among the library/information networks as the world's largest and most comprehensive database of bibliographic information." Elucidate with an overview of OCLC's products and services.
- 2) "BLAISE LINE is the key online information source for acquisitions, cataloguing, reference and interlending." Explain with relevant examples.
- 3) Outline the contribution made by ERIC in provision of education-related information.
- 4) Describe the role played by JANET and SuperJANET in improving services provided for higher education in the UK to libraries and their users.

II. SHORT NOTES

- a) VNTIC: The Scientific and Technical Information Centre of Russia
- b) JICST: The Japan Information Center of Science and Technology
- c) National Network of Libraries of Medicine
- d) National Technical Information Service (NTIS)

UNIT - 12 : INFORMATION SYSTEMS AND PROGRAMMES IN INDIA

Structure

12.0 Aims and Objectives

12.1 Introduction

12.2 Documentation/Information Systems and Programmes in Science & Technology

12.2.1 INSDOC ✓

12.2.2 DESIDOC ✓

12.2.3 SENDOC

12.2.4 NCSI

12.2.5 Others Information Systems

12.3 Information Programmes in Social Sciences

12.3.1 NASSDOC ✓

12.3.2 Centre on Rural Documentation (CORD)

12.3.3 SNDT Women's University Documentation Centre

12.3.4 Need for Information System in Social Sciences

12.4 Information Programmes in Humanities

12.4.1 Councils, Academies and Societies in Humanities

12.4.2 Need for National Documentation Centre

12.5 Information Systems in India

12.5.1 NISSAT ✓

12.5.2 BTIS

12.5.3 ENVIS

12.6 Let Us Sum Up

12.7 References and Recommended Books

12.8 Assignment

12.9 Model Examination Questions

12.0 AIMS AND OBJECTIVES

This unit aims to provide an overview of the information systems and programmes in India in various disciplines as well as various non-disciplinary subject areas.

After studying the unit, you should be in a position to

- discuss various information systems and programmes in Science and Technology in India
- explain the information programmes in Social Sciences and Humanities and also non-disciplinary subject areas.

12.1 INTRODUCTION

Documentation/Information centres provide access to the specialist users the current literature and nascent information to support their research activity. In India, we have documentation/information centres in the subject areas of science, defence, small industries, rural development, etc. Documentation/ Information centres have been established in various organisations to support R & D activities. These national centres are mission-oriented and are responsible for organising and providing information activities and services at the national level.

12.2 INFORMATION SYSTEMS AND PROGRAMMES IN SCIENCE & TECHNOLOGY

After Independence, there has been a continuous increase in the research activities of science and technology in India. To support these activities a number of information institutions have been established. In this section we will have an overview of these information systems and programmes in science and technology.

12.2.1 Indian National Scientific Documentation Centre (INSDOC)

The Indian National Scientific Documentation Centre (INSDOC) was established in New Delhi in 1952 under the aegis of Council for Scientific and Industrial Research (CSIR) by Government of India in cooperation with the UNESCO for providing a full range of documentation services to the existing and projected national laboratories, scientific and technological institutions, universities, industries, etc.

• The major objectives of INSDOC are:

- i) To receive and retain all scientific periodicals required in India
- ii) To inform scientists and engineers of literature which may be of value to them by issuing a monthly bulletin of abstracts

iii) To answer specific enquiries from information available at the centre

iv) To supply photocopies/translations of articles required by laboratories of individual workers

v) To be a national depository for reports of the scientific work of the nation, both published and unpublished

vi) To be a channel through which the scientific work of the nation is known and available to the rest of the world.

Over the years, the INSDOC has diversified its activities and has undergone through various phases of development. The phases of development of INSDOC have been identified into four.

Phase-1 (1952 - 1963) : The INSDOC remained under the administrative control of the Director of the National Physical Laboratory with a limited range of activities like organising a special training programmes in scientific documentation and conducting of a UNESCO-sponsored seminar.

Phase-2 (1963 - 1969) : With appointment of a full-time Director, a number of planned activities were taken up, like starting of Indian Science Abstracts; compilation of a series of catalogues of serial holdings of major libraries in the country; establishing regional centre of INSDOC at Bangalore; starting of postgraduate level training programme in documentation; etc.

Phase-3 (1969 - 1989) : Despite being at the disadvantage of a full-fledged Director not appointed, the Centre could take up the publication of National Union Catalogue of Scientific Serials in India (NUCSSI); starting of regional centres at Calcutta and Madras; shifting of the centre to new National Science Library building; etc.

Phase-4 (1989 -) : With the appointment of a full-pledged Director, the Centre has ushered into a modern outlook by introduction of information technology in its information services and products.

Organisational Set up

The activities of INSDOC are carried out under the general direction of an Executive Committee. There are a number of committees to advise the Executive Committee on different matters. The Library and Documentation Committee, Translation Services Advisory Committee, Reprography Services Advisory Committee, Information Retrieval Advisory Committee, etc are constituted every two years to advise INSDOC on matters relating to its functioning.

In the initial stages, the technical work of INSDOC was organised under five sections: 1) Documentation Service Section, 2) Translation Section, 3) Documentation Work Section, 4) Photography Section, and 5) Printing Section.

Documentation and Information Services

INSDOC provide a number of documentation and information services. The services are used by the R&D organisations, universities, industrial establishments, government departments and individual scientific workers. The major services provided INSDOC include document copy supply service, bibliography compilation service, translation service, reprography service and printing service.

Document Copy Supply Service : INSDOC provides photocopies of scientific papers and reports to the scientists and technologists on request. The copies are taken from the holdings of the INSDOC's own National Science Library and other major libraries in the country.

Bibliography Compilation Service : INSDOC provides compilation of ad-hoc bibliographies on specific topics. This service has been availed by small organisations and individual research workers.

Information Services : INSDOC provides answers to technical enquiries which are normally fact-finding type.

Translation Service : INSDOC has been offering English translations of scientific papers in foreign languages for R & D workers in India. The Centre uses the services of the Indian scientists who are having expertise in foreign languages and it has facilities for translating articles from 20 foreign languages.

Reprographic Service : The Reprographic Section of INSDOC has full range of reprographic services. It has equipment for microfilms, microfiche, slide-making and photocopying.

Printing Service : The publications of INSDOC, the CSIR and its other establishments are composed and printed at the Printing Section of the INSDOC.

Regional Centres of INSDOC are functioning at Bangalore, Calcutta and Chennai to provide information services to the user community scattered in various parts of the country. The Regional Centres help in mobilising the resources available in major cities/regions for supporting the document copy supply service.

Major Projects and Activities

(i) *INSDOC List* : The publication of INSDOC List of Current Scientific Literature was started in 1954 as a current awareness periodical (fortnightly) covering over 650 important S&T periodicals. INSDOC List ceased publication in 1965. Recently, INSDOC introduced a new service called CAPS - Contents, Abstracts and Photocopy Service. It is an SDI Service with back-up document copy supply.

(ii) *Publication of Indian Science Abstracts* : The publication of Indian Science Abstracts was started by INSDOC in 1965 as a monthly and now it is published as a fortnightly. It is a systematic record of national S&T literature output.

(iii) *National Science Library (NSL)* : The National Science Library (NSL) has been functioning at the INSDOC since 1964. The Library aims to have at least one copy of every worthwhile scientific publication published in the country. Its collection building programme emphasises periodicals collection, conference proceedings, reference works, state-of-the art publications, reports and theses. There are two main criticisms against NSL - (a) it does not have direct readership, and (b) There has never been any weeding since its inception.

(iv) *National Union Catalogue* : A series of catalogues of serial holdings of major libraries in the country were published as a prelude to the union catalogue of scientific serials in India. The National Union Catalogue of Scientific Serials in India (NUCSSI) was published in four volumes. It covered 35000 serials in more than 836 libraries. The NUCSSI is continually updated and presently available on CD-ROM.

(v) *On-line Access to Databases* : INSDOC has now online access to national and international databases on scientific literature and offers new range of services.

(vi) *AIS Training Course* : INSDOC started the postgraduate level training programme in documentation and information services in 1964 and now changed its nomenclature as Associateship in Information Science (AIS).

(vii) *Other Activities* : INSDOC has taken up a wide range of activities and services, like creation of databases, offering short-term courses in computer applications, assignment of ISSN, installation of e-mail, development of library application software, electronic imaging of manuscripts, patent watch service, bibliometric services, promotion of metropolitan library networks, etc.

Future Plans

With the market potential for the information services, INSDOC now trying to reframe its primary objectives conceived in 1952 as well as its services. It proposes to bring out innovative information products and services to meet the challenges of IT environment.

12.2.2 Defence Science Information and Documentation Centre (DESIDOC)

DESIDOC was started under Defence Research and Development Organisation (DRDO), Ministry of Defence, Government of India in 1958 as Scientific Information Bureau (SIB). In 1967 the SIB was reorganised and it became DESIDOC. In 1967, DESIDOC was declared as a self-accounting unit and came under DRDO, headed by a Director. The Documentation Centre serves information needs of DRDO laboratories/establishments which are located at different stations and work on various defence R & D projects.

The main objectives of DESIDOC are

-- to provide information to the units at the headquarters, the laboratories/establishments of DRDO and other agencies of the Ministry of Defence and coordinating scientific information programmes of DRDO.

- to develop a databank and an information system for defence science and technology
- to carry out R & D work in scientific information and provide training and consultancy services to Technical Information Cells and other defence organisations
- to provide translations and reprographic facilities and publish scientific and technical journals of the DRDO including books and monographs.

The DESIDOC has been organised into three divisions/groups - Library, Information Services and Information Dissemination. The Library Division looks after the acquisition and organisation of books, periodicals, technical reports, standards, etc. The library collection exceeds 2 lakhs books and 500 current periodicals. It provides a number of library/information services.

The Information Services Group provides up-to-date project-oriented information to the Defence R & D scientists. A computer-based information processing and dissemination system has been developed. An in-house software package called DRDO-IRS has been developed for information retrieval and providing SDI service.

The Centre has been providing Translation and Reprographic facilities. Translation services are provided in some of the major languages (French, German, Japanese and Russian). A Translation Bank has been set up to collect translations available in other R & D establishments of DRDO. The DESIDOC Transindex is an annual index of translations available with DESIDOC.

The Centre has facilities for microfilming, document lamination, slide-making and projection, audio/video recording, printing, etc.

DESIDOC has compiled a *Directory of Defence Laboratories/ TICs in India* and also the union catalogues of patent holdings and periodical holdings of DRDO laboratories. The publications of DESIDOC include *R & D Digest* (Bimonthly) *Defence Science Alerts* (Monthly) *Popular Science and Technology*, *DESIDOC Bulletin*, *DRDO Newsletter*, etc.

DESIDOC has gained necessary expertise for developing computerised information systems. It has developed a software package, namely, DELMS for library house-keeping operations. The INFLIBNET has modified this package as ILMS to suit the university libraries in the country. Another application software package was developed on the platform of CDS/ISIS, called SANJAY, was developed in collaboration with NISSAT.

DESIDOC uses extensively various online and CD-ROM databases available in India and abroad for information services. The Centre has facilities for on-line searching of databases through DIALOG since 1984. Presently, the Centre has been contemplating to form a network for Defence R & D laboratories and establishments, named Defence Science Information Network (DESINET).

12.2.3 Small Enterprise National Documentation Centre (SENDOC)

SENDOC was set up by the National Institute of Small Industries Extension and Training Institute (NISIET), Hyderabad in 1979. Since its inception SENDOC has been providing documentation / information services to the new entrepreneurs of small scale industries.

The library of SENDOC has a good collection of 50,000 books, 23,000 technical reports, 3000 project profiles, 2000 standards, 12,000 techno-economic reports, etc. The library also receives 1000 current periodicals. It provides information support for all feasibility studies carried out by entrepreneurs on small scale industries at the host institution.

The services and activities are

- i) Anticipatory and responsive documentation service by bringing out several publications like SENDOC Bulletin, SENDOC Chronicle;
- ii) Personalised SDI services based on interest profiles of individual clients;
- iii) Compilation of status of technology reports;
- iv) A technical enquiry service;
- v) Document copying service.

In all the training courses, workshops, seminars, etc for small scale industries, the SENDOC participates in the special sessions devoted to the use of information services. SENDOC offers two post-experience training programmes on information storage and retrieval one for Indian participants and the other for the foreign participants. It also offers training programmes on CDS/ISIS.

12.2.4 National Centre for Science Information (NCSI)

A Science Information Centre was set up in June 1983 at the Indian Institute of Science (IISc), Bangalore with the financial support from University Grants Commission (UGC). Later it became the National Centre for Science Information (NCSI). The main objective of the Centre is to provide an upto-date abstracting service in subjects areas, like physics, chemistry, mathematics, biology and geology for creating current awareness among the researchers working in Indian universities and colleges.

In the first five years of its establishment, the Centre used to acquire regularly the prominent databases on magnetic tapes to provide current awareness service to researchers in the five subject areas. The databases acquired by the Centre were INSPECT (Physics), BIOSIS (Biology), GEOREF (Earth Sciences), MATHSCI (Mathematics), and CA SEARCH (Chemistry). As the databases started available online and also as CD-ROMs, the Centre started exhaustive search facility through

DIALOG Information Services and subscribing to Current Contents on Diskette (CCOD), MEDLINE, NTIS and COMPENDEX. With the emergence of national and global networks, NCSI started restructuring its information services. Information services are thrown open to all categories of users on cost-basis. The Centre also provides short-term training programmes as well as an advanced level one-year training programme on computer applications and networking.

12.2.5 Other Information Systems in Science and Technology

In the area of science and technology, two more major disciplines need major attention in India as far as their information activities are concerned. They are agriculture and medicine.

Under the Indian Council of Agricultural Research (ICAR), there are a number of agricultural research institutions, project directorates, Krishi Vignan kendras, etc. These may be around 300. There are also about 100 agricultural colleges affiliated to 26 agricultural universities. These institutions have good library and documentation facilities of their own. The library of IARI has a wide range of collection on agriculture and related subject areas and uses modern technology. This library was designated as National Agricultural Library of India. In 1967 ICAR set up the Agricultural Research Information Centre (ARIC). This centre functions as a national input centre for AGRIS and CARIS of FAO. For providing a fullpledged information support to research on agriculture and fields a plan was drawn to develop an Agricultural Research Information System (ARIS), which has to take a shape.

Information activities/programmes in the field of medicine and allied areas in India are organised by National Medical Library (NML) and ICMR-NIC Centres. The National Medical Library has a good collection of about 3 lakh books and over 2000 current periodicals. The library provides a number of library/information services, including MEDLINE and POPLINE search services. Indian Council of Medical Research (ICMR) explored the possibility of developing a Medical Information System in 1985. With the collaboration of NIC, the ICMR-NIC Centre for Biomedical Information was set up for providing MEDLARS information services in India. NIC obtains MEDLARS database on tapes and are made available through NICNET. However, there is long felt need for establishing National Medical Information System/Network in India on the lines of MEDLARS and MEDLINE of USA.

12.3 INFORMATION PROGRAMMES IN SOCIAL SCIENCES

Social sciences is a vast field embraces a large number of disciplines. These disciplines basically deal with the relationship of man with society. The study of social sciences provide an understanding socio-cultural, political and economic processes in a society. The International

Encyclopedia of Social Sciences included the subjects - anthropology, linguistics, economics, business management, geography (excluding physical geography), history, law, political science, public administration, international relations, psychiatry, psychology, sociology, criminology, demography and statistics under social sciences.

The librarians and information personnel need to understand the nature of information sources, systems and services in the area of social sciences as the social science information plays a prominent role in national development.

12.3.1 National Social Science Documentation Centre (NASSDOC)

The Indian Council of Social Science Research (ICSSR) was established in 1969 for strengthening and coordination of social science research at the national level. Social Science Documentation Centre (SSDC) was set up in 1970 and later renamed it as National Social Science Documentation Centre (NASSDOC). The aim of the Centre is provide information and documentation support to the national level social science research activities.

The major objectives of NASSDOC are to sponsor and promote research in social sciences and to facilitate its utilisation. The following programmes and activities are set out for this purpose:

- i) The building up of a collection of reference materials and referral services;
- ii) Collection of unpublished theses approved by the Indian universities, and research reports of the projects undertaken by the ICSSR and other social science research institutions assisted by the ICSSR;
- iii) Establishment of duplicating, reprographic and micro-filming units;
- iv) The making of effort for bibliographic control over social science materials;
- v) Providing of select bibliographies on request; and
- vi) The awarding of study grants to scholars for working at libraries of their interest.

NASSDOC has a good library collection, which includes 100000 back volumes of periodicals, 3000 current files, 2500 doctoral dissertations, 2000 research project reports, etc. It has also a good reference collection on social sciences, women studies, research methodology, etc. The Centre includes a reading room, duplicating and reprographic unit and computer unit. It provides the following services to patrons in order to ensure access to and for optimum use of published and unpublished materials and also equipment available.

Inter-Library Resource Centre : The Resource Centre was set up in 1975 at Delhi. It deposits government reports, journals, newspapers, serials and other research materials from 38 local libraries.

Information Products

NASSDOC has undertaken to produce a number of information products. The following are the important ones:

1) *Mahatma Gandhi Bibliography* : Mohandass Karamchand Gandhi: A Bibliography was the first volume in the series covering monographs in English was released in 1974. This was followed by volumes covering monographs in Bengali, Hindi, Sanskrit and Urdu.

2) *Union List of Social Science Periodicals* : The union lists of periodical holdings in social science subjects of four states/ cities (ie. Andhra Pradesh, Bombay, Delhi and Karnataka) were compiled in 1971-72. This is followed by compilation of Union Catalogue of Social Science Serials in 17 states and two union territories during 1972 and 1976. In this second project 31,125 serials and periodicals available in 550 libraries and published in 32 volumes. The Union List of Social Science Periodicals - Delhi has been updated during 1978 and 1989. The latest list is computerised and it contains 4771 current titles available in various libraries of Delhi.

3) *Union Catalogue of Newspapers in Delhi Libraries* : This union catalogue contains 252 newspaper titles from 35 major libraries and newspaper offices in Delhi.

4) *Retrospective Cumulative Index of Indian Social Science Periodicals* : Under this project NASSDOC brought out the following discipline-oriented index volumes:

i) Indian Education Index (1947 - 1978)

ii) Index to Indian Periodicals - Sociology and Psychology (1886-1970)

iii) Area Studies Bibliographies

5) *India in 2000 A.D.* : The bibliography, published in 1991, covers 647 selected references with abstracts of monographs and articles.

6) *Research Information Series* : NASSDOC compiled over 100-odd bibliographies in various subject areas. The important ones are

- Bihar : A Select List (1991)

- Maharashtra : A Select List (1991)

- Bibliography on Public Finance (1989) - 2 vols

7) Language Bibliographies:

8) National Register of Social Scientists in India Serial Publications

NASSDOC has been bringing out the following publications:

- *Acquisition Update* (Half yearly)
- *Bibliographic Reprints* (Irregular)
- *Conference Alert* (Quarterly)
- *Current Contents of Indian Social Science Journals* (Q)

NASSDOC is the national contact point (NCP) of Asia-Pacific Information Network in Social Sciences (APINESS). The machine readable database of APINESS is located and made available at NASSDOC. The Centre also brings out The *APINESS Newsletter*.

12.3.2 National Social Science Information Centre (NASSIC)

The National Social Science Information Centre (NASSIC) is a UGC-sponsored information centre was set up at Maharaja Sayajirao University of Baroda, Baroda. Since 1991, the Centre has been providing information services to the researchers and students in the subject fields of economics, education, psychology and related areas. The collection running over 2 lakh documents at the M.S. University Library is used for the information services. The Centre brings out an indexing service, namely, *Information Today*, covering articles and editorials in various newspapers.

12.3.3 Centre on Rural Documentation (CORD)

Centre on Rural Documentation (CORD) was established during the sixth Plan at the National Institute of Rural Development (NIRD), Hyderabad. The Centre acts as a clearinghouse of information on rural development at national and international levels. It provides information dissemination service through *CORD Bulletin* (Current Awareness Service), *CORD Abstracts* (Abstracts of empirical research) and *CORD Accessions* (lists of new additions to CORD Library). It also provides responsive documentation service and Selective Dissemination of Information (SDI) service. Photocopies of documents listed in *CORD Bulletin* and *CORD Abstracts* are provided against payments.

CORD also organises post-experience training programme for people involved in handling information on rural development.

12.3.4 SNDT Women's University Documentation Centre

The SNDT Women's University Documentation Centre was started as a small informal information cell and developed into a full-fledged Reference Library and Documentation Centre in 1982. The Centre provides documentation/information services in Gujarathi and Marathi languages, besides English language.

The major activities of the Centre include - Compilation of bibliographies, Reference and Inter-library loan services, Abstracting and Indexing services, Selective Dissemination of Information service, Photocopying services, etc.

The Documentation Centre has also brought out a number of information products, such as directories, union catalogues, statistical publications and archival products.

12.3.4 Need for Information System in Social Sciences

Despite the large number of organisations working in the field of social sciences, the varied nature of social science information and their sources, wide-spread information centres we could not able to establish an information system in this area. The need for social science information has been felt and discussed in various seminars/conferences at the national level. It is the right time refocuss our attention for developing an information system in the IT-based environment.

12.4 INFORMATION PROGRAMMES IN HUMANITIES

Humanities is a branch of knowledge which encompasses the subjects other than natural sciences and social sciences. It devotes to the subjects that stress human values and expresses the spirit of man in the form of literature.

The US Congress in the Law, while establishing the National Endowment for the Humanities declared that the term "humanities" includes, but is not limited to the study of the following: language, both modern and classic; linguistics; the history, criticism, theory and practice of the arts; and those aspects of the social sciences which have humanistic content and employ humanistic methods.

The University Grants Commission (UGC) in India has included the subjects such as classical languages, modern languages, English and foreign languages, linguistics, philosophy, history, art history and museology under the purview of Humanities.

The term 'Human Sciences' was used for Humanities by the 19th century philosopher, Wilhelm Dilthey. However, the term 'Humanities' remained more popular than Human Sciences.

12.4.1 Councils, Academies and Societies under Humanities

In this section of this unit we will learn about the major organisations and institutions in India rendering their various programmes / activities towards the provision and dissemination of information in humanities. These bodies may include broadly various councils, academies, societies, etc.

1) History and Culture

Indian Council of Historical Research (ICHR), New Delhi

The ICHR is an autonomous body established by Government of India with an objective of promoting research in the field of history. It provides grants for doctoral theses, research project, historical journals and for bibliographical and documentation work. The Council also organises and supports seminars, workshops and conferences for promotion of historical research in India. To facilitate historical research in India, the Council compiles and publishes source material, and also makes them available to the teachers and researchers. Under this programme, the Council has undertaken the major project of compiling a series of source material on the freedom movement in India, entitled Towards Freedom. The Council publishes ICHR Newsletter and a journal The Indian Historical Review (biannual).

Indian Council of Cultural Relations (ICCR)

The ICCR was established with an objective of strengthening the cultural relations of India with other countries. It promotes Indian culture through exchange of personnel, encourages research by instituting research fellowships, holding exhibitions, seminars, conferences, etc. To promote international understanding the Council has instituted Jawaharlal Nehru Award and organises Maulana Azad Memorial Lectures. The Council has a good library with various manuscripts, rare books in Indian, Oriental and European languages. Indian Horizons, Africa Quarterly are the journals published by the Council.

Indian Institute of World Culture (IIWC), Bangalore

The Institute was established with the aims - i) to provide opportunities for cultural and intellectual development, ii) to promote exchange of thought between India and other countries, and iii) to raise the consideration of national and world problems to the plane of moral and spiritual values, and iv) to poster a sense of universal brotherhood.

(2) Philosophy and Religion

Indian Council of Philosophical Research (ICPR) :

The ICPR is a research organisation which conducts research in Indian and Western philosophies. The library of the Council has a good collections of documents philosophy and related disciplines. It also compiles subject bibliographies and provides current awareness services for its members. Journal of the Indian Council of Philosophical Research (JICPR) is the official organ of the Council.

There are also a number of academies and organisations promoting research on philosophy and related areas. Some of them include:

Academy of Comparative Philosophy and Religion;

Adi Sankara Advaita Research Institute;

Radhakrishnan Institute for Advanced Study in Philosophy; Vedanta Life Institute, etc.

These institutes bring out research literature, especially, on Indian philosophy and related areas.

(3) Fine Arts and Music

Lalit Kala Akademi, New Delhi

The Academy is established in 1934. It is now an autonomous body and financed by government. It sponsors national and international exhibitions such as the National Exhibition of Art (annually) and Triennale-India. The Academy also arranges seminars, lectures, films, etc. Lalit Kala, an annual ancient art journal published by the Academy.

Sangeet Natak Akademi, New Delhi

The National Academy of Music, Dance and Drama was established in 1953 for the development of dancing, drama and music. It maintains a museum of musical instruments, costumes, masks, puppets, etc. and provides financial assistance to music, dance and drama. The Academy has a good library with a collection of documents on the performing arts, films, tapes and photographs. It publishes SNA News Bulletin (quarterly) and Sangeet Natak.

Indira Gandhi National Centre for Arts (IGNCA)

The main objective of this national centre is to make Indian citizens aware of their cultural heritage. For this purpose the Centre has created a national databank on Arts, Humanities and Cultural Heritage of India. The centre has also created a number of databases on art objects, sound recordings, exhibits, etc. *Kala Nidhi*, a national information system and databank on the arts, humanities and cultural heritage serve as a resource centre for research. The library of IGNCA has a good collection of manuscripts, rare books and several personal collections. There are six sections in the Division of Cultural Archives of 'Kala-Nidhi', namely *Sahitya* (Literature), *Vastushilpa* (Visual Arts), *Chaya Pata* (Photographs), *Sangita* (Music), *Nritya* (Dance) and *Natya* (Theatre).

(4) Languages and Literature

Sahitya Akademi / National Academy of Letters

The Sahitya Akademi was established in 1954 at New Delhi. Its main objectives are - the development of Indian literature, coordination of literary activities in the Indian languages, and research in Indian languages and literature. Thus, the Academy aims to meet the challenges of multilingual society and promote cultural unity of the country. It also promotes cultural exchanges with that of other countries. The Academy has undertaken a number of publication activities, especially literary and biographical works. *Who is Who of Indian Writers*, *Bibliography of Indian*

Literature, Indian Literature (English Journal), Dictionaries and Encyclopedias on Indian languages, etc. are the major publications.

Central Institute of Indian Languages (CIL)

The CIL was set up by the Government of India at Mysore for the development of Indian languages through interlinguistic research. The library of CIL provides bibliographic services and current awareness services to scholars. A proposal has been mooted to set up a National Information Centre for Indian Languages at this Institute with a database for Indian linguistics.

Central Hindi Directorate

The Central Hindi Directorate was set up at New Delhi in 1960 under the Department of Education, Ministry of Human Resources Development, Government of India. Its objective is to promote the use of Hindi. The activities of the Directorate include preparation and publication of bilingual and trilingual dictionaries of Indian and foreign languages; teaching of Hindi by correspondence courses to Indians and foreigners and support extension courses. Bhasha (monthly) and Unesco Doot (monthly) are its major publications.

Central Institute of English and Foreign Languages (CIEFL)

The CIEFL was set up at Hyderabad in 1958 to promote the studies in English and foreign languages and their literature. It provides courses of study at different levels for study in Arabic, French, German, Russian and Spanish languages and their literature, besides English. Now, the Institute is a deemed university. The library of Institute (Ramesh Mohan Library) has emerged as an important national resource centre for English and other major international languages and their literatures and provides literature search, current awareness services, document delivery services, etc. CIEFLDOC, an indexing service provided by the library of the Institute.

(5) Language-based Universities

A number of language-based universities have been established in the country under Universities Grants Commission (UGC). Most of these universities have been promoted by the State Governments to promote the language and literature of their respective official languages. For example, Telugu University, Tamil University, Dravidian University was established at Kuppam (Andhra Pradesh) under the collaborative effort of three States, namely, Andhra Pradesh, Tamil Nadu and Kerala. Sanskrit University (Kerala) and Maulana Abdul Kalam National Urdu University (Hyderabad) are the other language-based universities. These universities promote research and publications in their respective languages and literatures.

(6) Archives and Museums

Archives preserve the government records, whereas museums collect and display objects illustrating art, history, science, etc. The records of the Central Government are preserved in the National Archives of India (NAI), while the records of the state governments are kept in their respective State Archives.

National Archives of India was set at New Delhi in The National Archives has procured a number of records regarding India, especially British rule, from India Office Library (London). Papers of the Governor Generals, private papers of important leaders, old newspapers, etc are preserved in the form of either files or microfilms. The library of the National Archives has a rich collection of rare books, manuscripts, newspapers, etc

Indian Museum (Calcutta) is the largest and oldest museum in India. A rich collection of objects relating to Art and Archeology help the scholars undertaking research studies. The Museum holds lectures, seminars, etc. and publishes Museum Bulletin.

There a number of other prominent museums in India preserving the cultural heritage of India. These include National Museum (New Delhi), Nehru Memorial Museum and Library (New Delhi), etc.

12.4.2 Need for Setting up Humanities Documentation Centre and Humanities Information System and Network

In India, we have documentation centres like INSDOC for sciences, DESIDOC for defence studies, NASSDOC for social sciences, SENDOC for small-scale industry and CORD for rural development. However, no such documentation centre at the national to cater to the needs of researchers and other users working in the field of Humanities. Need for setting up a national documentation centre in humanities has been felt by many scholars and librarians. There have been several proposals from the experts as well as librarians to consider a national institute/body to coordinate information activities of different academies, societies and centres in the field of humanities and ultimately to develop that into an information system or network for humanities information. Among the institutions suggested for coordinating the information activities as an apex body are - Central Institute of English and Foreign Languages, Central Hindi Directorate, Sahitya Akademi, Telugu University, etc.

The Special Interest Group on Humanities (SIG-H) of Indian Association of Special Libraries and Information Centres (IASLIC) has emphasised the need for setting up Indian Council of Humanities Research (ICHR) and a National Documentation Centre for Humanities to promote research in the field of humanities.

12.6 INFORMATION SYSTEMS IN INDIA

We have examined in the previous sections that there are no information systems in social sciences and humanities at the national level in India. The National Information Systems in the field of Science and Technology, Biotechnology and Environment Sciences have attained the pride of the country. In the following sections we will examine their origin, structure and activities.

12.6.1 National Information System in Science and Technology (NISSAT)

National Information System in Science and Technology (NISSAT) was prompted by the need for building up a strong national network of documentation and information services to meet the expanding requirements of scientists and research workers spread out in the various states of the vast Indian sub-continent.

The establishment of NISSAT was based on the UNESCO Mission Report prepared by Dr. Peter Lazar during March - April 1972. An extensive exercise carried out by the National Committee on Science and Technology (NCST) for the formulation of a comprehensive Science & Technology Plan for 1974-79. A theme paper on NISSAT was presented at a Regional Seminar held in New Delhi in May 1973. Department of Science and Technology (DST) was identified as a nodal agency for promoting it. The proposal was approved by the Planning Commission of India in June 1977 for implementation by DST.

The Information System aims at fulfilling the following objectives:

- Provision of national information service relevant to present needs;
- Optimum utilisation of existing information services and systems and the development of new ones;
- Promotion of national and international cooperation and liaison for exchange of information;
- Development of information manpower for the implementation of national science information policy;
- Supporting research in the field of research in information science and scientific communication;
- Supporting Research and Development in information technology.

The Underlying Concepts

The NISSAT works on three underlying concepts: (1) Building on existing facilities, (2) Emphasis on Information content, and (3) Commercialisation of Information services. With these basic principles the activities of NISSAT are oriented primarily to strength the existing information

infrastructure by integrating and coordinating the available services and activities by seeking active cooperation of individual information centres located in universities, government departments, and R & D organisations. Weak links and gaps would be identified for strengthening them for establishment of new services. Duplication of facilities would be avoided. Secondly, NISSAT emphasises on *Information Content - Its development and utilisation*. For this NISSAT utilises its various training programmes, workshops, seminars and its annual meets, namely, *Information Today and Tomorrow (ITT)*, to propagate and promote the importance of development of information content. Finally, as Information services involve considerable expenditure to acquire, organise and distribute, the services and products of NISSAT are now made fee-based.

Components of NISSAT

The Components of NISSAT structure are

- i) The NISSAT National Focal Point located in the Department of Science and Technology (DST); and
- ii) The NISSAT network of services.

The NISSAT National Focal Point is advised and guided by the NISSAT Advisory Committee, the Executive Committee and other ad-hoc groups. The National Focal Point also interacts with UNESCO's General Information Programme (PGI).

The NISSAT network of services consists of (i) the Sectoral Information Centres (SICs) and the Local Information Units (LICs); (ii) Regional Information Centres (RICs); and (iii) Other specialised supporting services.

Sectoral Information Centres (SICs)

The SICs are established on the basis of a product, discipline or a mission. The SICs provide bibliographic, factual and numeric information to meet the various needs of academics, scientists, technologists, decision-makers, etc. They use the existing resources and facilities available in the host institutions. They also maintain extensive collections of published and unpublished literature, books, periodicals, standards, patents, etc in their respective subject areas. The SICs are already in operation in the areas like steel, leather, food technology, drugs and pharmaceuticals, machine tools, etc.

The details of the Sectoral Information Centres of NISSAT are provided in a tabular form in Appendix 1.

The SICs perform more or less the following activities:

- Building up comprehensive collections of documents, special material relevant to subject area;
- Conduct literature searches, compile select bibliographies

- Generate current awareness services; and offer SDI service
- Provide Industrial and technical enquiry services;
- Offer referral, translation and reprographic services;
- Maintain comprehensive databases/databanks and also provide access to international databases;
- Provide reprographic and micrographic services;
- Conduct user education and in-house training programmes;
- Equipped with e-mail and Internet connectivity through VSNL, ERNET and NICNET.

Some of the SICs also bring out serial publications of digests, indexing and abstracting services and news bulletins. Some publish these services as CD-ROM databases. For example,

(1) The database of NICMAP has been converted to a commercial CD-ROM product-MTECH, published by Informatics India Ltd., Bangalore.

(2) NICFOS provides Indian inputs to international Food Science and Technology Abstracts (FSTA) database. NICFOS is also available in CD-ROM version.

(3) NICMAP provided expert consultancy to the African Regional Centre for Engineering Design and Manufacturing (ARCEDEM), Nigeria.

NISSAT Support to Library Software and other IT Activities

NISSAT acquired Unesco-developed software packages like CDS/ISIS for bibliographic information processing and retrieval and IDAMS for statistical data processing. It has obtained official rights for distribution of these packages in India. NISSAT in collaboration with DESIDOC developed SANJAY a software package for library house-keeping operations and services. Efforts are also made to acquire several software packages and distribute them to libraries in our country.

NISSAT Support to Metropolitan Library Networks in India

NISSAT has been supporting the setting up general infrastructural facilities like network service centres. The participating institutions of networks have to arrange their hardware, software, manpower and develop their databases. NISSAT extends support for training, development of standards, data conversion, etc. The NISSAT sponsored Metropolitan information/library networks are BONET, CALIBNET, DELNET, MYLIBNET, PUNENET, etc.

Value-added Patents Information Systems (VAPIS)

NISSAT has established a Value-added Patent Information System (VAPIS) at the following two centres:

- (1) The National Chemical Laboratory (NCL), Pune on chemistry and chemical technology
- (2) The Central Manufacturing Technology Institute (CMTI), Bangalore on all aspects of engineering.

The centres add value to the patent information by analysing the contents of patents. Also prepare trend reports, making forecasts, identifying technological alternatives, research areas and business opportunities.

NISSAT Access Centres to International Data Services (NACIDS)

NISSAT established Access Centres to International Data Services (NACIDS) in various cities in order to provide information support services to scientists and technologists in India. These centres help in conducting online searches and retrieve information from the international databases. These services are fee-based. NACIDS are available in the following major cities:

City	Host Institution
Ahmedabad	Ahmedabad Textiles Industry's Research Association
Bangalore	National Aerospace Laboratory
Calcutta	Indian Association for Cultivation of Science
Chennai	Central Leather Research Institute
Hyderabad	Centre for Cellular and Molecular Biology
Mumbai	Victoria Jubilee Technical Institute
New Delhi	Indian National Scientific Documentation Centre
Pune	National Chemical Laboratory

CD-ROM National Collection Centre

NISSAT has set up CD-ROM National Collection Centre at the Foundation for Innovations and Technology Transfer to collect nationally produced documents in CD-ROM medium. The Centre has a good collection of CD-ROMs like India Mystica, Invitation India, Gandhi, Yellow Pages, etc.

Internet Based Information Activities

NISSAT has been supporting the Internet based information activities such as design of web sites and listforums. It has established the following web sites/servers:

Indian Ocean Server at NIO (Goa)

MYLIBNET at CFTRI (Mysore)

Indian Consultancy at CDC (New Delhi)

Indian Science & Technology at IISc (Bangalore)

These web servers help to integrate its existing information activities for the provision of a one-window information service. The home-pages provide information on R & D activities, forthcoming events, employment opportunities, various schemes of extra-mural support, etc.

NISSAT has set up an Electronic Mail Discussion Forum called LISTFORUM in collaboration with the National Centre for Science Information (NCSI) at Indian Institute of Science, Bangalore. The providers and users of information can avail this facility to discuss various issues relating to library/information services.

12.6.2 Biotechnology Information System (BTIS)

The Biotechnology Information System (BTIS) was established under the Department of Biotechnology, Ministry of Science and Technology, Government of India. The main objective of BTIS is to serve as an information network for scientists and biotech corporations to have ready access to computer-based information in specific subject areas and to build up expertise in the field.

The Information System functions with nine specialised Distributed Information Centres (DICs) located in different places in the country. Each DIC specialise in a particular subject area and maintain a computerised databases for information activities and services. These centres act as an information base/ repository of information and also provide online access to information to the scientists by serving as active nodes of information network. The DICs are presently accessed through nation-wide network of the National Informatics Centre (NICNET).

The details of the location of the DICs are as follows:

<i>Subject area</i>	<i>Host Institution</i>
1) Enzyme Engineering, Bioprocess Engineering	Institute of Microbial Technology, Chandigarh
2) Genetic engineering	Indian Institute of Science, Bangalore Bose Institute, Calcutta Jawaharlal Nehru University, New Delhi Madurai Kamaraj University, Madurai
3) Immunology	National Institute of Immunology, New Delhi
4) Molecular Biology	Centre for Cellular and Molecular Biology (CCMB), Hyderabad
5) Photosynthesis, Plant Tissue Culture, Plant Molecular Biology	Indian Agricultural Research Institute (IARI), New Delhi
6) Virology and Animal culture	Poona University, Pune

Some Distributed Information Centres of BTIS also maintain hard-databanks. The DICs also promote a few hard data centres. For example : Centre for Cellular and Molecular Biology (Hyderabad)

covers the subjects Nucleic acid and Protein sequence, while National Chemical Laboratory and National Institute of Virology (Pune) are the data centres for Germplasm/culture banks.

The DICs are supported by 19 Sub-DICs. The DICs, Sub-DICs and other components of the information system/network are coordinated by the Apex centre located at the headquarters of Department of Biotechnology (New Delhi).

The major databases presently available through BTIS are

Indian Patents in Biotechnology Indian Experts in Biotechnology

Database of Communicable Diseases

Patents on Immunology

Database on Immunodiagnostic Methods

Database of Resources available at the DICs

Database of books, journals, equipment, databases, etc.

12.6.3 ENVironmental Information System (ENVIS)

The Environmental Information System (ENVIS) was set up under the Department of Environment (DOEn), Government of India. It is a decentralised system with a coordinating focal point located at the headquarters of DOEn in New Delhi and its centres spread in different places in the country. The activities of the focal point are the publication of Paryavaran Abstracts (Quarterly) and creation of bibliographic databases. There are ten ENVIS centres, which specialise in areas of the subject field. They provide information services and build up databases in their area. The following are the ENVIS centres:

<i>Subject Area</i>	<i>Institution</i>
1 Pollution Control (Water and air)	Central Pollution Control Board (CPCB), New Delhi
2 Toxic Chemicals	Industrial Toxicology Research Centre (ITRC), Lucknow
3 Environmentally sound and appropriate Technology	Society for Development Alternatives, New Delhi.
4 NGO, Media and Parliament related to Environment	Environmental Services Group (ESG), New Delhi
5 Coastal and Offshore ecology Remote sensing for environ- mental mapping and Eastern Ghats ecology	Institute for Coastal and Off- shore Research (INCOR), Andhra University, Visakhapatnam
6 Renewable energy and Environment	Tata Energy Research Institute (TERI), New Delhi
7 Eco-toxicology; Biodegrada- tion of water; Environmental Impact assessment	Centre for Environmental Stud- ies, College of Engineering, Anna University, Chennai

- | | |
|--|--|
| 8 Western Ghats ecology | Centre for Ecological Studies,
Indian Inst of Sci., Bangalore |
| 9 Environmental management
related to the States of
Madhya Pradesh | Environmental Planning and
Coordination Organisations
(EPCO), Bhopal |
| 10 Occupational health | National Institute of Occupational Health (NIOH), Ahmedabad |

12.7 LET US SUM UP

Let us recapitulate what has been discussed so far in this unit.

* The information systems/programmes are categorised into three - Science & Technology, Social Sciences and Humanities.

* In the field of Science and Technology, INSDOC, DESIDOC, NCSI and SENDOC are providing information services to the user groups. However, there is a need for information systems in the fields of agriculture, medicine, space sciences, nuclear sciences, etc.

* NASSDOC, CORD, SNTD Women's University Documentation Centre have been rendering information services the users groups in the area of social sciences.

* Despite of the fact that there are a vast number of organisations working in the field of Humanities, no is no Documentation /Information centre at the national level to satisfy the wide range of user needs. IALIC has made considerable number of proposals in this direction.

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12.9 ASSIGNMENT

(1) Draw a plan for designing an Information System either for Social Sciences or Humanities in India.

(2) List out the major organisations of Humanities Institutions in India and suggest an organisation capable of providing Humanities Documentation/Information Services.

12.10 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) Explain the information services provided by DESIDOC.
- 2) Trace the origin and growth of INSDOC. Briefly explain its activities.
- 3) Discuss the role of NISSAT in IT-oriented information services.
- 4) Discuss the documentation/information services of any two centres in the field of social sciences.

II SHORT NOTES

- a) CAPS
- b) BTIS
- c) NCSI

SECTORAL INFORMATION CENTRES OF NISSAT

Sectoral Information	Year	Subject Area	Host Institution
1) National Information Centre on Leather and Allied Industries (NICLAI)	1977	Leather Technology	Central Leather Research Institute (CLRI), Chennai
2) National Information Centre on Food Sciences and Technology	1977	Food Technology	Central Leather Research Institute (CLRI), Chennai
3) National Information Centre on Machine Tools and Production Engineering (NICMAP)	1977	Machine Tools Production and	Central Manufacturing Technology Institute (CMIT), Bangalore
4) National Information Centre on Drugs and Pharmaceuticals (NICDAP)	1977	Drugs and Pharmaceuticals	Central Drug Research Institute (CDRI), Lucknow
5) National Information Centre on Textiles and Allied Subjects (NICTAS)	1987	Textiles and Allied Subjects	Ahmedabad Textile Industry's Research Association (ATIRA), Ahmedabad
6) National Information Centre on Chemistry and Chemical Technology (NICHEM)	1986	Chemicals and Allied Industries	National Chemical Laboratory (NCL), Pune
7) National Information Centre on Management Sciences (NICMAN)	1995	Management Sciences	Indian Institute of Management (IIM), Ahmedabad
8) National Information Centre on Marine and Aquatic Sciences (NICMAS)	1996	Marine and Aquatic Sciences	National Institute of Oceanography (NIO), Goa
9) National Information Centre on Advanced Ceramics (NICCAC)	1988	Advanced Ceramics	Central Glass and Ceramics Research Institute, Calcutta
10) National Information Centre on Bibliometrics*	1987	Bibliometrics	INSDOC, New Delhi
11) National Information Centre on Crystallography (NICRYS)*	1982	Crystallography	University of Madras, Chennai
12) National Information Centre on CD- ROM (NICDROM)*	1990	CD - ROM	National Aerospace Laboratory, Bangalore

UNIT - 13: LIBRARY AND INFORMATION NETWORKS IN INDIA

Structure

13.0 Aims and Objectives

13.1 Introduction

13.2 Library and Information Networks in India

13.2.1 INFLIBNET ✓

13.2.2 DELNET ✓

13.2.3 CALIBNET

13.2.4 BONET

13.2.5 PUNE-NET

13.2.6 ADINET

13.2.7 MALIBNET

13.2.8 MYLIBNET

13.2.9 COURTNIC

13.2.10 SUPLIS

13.2.11 JUDIS

13.3 Communication Networks

13.3.1 ERNET ✓

13.3.2 NICNET ✓

13.3.3 I-NET

13.3.4 INDONET

13.4 Other Sources of Social Science Information

13.5 Let Us Sum Up

13.6 Glossary

13.7 Assignments

13.8 References and Recommended Books

13.9 Model Examination Questions

13.0 AIMS AND OBJECTIVES

This unit aims to provide an overview of the major Indian information systems/ networks and programmes devoted to social sciences and humanities.

After studying the unit, you should be in a position to

- describe the major nation-wide information systems/networks/programmes such as INFLIBNET, ERNET, NICNET and INDONET.
- outline the activities of Indian regional information systems/networks such as DELNET, CALIBNET, BONET, PUNE-NET, MALIBNET, MYLIBNET and ADINET.

13.1 INTRODUCTION

The universe of knowledge may be broadly divided into three groups:

Science and technology;

Social sciences; and

Humanities.

In India, in terms of development of information systems/networks/programmes, social sciences and humanities have been lagging far behind when compared to science and technology. As we have already seen in Unit 12, libraries devoted to science and technology have developed good information systems/networks and started offering a variety of information services to meet the different needs of users. However, in the areas of social sciences and humanities, much needs to be done in the building up of information systems/networks.

Significant developments in the field of provision of social sciences information has been the establishment of the following bodies:

National Social Science Documentation Centre (NASSDOC) at New Delhi to take care of information requirements of social scientists at the national level.

National Documentation Centre on Mass Communication, New Delhi.

National Documentation Centre in Health and Family Planning (NDCHFP), New Delhi.

Centre on Rural Documentation (CORD) in the National Institute of Rural Development, Hyderabad.

Social Science Information Centre, SNDT Women's University, Mumbai, for providing information services relating to sociology, women's studies, home science, library science and special education.

Social Science Information Centre, M.S. University, Baroda, for providing information services relating to economics, political science, education and psychology. On the other hand, a beginning has yet to be made in the establishment of national documentation centres for various humanities subjects. Even after 50 years of attaining our Independence, we have not been able to set up a National Documentation Centre for Humanities.

Due to lack of development of proper information systems/networks/programmes devoted to social sciences and humanities, the scholars engaged in these subjects have to depend on general library networks and other communication networks for accessing information. In the following sections, you will learn about library networks such as INFLIBNET, DELNET, CALIBNET, BONET, ADINET, PUNENET and MYLIBNET, and also about a few important communication networks such as ERNET, NICNET, INDONET and I-NET.

13.2 LIBRARY AND INFORMATION NETWORKS IN INDIA

13.2.1 Information and Library Network (INFLIBNET)

With a view to prepare the universities to meet the challenges of information society, the University Grants Commission (UGC) initiated the INFLIBNET Programme in 1991. This programme aims to create a nationwide network of university libraries and research centres.

It is a major programme towards modernisation of libraries and information centres in the country utilising computer and communication technology. It seeks to set up a mechanism for information transfer and access to support study, teaching and research activities. It is a cooperative effort in resource development, sharing and use at the national level. The ultimate goal of INFLIBNET is to provide speedy and efficient services to users scattered all over India with the help of a well articulated and versatile computerised information network for resource sharing. Under the INFLIBNET Programme, UGC has been providing grants to universities for establishing computer and communication facilities. Till date, 69 universities have received assistance under this scheme.

Objectives

The main objectives of the INFLIBNET Programme are:

- To support Computerisation of libraries and information centres in the country.
- To establish a mechanism for information transfer and access to support scholarship and academic work.
- To facilitate pooling, sharing and optimisation of library/information resources.
- To organise library services at macro level at affordable cost and maximise benefits.
- To provide speedy and efficient services to the end users.

Activities

1) Development of INFLIBNET standard and format:

INFLIBNET has set up a Standardisation Committee which prepared a standard and format for the creation of databases of serials, books, theses and dissertations. These are based on UNESCO's Common Communication Format (CCF) and adapted for IFLIBNET.

2) Development of Databases

INFLIBNET is engaged in the creation of databases of serials, theses/dissertations, experts, research projects, and union catalogue of books.

3) Training Programmes

INFLIBNET conducts a number of short training courses and workshops regularly for LIS professionals working in universities.

4) Onsite Support to Universities

INFLIBNET deputes teams of technical staff to participating libraries to assist in the commissioning of software, database creation, on-line and remote access with e-mail facility.

5) Annual National Conventions

INFLIBNET organises a national convention every year known as CALIBER (Convention on Automation of Libraries in Higher Education and Research Institutes). CALIBER aims to provide exposure and generate awareness among the library professionals regarding library automation.

6) Integrated Library Management System (ILMS)

INFLIBNET has developed, in association with DESIDOC, an Integrated Library Management System (ILMS) software for automating library house-keeping operations. ILMS was designed after undertaking a detailed study of different library-related functions in Indian university libraries. This software has modules for Acquisition, Cataloguing, Circulation and Serials Management. It is being offered free of cost to university libraries and a Windows version of the same is expected to be released shortly.

INFLIBNET Services

Catalogue-based Services: INFLIBNET has developed a union catalogue of holdings of libraries of academic and research institutes. Questions are received through e-mail, post, fax and other communication modes and the answers are sent to the users. This service is also provided online through I-NET. This service helps in the location of serials, books, theses/dissertations, etc. in different libraries of India.

Communication-based Services: INFLIBNET plans to connect all the participating libraries for accessing various databases--national and international. At present, ERNET, NICNET, I-NET and GIAS services are utilised for offering network services to libraries.

COPSAT Services: In 1993, INFLIBNET Centre, in collaboration with the National Centre for Science Information (NCSI), Bangalore, has started "Contents with Abstracts of Periodicals in Science and Technology (COPSAT)" service.

Retrospective Conversion

INFLIBNET has built up a union catalogue containing 4 lakh records of books in various Indian libraries. Once this database reaches 8-10 lakh record mark, INFLIBNET would be providing the information in CD-ROM format to various libraries to facilitate retrospective conversion. Most of the university libraries have number of common books and CD-ROM would serve as a valuable tool to search and download common catalogue entries thereby reducing data entry work.

Resource Sharing

INFLIBNET is engaged in evolving a mechanism for sharing of resources using modern information technology for meeting the total requirements of users in every university. An experiment in resource sharing, using the existing computer and communication network and

I-NET as the communication medium, has begun with the University of Hyderabad as the coordinating body and libraries of universities such as Gulbarga, Nagpur, SNDT and others as participants.

Future Programmes

During the 8th Plan period, INFLIBNET has focussed on computerisation of university libraries and creation of databases. In the 9th Plan, it not only proposes to continue the same with more force but also try to evolve itself as an effective information delivery network capable of catering to massive changes in the higher education scene.

INFLIBNET plans to disseminate Indian information throughout the world by building up appropriate databases and disseminating it through a suitable network linked to INTERNET. It also hopes to cooperate with other data networks that are operational in India.

INFLIBNET proposes to provide VSAT (Very Small Aperture Terminal) connections to all the university libraries to help them gain easy and reliable access to information sources --both Indian and foreign--utilising INTERNET. It also plans to develop suitable fora for sharing information on current research among several interest groups on various subjects. INFLIBNET has launched its home page on the Web and it is creating home pages for all university libraries to provide a single-point university information system to inform people about Indian universities and other academic research activities.

INFLIBNET hopes to initiate research and development activities in information technology to support library applications. It plans to develop suitable computer software and data communications systems to meet future needs.

13.2.2 DELNET (Delhi Library Network)

DELNET is a registered society, being promoted by National Informatics Centre, Planning Commission, Government of India and India International Centre, New Delhi. DELNET has been in operation since January 1988 and was registered as a society in 1992.

Objectives

The main objectives of DELNET are

To promote resource sharing among the member-libraries;

Develop a network of libraries;

Collect, store and disseminate information;

Offer computerised services to the users and coordinate efforts for suitable collection development and for reducing unnecessary duplication wherever possible.

Services

DELNET offers a number of services as outlined below:

DELNET Databases: DELNET provides access to several of its online databases such as

Union Catalogue of Books (3,30,000 records)

Union List of Current Periodicals in Delhi Libraries (21,000 periodicals)

Union Catalogue of Periodicals in Delhi Libraries (7,000 records)

Database of Periodical Articles (52,370 articles)

CD-ROM Database (150 records)

Union List of Video Recordings

Database of Urdu Manuscripts

Database of Theses and Dissertations (250 records)

Database of Publications in Indian Languages

Indian Specialists Database (1,200 records)

DEVINSA (Development Information Network for South Asia) Database (20,000 records)

Books in Print: New Titles From Indian Publishers

ILL Online: DELNET members can place their inter-library loan requests through its ILL Online Facility, which is available on the Union Catalogue of Books Database. The members requests appear on the main server, which are monitored by DELNET staff at regular intervals and the books are acquired and supplied to the requesting library through the courier.

Electronic Mail and INTERNET: DELNET provides RENNIC (Research and Education Network of National Informatics Centre) E-mail facility to its member-libraries through National Informatics Centre at a concessional rate. This gives them access to both national and international E-mail users and also to INTERNET users. DELNET also provides ERNET E-mail facility. Full INTERNET Slip/PPP connectivity is given to member-libraries in Delhi through NIC at a concessional rate.

Web Page: To publicise its activities/services, DELNET has launched its web page in 1998. This page includes a list of all member-libraries along with their E-mail address.

Connectivity to Outstation Members: DELNET provides access to members who are not based in Delhi too. With the help of NICNET and DELSEARCH, it offers them facilities to search DELNET databases.

DELSEARCH: DELNET has opened a new chapter in the information retrieval procedure by devising a new database access mechanism through an in-house software called DELSEARCH.

DELSEARCH is an off-line remote database access system through E-mail. It is the first of its kind in the world which is most economical and also user-friendly. It opens a window to all institutions, information specialists, research scholars, librarians and users interested in bibliographies and textual information on South Asia. It allows them to search the DELNET union catalogues through E-mail and is a great tool for research scholars. DELSEARCH services are offered both in India and abroad.

Other Services

DEL-LISTSERVs: DELNET has created a LISTSERV called DEL-LISTSERV to provide current awareness service to users and all the member-libraries to receive the latest daily information from the INTERNET automatically in the form of electronic digests. The following LISTSERVs are available online through DELNET:

Net-happenings

Med-Clips

IFLA

LIBJOBS

Books: New Arrivals: This is a new service through INTERNET giving a list of recent publications in all subjects.

Book Reviews From INTERNET: This is an INTERNET service of reviews of the latest published books covering different subjects.

Current Contents: This service gives the current contents of the latest issues of journals.

Retro-conversion: DELNET offers retro-conversion facilities to member-libraries through specialised agencies and also facilitates the use of modern tools such as CD-ROMs and online facilities for retro-conversion purposes.

Training Programmes: Training programmes are conducted in the use of DELNET services, software, E-mail, AACR2 and Library of Congress Subject Headings, INTERNET, etc. from time to time.

Workshops/Seminars: DELNET organises national workshops, seminars and meets from time to time.

Lectures: DELNET also organises lectures by networking specialists working in different parts of the world.

Referral Centre: DELNET maintains a referral centre which provides reference facilities to participating libraries. This also looks after the access to the central databases and monitors access to international databases, INTERNET, etc.

Database Creation: DELNET helps the participating libraries in the creation of bibliographic databases as it considers essential for effective networking, standard bibliographic data should be available in machine readable form in the libraries. DELNET also provides technical assistance in various library operations/functions.

Newsletter: DELNET publishes a Newsletter to spread the message of library networking and increase the awareness about latest development.

Software Development: DELNET has created DELSIS, the first indigenous networking software. Some of its special features are:

- OPAC facility

- Powerful indexing technique

- Search by full or part of author, corporate body, editor, joint author, title, series, key words;

- Duplicate checking;

- Fully menu driven

- Availability of online help

Membership

At present, DELNET has 75 libraries as its members.

13.2.3 CALIBNET (Calcutta Library Network)

CALIBNET, one of the projects initiated by NISSAT, was inaugurated in September 1993. NISSAT entrusted the management of Network Services Centre (NSC) to CMC Limited till the formation of CALIBNET Society in November 1994. CALIBNET is meant to serve the collective interest of Calcutta's institutional libraries by means of computer-based library automation and networking, aimed at optimum utilisation of their bibliographic resources through resource sharing and electronic access. The primary objective is to systematise inter-library cooperation and document delivery among the Calcutta libraries for resource sharing and avoid the problem of shortage of finances.

CALIBNET has adopted two routes to realise its objectives: The network route and the e-mail route.

The Network Route consisting of library automation and networking using its own application software MAITRAYEE.

The e-mail route meant to offer member libraries with online access to various databases within the network.

Online access to information available through Internet, DIALOG/Knight-Ridder and CD-ROM resources through ERL.

Full-text documents through British Library Document Supply Centre, ASTINFO, UNCOVER and other agencies.

E-mail facility for easy communication.

Centralised bibliographic support for name and subject authority control

Training and consultancy

Services

CALIBNET offers a number of services to its participating institutions.

Consultancy on hardware and software platforms selection.

Procurement and installation of and training on CDS/ISIS software for local database development.

Retrospective conversion of card catalogues into computerised local database via electronic mode by downloading from international databases.

CalibLink, an E-mail connectivity from ERNET hub to facilitate entry into network environment for reciprocal sharing of bibliographic resources and rapid communication among libraries.

Online and offline search of globally available information and sharing them by a mechanism of pooled service facility. CD-ROM products and bureau search facilities like INTERNET and DIALOG are already available in CALIBNET for utilisation by end users and librarians.

Provision of contents of over 20,000 high-impact international journals and back-up support in rapid delivery of full-text of documents, including patents.

13.2.4 BONET (Bombay Library Network)

This network has been sponsored by NISSAT and has begun operations in 1992. It is meant to link all libraries including business houses in and around Mumbai. It has built up a bibliographic database of 15,000 records relating to computers and software technology. It has produced a union catalogue of periodicals in ten libraries of Mumbai. It has mounted a number of CD-ROM databases on a Novell server for training and demonstration purposes. These databases can be accessed through a Local Area Network (LAN). National Centre for Software Technology (NCST), Mumbai, is responsible for the management of BONET and it has developed a software named *Soochi* for online catalogues.

BONET has also hosted a database of table of contents of over 250 Indian periodicals. An IIP027 computer is used by BONET for providing access to its users. An inter-library communication system, also called as *Soochi*, is in operation. BONET reports that its e-mail software is also heavily utilised.

13.2.5 PUNE-NET

The Pune Libraries Network Project (PUNE-NET) is a joint programme of the Bioinformatics Centre (University of Pune), the Centre for Development of Advanced Computing (C-DAC) and the National Chemical Laboratory (NCL). The project is funded by NISSAT, Department of Scientific and Industrial Research (DSIR), Government of India.

The main objective of PUNE-NET is to interconnect all the libraries in the city of Pune and facilitate active information exchange.

Achievements

On-line access to information on books from Pune libraries

On-line Union Catalogue of Periodicals subscribed by Pune city libraries

E-mail and internet connectivity

Access to Dialog and other database resources on Internet.

On-line access to library resources on Internet.

Installation of radio modem for direct connectivity between National Chemical laboratory and Bioinformatics Centre

Inter-library loan of print and non-print material.

SDI and TOC services provided with the help of bibliographic databases on CD-ROM, floppies, etc.

Implementation of software based conversion technique to convert call numbers into their respective subject headings

Databases: PUNE-NET provides online access to the following databases:

Database of Books (1,08,853 records)

Union Catalogue of Periodicals (6425 records from 60 libraries)

Booksellers Database

Direct Access to Libraries: Access to C-DAC and Jayakar Library has been provided on-line through HTML interface.

Services

E-mail and Internet Connectivity: PUNE-NET not only provides e-mail facility to participating libraries but also acts as a gateway to the Internet. Presently, 36 libraries are using these facilities.

CD-ROM Database Services: PUNE-NET subscribes to bibliographic databases on CD-ROM such as Inside Science Plus and Inside Humanities and Social Sciences, published by BLDSC. It provides tables of contents (TOC) of over 10,000 high impact current serials. As the PUNE-NET project is based in Bioinformatics Centre (BIODIC), bibliographic databases subscribed by the BIODIC are also being used to serve the needs of PUNE-NET users.

PUNE-NET subscribes to Current Awareness Service (CAS) from the British Library.

On-line Search Facility--Dialog, Datastar and Bioline Database Services: PUNE-NET provides links to Dialog and Datastar home pages on the Internet.

Photocopy Service: It is available to the PUNE-NET users on charge basis. This service is available from Bioinformatics Centre.

Training: Training has been imparted to librarians through various meetings and seminars.

About 20 institutions from Pune are participating in the network. PUNE-NET can be accessed through Internet also. The Web address is: <http://bioinfo.ernet.in/punet>.

13.2.6 ADINET (Ahmedabad Library Network)

ADINET, a network of libraries in and around Ahmedabad, was registered as a Society in 1994. It is sponsored by NISSAT. ADINET aims to bring about cooperative mode of working amongst the libraries and information centres in and around Ahmedabad.

The main objectives of ADINET are

To promote sharing of resources and disseminate information among member libraries by networking them; and

Creating a centralised union catalogue of their holdings.

It plans to coordinate efforts for suitable collection development and reduce unnecessary duplication wherever possible. ADINET will not only help library users but will be of help to individuals who practise different professions in getting specialised information of their interest.

A centralised database of periodicals, books and no-book materials available in libraries of Ahmedabad is being created by ADINET. It plans to procure some databases on special subjects and mount them on the host computer. This centralised database can be accessed by member libraries of ADINET using modems and PSTN lines.

Services

ADINET services can be broadly categorised under two groups:

Library related services: These include on-line information search, inter-library loan, photocopying service, current awareness service and information service.

Other services: These include e-mail and bulletin board services.

13.2.7 MALIBNET (Madras Library Network)

MALIBNET was registered as a society in February 1993 and the network started its operations in June 1993. INSDOC is entrusted with the responsibility of establishing the network, developing information products and providing basic information services on MALIBNET.

Objectives

Bring about cooperative working amongst the libraries and information centres in the city of Madras in particular, and in the state of Tamil Nadu in general;

Evolve network of libraries and information centres in and around Madras region initially, and in other parts of the State later;

Facilitate sharing of resources among the libraries and information centres and promote information dissemination;

Establish appropriate linkages with other regional, national and international libraries, information and documentation centres and networks of such libraries and centres;

Organise conferences, lectures, workshops and seminars in the fields of interest.

MALIBNET has a central network service centre at INSDOC Regional Centre, Chennai. All the participating libraries are connected to MALIBNET host system through telephone links.

Database Services

MALIBNET is providing four databases from its own resources:

Directory Database of Current Serials

Contents Database of Current Journals

Holdings Database (National Union Catalogue of Scientific Serials in India--Madras Region)

Automotive Engineering Database

In addition to the above, a number of databases from INSDOC are also provided through MALIBNET such as

Medicinal and Aromatic Plants Abstracts (MAPA)

Polymer Science Abstracts

NUCSSI for Madras & Bangalore Region

Indian Serials Contents on Multimedia (ISCOMM)

Indian Patents Database

Information Services

These include e-mail, MALIBNET card (to facilitate access to all the resource libraries of MALIBNET), Contents Abstracts and Photocopy Service (CAPS), and Express Document Procurement and Delivery.

In addition, MALIBNET offers a number of INSDOC services such as On-line Search of Information Sources, Patent Watch Service, Internet Information Services, e-mail through SIRNET, CAPS, Document Copy Supply, Specialised Database Creation, and Training Courses & Consultancy.

13.2.8 MYLIBNET (Mysore City Library Network)

MYLIBNET was established in 1995 with financial assistance from NISSAT. It has 17 members and is providing Internet access to its members. It has developed a database of Union Catalogue of S&T Serials of Mysore City Libraries. The updated database can be searched using Mylib.Exe software developed by Mysore City Libraries Consortium (MCLC). MCLC members subscribe to 20 CD-ROM databases.

The Web address is: <http://www.mylibnet.org.in>

13.3.9 COURTNIC

COURTNIC is the Court Information System conceptualised and developed by NIC following a recommendation made by the Judges' Conference held in 1991 for a project of computerisation of Supreme Court and High Courts and to interconnect them through NICNET.

COURTNIC is designed to provide information on the Supreme Court to a wide range of users such as judges, court managers, lawyers, litigant public and academic community who are interested in legal developments and judicial decisions of the Apex Court.

Objectives

To provide online Apex Court information to the litigant community across the country.

To inculcate information culture among the public to enhance their confidence in the judicial process; and

To help the registry of the Apex Court in the execution of its function by providing easy flow of information.

COURTNIC provides information on

Complete daily case lists of all the courts

Status and position of a case filed in the Apex Court.

13.2.10 SUPLIS (Supreme Court Library Information System)

The computerisation of Supreme Court of India library began in 1992 involving the three major projects:

Case indexing

Current contents (academic articles)

Legislation

A unique feature of SUPLIS is the retrieval mechanism developed on the basis of information seeking behaviour of users. It enables retrieval of case information on the basis of time, case name/cause title-wise, judge-wise, equivalent citations, phrase/maxims, famous name, petition number, catchword, acts/rules and headnotes.

13.3.11 JUDIS (Judgement Information System)

This facility, launched in 1995, connects all the 18 High Courts through satellite based computer communication network. It provides free text-based retrieval system of the decided cases from 1950 onwards. It is a comprehensive online Case Law Library. It helps to find relevant precedent on any subject that is judicially considered by the Supreme Court. JUDIS can be accessed from any of the 750 NICNET nodes spread throughout the country and also from the computer cells of High Courts. NIC has also released JUDIS CD-ROM for the use of legal profession.

13.3 COMMUNICATION NETWORKS

13.3.1 ERNET (Education and Research Network)

ERNET was launched in 1986 by the Department of Electronics (DoE) with funding support from the Government of India and United Nations Development Programme (UNDP), involving eight premier institutions as participating bodies--NCST (National Centre for Software Technology), Mumbai, IISc (Indian Institute of Science, Bangalore, five IITs (Indian Institutes of Technology) at Delhi, Mumbai, Kanpur, Kharagpur and Chennai and the DoE, New Delhi.

Objectives

- To progressively set up a nationwide computer network for the academic and research community starting with the eight participating agencies.
- To undertake design, development and advanced research in the emerging concepts of networking and related technologies.
- To carry out continuing education, training and consultancy programmes to generate critical manpower needed by the industry and users in this field.

In 1998, ERNET has become an autonomous society under the DoE. The Society, called "ERNET India", has the following objectives:

ERNET operations, i.e., providing state-of-the-art communication infrastructure and services to academic and research institutions, government organisation, NGOs, private sector R&D organisations, and various other non-commercial organisations.

Research and development

Training and consultancy

Content development

Presently, over 80,000 users from 700 organisations representing a cross section of universities, academic institutions, R&D laboratories, etc. use ERNET for a variety of applications and services including E-mail, file transfer, remote log-in, database access, gopher, and the World Wide Web.

Infrastructure

The ERNET backbone is a judicious combination of terrestrial and satellite-based wide area networks. The satellite WAN, using VSAT technology, provides reliable and fast access from remote places. International connectivity, with a total capacity of 10.32 Mbps, is obtained through gateways at New Delhi, Mumbai, Bangalore, Pune, Chennai, and Calcutta.

As ERNET architecture is based on industry standard TCP/IP protocol, it facilitates connectivity from different types of computer systems and local area networks (LANs) at user sites. At the application level too, ERNET supports all applications conforming to international standards such as UUCP, SMTP, Telnet, FTP, and network information retrieval tools like Archie, Gopher, WAIS, and WWW.

The Scientific Advisory Committee to the Cabinet has selected ERNET as the platform for launching an S&T (Science and Technology) network in the country.

Achievements

ERNET is regarded as one of most successful programmes in networking and it has many achievements to its credit:

Laying of foundation of national capability building in the area of computer networking through

Setting up of a chain of core groups at the participating agencies with a minimal set of laboratory facilities and creation of skilled manpower to carry out R&D.

Generating manpower at different levels.

Making the world of standards (TCP/IP, OSI, etc.) well understood.

Providing an insight into emerging issues such as ATM networks, networked multimedia, and information infrastructure.

Setting up network infrastructure and services through Installation, maintenance and operation of large campus LANs

Deployment of VSAT network consisting of central hub and remote user-end VSATs.

Provision of seamless interconnection of LAN-WAN segments, multi-protocol capability

Provision of a whole range of Internet services

Deployment of terrestrial network and international gateways.

Undertaking Research and Development

Research and development in the area of computer networking has been the greatest strength of ERNET. Its current research interests are high-speed networking, network management, ATM, digital libraries, electronic publishing and multimedia. The R&D efforts launched by ERNET core groups have resulted in product development and technology transfer to the industry like bridges, routers, full suite of OSI software (OSI-Net), Packet Assembler Dissembler (PAD), packet radio controller, X-Mail package, X.25 switch, radio modem, DQDB controller card, ISDN protocol tester, Multimedia tele-teaching package, low-cost PC LAN card, and library automation software.

Network literacy (This has been achieved through providing access to various information resources)

Training programmes for students, users, and professionals.

Consultancy and support programmes

ERNET provided support for library networks like DELNET, BONET and INFLIBNET. It assisted in setting up campus LANs (e.g., IARI, JNU, DU)

Also, ERNET teams have been working in association with industry and various user groups and providing know-how, transfer of technology of the products developed, and consultancy in the areas of feasibility study, design and implementation, application support, etc. for campus LANs and interconnection of sites through WANs.

Future Plans

While the main emphasis will be on widening the reach of the network and improving the infrastructure by upgrading the terrestrial links, increasing VSAT installations, adding more transponder capacity and adding more servers, the associated network engineering issues and R&D

efforts would continue to match the network growth and users' expectations in terms of quality of service and the support for new applications.

Improving the content through Internet Content Generation (ICG) Centre to be set up.

R&D

The capabilities will be further consolidated and deployed for

Setting up an ATM test-bed

Set up of digital library project.

Networked multimedia

Alternate infrastructure options

High speed (8 Mbps) satellite backbone.

Receive only VSAT for wider data distribution

A pilot electronic commerce project jointly with the industry.

13.4.2 NICNET

The National Informatics Centre (NIC) was established in 1975 by the Government of India to promote creation of computer awareness, and to develop and implement computer-based information systems for decision support in the Ministries and Departments of the Central Government. During the last decade, NIC has emerged as an agent of change silently transforming the work culture and the decision-making process in many government departments/organisations all over the country.

NIC offers state-of-the-art solutions and decision support for information management and decision support needs of the Government of India and the corporate sector.

NICNET is the satellite-based nation-wide computer communication network established by NIC. It has over 800 nodes connecting the national capital, the state capitals and district headquarters.

The information technology services of NIC include, among others, the following:

Conducting feasibility studies for developing and implementing computer-based information systems;

Undertaking large turnkey networks; and

Imparting training.

NIC has built up extensive expertise in integrating IT-based systems with the working of user organisations. It provides a number of value-added network services such as e-mail, database access and Internet. NIC acts as an agent of change in user organisations by offering cost-effective training solutions in vital IT areas.

Services

The various services offered by NICNET are outlined below:

Gateway to Internet: NICNET serves as the viable Gateway with the incorporation of a powerful Ku-Band based National Information Highway as an overlay network on the existing SSMA/CDMA architecture. NICNET is linked to over 200 international networks located in 160 countries through Gateway Packet Switched Service (GPSS) and offers dedicated Internet access with the help of a direct high speed link to SPRINTNET, USA.

Electronic Mail: This is offered through Internet

USENET: This is the Bulletin Board Service of Internet and is valuable as a tool for information sharing.

Telnet Protocol: Telnet facilitates an Internet user to login to a remote host from the local host and interact with the remote host computer as if directly connected to it.

File Transfer Protocol: This services enables movement of a file from one computer to another.

Information Server Navigators: These are search engines which helps one to search the huge amount of information scattered in the Internet in a productive and time-saving manner.

Research and Education Network of NIC (RENNIC): RENNIC is meant to offer network services to research, education and medical institutions at their doorstep. Its objectives are:

- To promote creation and use of on-line databases in the country;
- To facilitate more openness among academics and researchers;
- To provide on-line access to vast expanse of international databases;
- To facilitate library networking services; and

To set up countrywide computer network for the academic and research community spanning 8000 institutions accounting for about one million potential users.

Multimedia Video Conferencing: NIC offers a high quality video conferencing facility using NICNET National Info Highway, with speed ranging from 128 Kbps to 2 Mbps. Presently, studio-based group video conferencing services are offered from NIC centres at Delhi, Calcutta, Bangalore,

Pune and Ahmedabad. Desktop video conferencing services are provided from 8 cities, namely, Patna, Jaipur, Hyderabad, Mumbai, Bhopal, Chennai, Chandigarh and Delhi.

Multimedia communication is a major thrust area for NIC during the coming years. It has established Multimedia Engineering and Facility Division to provide low cost multimedia solutions in the Indian market.

NIC will also be exploring the possibility of video conferencing on Internet/Intranet using MBONE technology (one way video broadcast/two way audio). This technology is likely to be highly useful in the area of distance education.

JUDIS-CDROM: NICNET has launched in 1992 the COURTIS (Court Information System) Project to serve the legal community through IT. This project aims to streamline the registries of various courts. Presently, the Supreme Court of India and all High Courts have been computerised and interconnected. On-line legal databases COURTNIC and JUDIS are offered. Also, JUDIS-CDROM (Judgement Information System-CDROM) is provided for the use of judges, lawyers and clients.

EDI over NICNET: Electronic Data Interchange (EDI) service of NICNET is an electronic mail box facility for receiving EDI messages, storing and forwarding them to the trading partners of Indian exporters and importers.

Bibliographic Information Services: NIC provides NICNET-based MEDLARS services in the area of biomedical services and healthcare in India. In Tamil Nadu, it has launched NICNET-based Medical Information Network linking all the medical colleges and hospitals.

Patent Information Services: NIC provides on-line access to INPADOC/EPIDOS huge databases containing 30 million records from 57 countries.

Geographic Information System (GIS): NIC has GIS infrastructural facilities at its headquarters in New Delhi. It enables analyses of remote sensing data and GIS applications for developmental planning and resource management. The GIS Infrastructure facilitates preparation of GIS directory on micro-watershed basins to support agriculture, forestry, wasteland and rural development in the country and is accessible through NICNET. With the help of a software package called GISNIC developed by it, NIC is engaged in various applications such as crime analysis and mapping systems, air-quality mapping and watershed management. For GIS thematic mapping, GISNIC software has been installed in about 200 district centres.

General Information Services Terminal (GISTNIC): To provide general information services to the common public and government departments/organisations, NIC has introduced GISTNIC services. GISTNIC is basically a community information service covering various areas such as census, district data, health, education, tourist places and travel information.

Training: NIC conducts awareness programmes in IT for both central and state government employees. Also, it organises international training programmes with support from bodies such as UNESCO, UNDP and FAO.

Some of the training programmes conducted by NIC are:

Department of Personnel & Training sponsored training programme in Information Tools,

Application of NICNET-based Information System in Decentralized Planning, and NICNET-based Computer-Aided Project Management System

Executive Development Programme

Sectoral Development Programmes; and

Update Programmes in the areas of Internet Technology, Networking Technology, GIS Technology, Database Technology and Multimedia Technology.

BASIS plus and TECHLIBplus Software for Library Automation: BASISplus is a relational DBMS with full text retrieval and object management capabilities in a client-server environment. It enables web site creation over NICNET and also WWW-based application for INTRANET/INTERNET environment. TECHLIBplus is a complete library automation package capable of on-line patron access catalogue, cataloguing, serials control, circulation control, acquisition control and administration. NIC has introduced BASISplus and TECHLIBplus software in India with a view to develop text databases and document management. NIC is the value-added seller of BASISplus in India.

13.4.3 I-NET

I-NET, formerly known as VIKRAM, is the packet switched public data network being operated by the Department of Telecommunications, Government of India. It is the ideal solution for corporate bodies which have to transmit low volumes of data along with adequate data security. I-NET offers corporate bodies extensive national and worldwide connectivity through a reliable and dedicated network which can be used for communicating between their different offices for transfer of management information, e-mail, database access, data processing, etc. to gain competitive edge. Public databases (national and international) which contain huge quantities of information ranging from news, business, stocks and shares, science and technology, medical research and technical information, etc. can be connected to I-NET for easy and cheap access.

13.4.4 INDONET

INDONET was developed by the CMC Limited. It is an integrated information management and distributed data processing service. It offers distributed data processing on all India basis to big organisations in the network. In this process, CMC computers are utilised. INDONET nodes located

at Calcutta, Mumbai, Chennai, Delhi, Bangalore, Hyderabad and Pune are connected to the Gateway Packet Switching Service (GPSS) of Videsh Sanchar Nigam Limited (VSNL) through MUXs/ Cluster controllers. As a result, entry to public data networks of other countries is also possible.

13.4 OTHER SOURCES OF INFORMATION

In addition to the information networks/systems/programmes which we have discussed in the previous sections, a number of organisations -- both commercial as well as non-commercial -- are offering information services pertaining to social sciences. These services are made available in a variety of formats: text, CD-ROM, online. A few examples are listed below.

India Online: This service provided by Dataline and Research Technologies (DART) offers real time access to the world of money, share prices, etc.

BISNET (Business Information Network): This service is offered by the Federation of Indian Chamber of Commerce and Industry for the benefit of business and industry community.

Online Trade Inquiry Service: This is provided by the World Trade Centre, Mumbai.

Economic Intelligence Service: This service is offered by the Centre for Monitoring Indian Economy. It provides information on various aspects of Indian economy and industry.

DataServe: Launched by Business Infotech, a Bombay-based company belonging to the Business India newspaper group, offers database services related to finance such as stock market, foreign exchange, money market and commodity market.

In recent years, Internet has revolutionised the information collection, storage and retrieval process pertaining to social sciences and humanities. A number of Web sites are being created to offer authoritative and timely information services. Some examples are given below:

PrimeIndia (HYPERLINK <http://www.primeindia.com/> <http://www.primeindia.com/>)

It provides Yellow Pages, business directory, export/import information.

IndiaPlus (HYPERLINK <http://www.indiaplus.com/> <http://www.indiaplus.com/>)

Business, real estate information, entertainment, classifieds, etc.

India Online Business Page (HYPERLINK <http://IndiaOnline.com/biz.html> <http://IndiaOnline.com/biz.html>)

Investment opportunities, buyer's requirements, export offerings, joint venture offerings and business services.

India Sources (HYPERLINK <http://www.indiasources.com> <http://www.indiasources.com>)

Specialises in business information on a cross section of industries.

SICOD (**HYPERLINK** <http://www.metroindia.com/html/misicod.htm> **http://**
www.metroindia.com/html/misicod.htm)

Best business information source on South India.

IPAN--Indian Public Affairs Network (**HYPERLINK** <http://www.ipan.com> and [http://](http://www.ipan.com)
www.ipan.com)

IPAN online combines daily updates of press releases and photographs from major Indian and multinational corporations with company profiles and monthly reviews of key sectors of the Indian economy.

13.5 LET US SUM UP

As we have seen in this unit, the development of information systems/networks/programmes in social sciences and humanities is not very satisfactory. Scholars engaged in the study, teaching and research of subjects falling in these fields have to depend on general library/information/communication networks and systems for their information needs. There is an urgent and imperative need to develop adequate information systems/networks for various social science and humanities subjects in view of their vital importance in national development and preservation of our cultural heritage.

13.6 GLOSSARY

Gateway : This is a kind of 'go-between' equipment or programme which facilitates passing of information between networks which cannot normally communicate with each other.

Protocol : The language spoken between computers to help them exchange information.

Router: A device that forwards traffic between networks.

Search engines : These are programmes which maintain directories of the Web. (Examples: Yahoo, Lycos, Altavista.)

TCP/IP (Transmission Control Protocol/Internet Protocol): This is the standard communication protocol necessary for Internet computers.

13.7 ASSIGNMENTS

INFLIBNET has gone on the Web. Visit the INFLIBNET site at: **HYPERLINK** <http://www.inflibnet.ernet.in> and <http://www.inflibnet.ernet.in> and try to access their databases. Also, here you can get information about various Indian universities. Try to search information about one or two

universities. If you wish to know recent developments in INFLIBNET, then read the INTERNET Newsletter in your university library. Also, the INTERNET edition of INFLIBNET Newsletter is available at the following address: <http://www.inflibnet.ernet.in/newsletter.html>

Access the following web sites and learn about latest developments:

DELNET: HYPERLINK <http://www.nic.in/delnet> <http://www.nic.in/delnet>

ERNET: HYPERLINK <http://www.ncst.ernet.in/ernet/> <http://www.ncst.ernet.in/ernet/>

National Informatics Centre Homepage (NIC) contains much information on Indian ministries, Indian states and union territories, Parliament, organizations, etc. Visit this site at the following address: <http://www.nic.in>

13.8 RECOMMENDED BOOKS

DELNET Newsletter. New Delhi: Delhi Library Network.

DESIDOC Bulletin of Information Technology, V.16, No.2, March 1996. (Special issue on Library Networks in India.)

DESIDOC Bulletin of Information Technology, V.18, No.4, July 1998. (Special issue on Access to Social Science Information.)

The Changing Frontiers of Library and Information Science, by Syed Fazle Rab. New Delhi: Commonwealth, 1994.

Development of an Information and Library Network: Report of the Inter Agency Working Group. New Delhi: UGC, 1988.

Handbook of Library Information Systems and Services, by J.K. Khanna. New Delhi: Beacon Books, 1996.

INFLIBNET Newsletter (Quarterly). Ahmedabad: INFLIBNET Centre.

Information Systems, Networks and Services in India: Developments and Trends. Vol.1, ed. By A. Neelamegham and K.N. Prasad. Chennai: Ranganathan Centre for Information Studies, 1998.

Studies on Information Systems, Services and Programmes in India and Abroad, by Baman Parida. Delhi: Ajanta, 1993.

13.9 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) Describe the activities and services launched by INFLIBNET to create a nation-wide network of university libraries and research centres.
- 2) State the objectives of DELNET and outline its various services.
- 3) Discuss the contribution of ERNET in the setting up of nation-wide computer network for the academic and research communities.

II SHORT NOTES

- a) CALIBNET
- b) NICNET
- c) COURTNIC

BLOCK-IV : ORGANISATIONS AND ASSOCIATIONS PROMOTING TION SYSTEMS & PROGRAMMES

There are several international organisations, such as UNESCO, ILO, UNIDO, OECD, IDRC, FAO and IAEA and various professional associations throughout the world, which have been promoting the establishment of information systems and networks. The organisations and professional associations at international, regional and national levels also extend financial and technical assistance in the adoption of information and communication technologies. They also encourage to formulate standards, rules and terminology, design information systems/networks for various disciplinary and non-disciplinary fields, develop library application software, provide training facilities, and encourage research activities.

This Block provides an overview of the objectives, structure and activities of various organisations and professional associations at international, national and local levels in the promotion of information systems and networks.

Unit-14 deals with the organisations promoting information systems and programmes at the international level, such as UNESCO, ILO, UNIDO, FAO, and UNISIST/PGI. It also covers other international organisations, such as OECD, ICSU, IDRC and IAEA.

Unit-15 traces organisations, such as UGC, DST, DRDO, ICAR, NISNET, ICSSR, ICMR and CSIR which have been promoting the information systems and programmes in India.

Unit-16 speaks about various professional associations, such as FID, IFLA and ISKO at the international level and ALA, SLA, the LA and ASLIB at the national level. It also deals with the professional associations in India, such as ILA, IASLIC, SIS and ALSD in the promotion of information activities in the country.

UNIT - 14 : ORGANISATIONS PROMOTING INFORMATION SYSTEMS AND PROGRAMMES AT THE INTERNATIONAL LEVEL

Structure

- 14.0 Aims and Objectives
- 14.1 Introduction
- 14.2 UN-based International Organisations and Programmes
 - 14.2.1 UNESCO
 - 14.2.2 ILO
 - 14.2.3 UNIDO
 - 14.2.4 FAO
 - 14.2.5 UNISIST
- 14.3 Other International Organisations-
 - 14.3.1 OECD
 - 14.3.2 ICSU
 - 14.3.3 IDRC
 - 14.3.4 IAEA
- 14.4 Let Us Sum Up
- 14.5 Assignments
- 14.6 Glossary
- 14.7 Recommended Books
- 14.8 Model Examination Questions

14.0 AIMS AND OBJECTIVES

In this unit an attempt has been made to cover some of the international organisations which are contributing their share in the growth and development of library and information services.

After studying this unit, you should be able to

- describe aims, objectives and structure of UNESCO, ILO, OECD, UNISIST, ICSU, UNIDO, IDRC, FAO, IAEA, etc.,
- explain the activities of these organisations in promoting information systems and programmes.

14.1 INTRODUCTION

There are many international organisations such as UNESCO, ILO, UNIDO, OECD, ICSU, IDRC, FAO and IAEA, which are fostering the growth and development of Information Systems. They are also working to achieve cooperation among such organisations working in different countries and in different environments for the mutual exchange of information sources and services. They are also extending their financial and technical help in forming the international networks, libraries and information centers, so that maximum benefit can be achieved out of the existing documentary sources and services.

The above international organisations are also working for the promotion of skilled manpower in the library science field by conducting the training and educational programmes. Similarly, they are sponsoring and initiating the seminars and conferences to enable the professionals to meet together for the exchange of ideas and experiences relating to information science and practices.

The above international organisation have been providing financial and technical assistance in the adoption of computer and communication technologies in the libraries. They are also encouraging to formulate standards, rules and terminology pertaining to library and information science.

14.2 UN-BASED INTERNATIONAL ORGANISATIONS

There are a number of international organisations under the family of United Nations working for the promotion of information systems and services. Let us study about the major organisations in this section.

14.2.1 United Nations Educational Scientific and Cultural Organisation (UNESCO)

The United Nations Educational Scientific and Cultural Organisation (UNESCO) was established on 4th November, 1946, as one of the specialised agencies of UN. It is an important agency, as it encompasses the activities of several areas, in the UNO. It is helping organisations and institutions working in the field of education, scientific and cultural areas in more than one way for their growth and prosperity. It is also extending a helping hand in the promotion public libraries and national libraries of the member countries.

i) Aims and Objectives of Unesco

Since its inception UNESCO is striving to maintain peace and harmony among the member countries by promoting the cooperation, social development and cultural relations among them. Its aims and objectives are:

- 1) to maintain peace, security and harmony among the member countries;
- 2) to promote the international understanding;
- 3) to promote education, scientific attitude, and cultural relations;
- 4) to foster respect for justice, rule of law through operational assistance;
- 5) to protect freedom of people; and their fundamental rights;
- 6) to promote a new World Order by realising its objectives; and
- 7) to promote the literacy and education among the people through development of public library systems in the member countries.

ii) Structure

The Unesco has 157 members and one associate member working from its headquarters situated at Paris. It consists of a General Conference, an Executive Board, a Secretariat, Cooperating Bodies and Regional Offices. The general policies and decisions are taken by the General Conference and Executive Board and Cooperating Bodies and Regional Offices carry out their task under their guidance.

iii) Activities

From the beginning UNESCO championed the cause of Public Library Movement in the Third World countries. Its belief in library movement as a means for spread of education, which is the basis of democracy, the need for providing the free access to knowledge and information reflected in its *Public Library Manifesto* declared in 1946. It has established the public libraries in Enugu (Nigeria), Medellin (Columbia), New Delhi (India). It conducted several regional seminars on the theme of public libraries with the support of its member countries. *The Regional Seminar on Library Development in Asia* was held at Delhi in 1960.

The UNESCO also has encouraged and assisted for the development of university libraries and information services by conducting seminars, providing grants and technical know-how and bringing out publications. *The Regional Seminar on the Development of University Libraries in Latin America* was held at Mendoza in Argentina in 1962.

The UNESCO has worked for the establishment and growth of national libraries in member countries. It has provided financial and technical assistance in establishing the national libraries in Pakistan and Sri Lanka. It convened a "Regional Seminar on the Development of National Libraries in Asia and the Pacific Area" at Manila in 1964 to discuss various problems relating to national libraries and made suitable recommendations.

The UNESCO also helped to establish the National Scientific Documentation Centres INSDOC in India and PANDOC in Pakistan, which in turn systematised the activities of documentation and information centres in their countries and improved the information services to scientific community.

The UNESCO has established the National Information Systems at the national level to promote the development of national policies for national information systems. Similarly it established World Science Information System (UNISIST) at the global level. It is an on-going voluntary inter-governmental programme for international cooperation in scientific and technical information. The National Information System in Science and Technology (NISSAT) was established in New Delhi under DST, Government of India on the recommendations of Dr. Peter Lazar appointed by UNESCO for this purpose. NISSAT is serving as a focal point and coordinating agency for UNISIST/PGI and ASTINFO programmes.

Combining the NATIS and UNISIST programme, the UNESCO has launched a new General Information Programme (PGI) in 1976, with an aim to promote and propagate the computer applications and communication technologies in library and information services and formulation of networks to share and exchange the resources of one another. Under this programme UNESCO is providing the micro processors and software packages for application in library and information fields in the developing countries. It is also encouraging in the formulation of information policies, and plans, establishing norms and standards, equipping computer and communication infrastructure and facilities for training information scientists and users.

The UNESCO is helping the developing countries financially, in strengthening their communication systems, through its programmes of New World Information and Communication Order (NWICO) and the Inter-Governmental Programme for the Development of communication (IPDC).

The UNESCO has established a Regional Network for Exchange of Information and Experience in Science and Technology in Asia and the Pacific (ASTINFO) in 1984 and Asia-Pacific Information Network in Social Sciences (APINESS) in 1986 with an aim to promote regional cooperation, understanding and socio-economic development in Asia and Pacific countries.

The UNESCO has also established the International Information System on Research in Documentation (ISORID) with an aim to collect and disseminate information on research activities

in documentation, library and archives at institutions all over the World. Under the programme of Science and Technology Policies Information Exchange System (SPINES), it has established a clearinghouse for handling information on science and technology and information policies of the countries of the world. It has also developed databases such as the Data Retrieval System for Documentation in Social sciences and Humanities (DARE) and the International Bureau of Education Documentation and Information System (IBEDOC).

Realising the need for training manpower in the developing countries, UNESCO has established the training schools in Pakar (Senegal) and Kampala (Uganda). It has also offered financial support for teachers through scholarships and travel grants for training in advanced countries.

The UNESCO has a long standing interest in the development of an information network of medical and aromatic plants. Under ASTIFO programme it has conducted a feasibility study for the establishment of APINMAP. The UNESCO is providing the financial assistance to Publications and Information Division (PID) in India to serve as a national node to establish such network.

There has been a long debate and discussions on the question of free flow of information, freedom of press, right to sources of information, right to know, right to privacy and protection against exploitation via media, distortion, bias, misinformation etc. Realising this fact, UNESCO helped in the establishment of Organisation of Asia Pacific News Agencies in 1982.

The UNESCO has been actively cooperating with other international organisations such as IFLA, ILO, FID, ICA in conducting conferences, seminars, workshops, training programmes and publishing professional material in the area of its purview. It also negotiated with other international bodies in reducing tariffs and freight charges in the exchange and circulation of reading materials among the members countries.

Through the promotion of International Copyright Law, UNESCO has extended cooperation for the protection of the rights of authors of literary, scientific and artistic works. By starting the International Book Coupon Scheme, it helped the purchase of books, films and scientific equipment by the people of "soft currency" areas from the other parts of the world. The World Congress of Books organised by the UNESCO in 1982 to celebrate the 10th anniversary of the International Book Year 1992. Its book promotion centres in the Third World and its long term programme called 'Books for all' will speak out the efforts made by UNESCO in promoting the cause of books and libraries.

iv) Publications

The following are some of the important publications of UNESCO:

Copyright Bulletin (Quarterly);

Impact of Science on Society (Quarterly);

UNESCO Courier (Monthly);

UNESCO Journal of Information Science, Librarianship and Archives Administration (Quarterly);

UNISIST Newsletter (Quarterly);

UNESCO Chronicle; (Monthly)

World Guide to Library Schools and Training Courses in Documentation, 1981.

14.2.2 International Labour Organisation (ILO)

International Labour Organisation was founded in 1919 with an aim to foster social justice as the basis for lasting peace. It became a specialised agency associated with UN in 1946. International Labour Conference meets every year, to discuss various aspects of standard of living, employment conditions, salaries and employment opportunities.

i) Aims and Objectives of ILO

The primary objective of ILO is to foster the welfare of the employees and their status, salaries etc. The specific objectives of the ILO are as follows:

- 1) to promote decent living standards for the people;
- 2) to work for satisfactory conditions of work;
- 3) to protect the genuine pay scales of the workers;
- 4) to create adequate employment opportunities;
- 5) to develop human resources;
- 6) to create and work for international standards;
- 7) to provide technical information service
- 8) to promote research and study on social and labour related topics; and
- 9) to encourage social institutions to work in the areas of labour problems;

ii) Structure

International Labour Conference meets every year to adopt budget, and to appoint international committees and to make recommendations. Each nation sends three representatives to IL Conference - Government representative, Employees' representative and employers' one

each. There are 171 member countries in ILO at present.

The Executive Committee meets two times a year to discuss and decide policies and programmes of the ILO. The Executive Committee consists of 28 government members, 14 employers 14 workers and 10 memberships reserved for "States of Chief Industrial Importance". They are Brazil, China, France, Germany, India, Italy, Japan, Russia, U.K. and USA. In addition, there are regional offices for Africa, America, Arab States, Asia and the Pacific. The ILO was awarded a Nobel Prize in 1969, for its services.

iii) Publications

The ILO publishes the following documents:

Bulletin of Labour Statistics (Quarterly);

Labour Law Documents (3 times a year)

Yearbook of Labour Statistics

International Labour Review (6 times a Year)

World Labour Reports (Annual)

ILO Official Bulletin.

14.2.3 United Nations Industrial Development Organisation (UNIDO)

United Nations Industrial Development Organisation (UNIDO) was started as an autonomous organisation within UN Secretariat in 1967. It became a specialised agency in 1986. UNIDO's main task is to promote industrial development in developing countries so as to help in the establishment of a New International Economic Order.

i) Aims and Objectives

The aims and objectives of UNIDO are

- to foster the industrial development in the developing countries;
- provide the required technical and information services for the industrial development in developing countries;
- identify the specific problems of industrial development in the individual countries.
- provide a rapport between the developed and developing countries for free flow of information.
- encourage and promote the information systems and service in the industrial field;

- provide information relating to investment promotion;
- encourage joint ventures in industrial sector; and
- convene investment promotion meetings and workshops to bring prospective investors together.

ii) Structure

The General Conference meets once in every two years. It consists of all members from different states. There are at present 166 members. The General Conference is the chief policy making body. The fifth General Conference was held in Camaroon, in December 1993. The General Conference elects 53 members for a period of three years. Out of the total, 33 are from developing countries, 15 from market earning countries and 5 from centrally planned countries. The General Conference also elects Director-General and eight Managing Directors for eight Divisions: Programmes, Funds mobilisations, Information and research, Human science, Enterprise development, Industrial section and equipment, Investment technology promotion, and Operation and administration.

iii) Activities

UNIDO has three Investment Promotional Offices in Athens, Cologne, Milan, Paris, Seoul, Tokyo, Vienna and Warsaw. These offices provide information relating to investment opportunities for investors.

The Industrial and Technical Information Bank, initiated by UNIDO provides information about technical know - how, and technologies developed in the First World for adoption in developing countries for their own benefit.

UNIDO has two Cooperative centres at Moscow and Beijing which encourage and assist foreign entrepreneurs to participate in joint ventures in industrial field. UNIDO also sponsors investment promotional meetings in potential countries and regions with an aim to identifying projects and bringing potential investors together to discuss various aspects and solve their problems. Such Investment Forums were held in China, Argentina, Jamaica.

UNIDO helps and financially assists the developing countries in establishing information centres and information networks. UNIDO itself has created a Clearinghouse for Industrial Information, which provides direct service from Vienna to the member states.

UNIDO also offers scholarships, group turning programmes, workshops, study tours to facilitate the scientists and industrial people to become aware of the latest developments, train in new technics and practices.

UNIDO sponsored Fertiliser Advisory, Development and Information Network for Asia and Pacific (FADINAP), 1978. It also provides financial support to research programmes in Medicinal and Aromatic plants and INNERTAP.

UNIDO established Industrial and Technological Information Bank (INTIB) in 1977 with an aim to generate flow of specific information needed by developing countries. INTIB is providing online and offline information, technical assistance, access to databases. It is also compiling and disseminating information to developing countries, to strengthen their own industrial and technological information systems.

UNIDO is maintaining the following Technology related databases:

- 1) Industrial Development Abstracts (IDA)
- 2) Industrial Information System (INDIS)
- 3) Online information Key (LINK)
- 4) Technological Information Exchange System (TIES)

iv) Publications

UNIDO is publishing the following:

Handbook of Industrial Statistics

Annual Reports

Industry Africa (Annual)

UNIDO Link (Monthly)

UNIDO Update (Quarterly)

Industrial Development Abstracts (Monthly)

Guide to Training Opportunities for Industrial Development;

UNIDO Newsletter

Tiles Newsletter

14.2.4 Food and Agricultural Organisation (FAO)

Food and Agricultural Organisation established in 1945 is the first specialised agency of United Nations. Its headquarters is situated at Rome, Italy. Its basic aim is to stimulate and promote the development of all programmes in the field of Food, Agriculture, Forestry and Fisheries in all member countries. It also aims to coordinate the library and information activities in the field.

i) Aims and Objectives

The objectives of the FAO are to -

- promote and encourage the activities in the field of Food, Agriculture, Forestry and Fisheries;
- coordinate the developmental activities in the member countries in the field;
- sponsor and assist the projects and programme which in turn promote the progress in the field;
- help the developing countries in establishing the library and information centers;
- encourage and support the formation of networks of information units;
- coordinate the activities in the information sources and
- provide education and training facilities for information specialists in the field;
- encourage and assist financially in making use of modern computer and communication technologies.
- alleviate the malnutrition and hunger in developing countries.
- provide technical information, advice, on request.
- serve as a clearing house for dissemination of agricultural information;
- sponsor seminars, conferences and workshops to facilitate the scientists and information scientists to discuss various pertinent aspects; and
- bring out reports, statistics publications for the benefit of members.

ii) Structure

The Governing Body of FAO is composed of members of nations. There are 170 members at present. The Governing Body which meets once in two years and hold the responsibility of formulating the policies identify and determine the programmes, prepare budget for two years.

The Governing Body elects Director-General and Independent Chairman of the Council. The FAO Council composed of 49 members from different countries. In addition, there are Standing Committees to look after the activities of the specific area. The specific areas such as Finance and programme, Commodity problem, Fisheries, Agriculture, Forestry, etc.,

Besides, there are Regional Offices in Africa, Asia and Pacific, Europe, Latin America, Caribbean, Near East, to look after the FAO activities in the concerned regions. FAO holds conferences in the above regions in alternative years. In addition, there are Divisions and Liaison offices at different places to assist the Standing Committees in their work.

iii) Activities

FAO is taking keen interest in the promotion of library / information centers, formulation of information networks, creation of databases, and transfer of information from developed countries to developing countries.

FAO has initiated and maintained the International Information System for the Agricultural Sciences and Technology (AGRIS) and Current Agricultural Research and Information System (CARIS) in 1969. These are two information systems that are considered as the most important international information systems in the field of Agriculture, Food, Fisheries and Forestry.

FAO through the above two computers-based information systems provides information on all aspects of agriculture to the developing countries. Also it established several inputting centres in different countries.

FAO is also maintaining 'AGROVOC' a multi-lingual thesaurus for agricultural terminology in English, French and Spanish for solving the language problems and standard terms for users of AGRIS database.

FAO provides technical information, advice and assistance through dissemination of information. It also advises the Governments of member countries on policy, programme and development of information systems and services. On request it sends missions to study existing situations and advises then accordingly.

FAO brings out the information relating to data on agriculture and products in the form of publications for the benefit of member countries. Under this programme it brings out regularly commodity statistics, cattle statistics, statistical reports etc.,

In addition to the AGRIS and CARIS, FAO is also maintaining several databases on specific subject fields such as ICS, ASFIS, FORIS, GLOBETECH, and FISHDAB. Such databases are being supplied to the users in the field in hard copy and in CD-ROM. Now CAS is available on CD-ROM for subscription to the individual libraries.

FAO is maintaining the World Agricultural Information Centre (WAICET) with an aim to provide access to 40 of its databases to any user in the world. Really it is a boon to the scientists in field of agriculture to have such an opportunity to obtain required information on any topic.

FAO/RTDD (Research and Technical Development Division) helps in coordinating the information activities between the member countries. It also gives suggestions to member countries on agricultural research and extends financial assistance for conducting seminars, conferences and workshops. It also sends missions to review the situation and plan research activity on request.

FAO is regularly bringing out a number of publications for the benefit of its members. The most important among them are as follows:

iv) Publications

Trade Year Book

Fertiliser Year Book

Production Year Book

Forest Year Book

Fish Catch and Trade Year Book

Animal Health Year Book

Environment and Energy Bulletin

Plant protection Bulletin

FAO Annual Review

Ceres (Biannual)

Fisheries Yearbook

14.2.5 World Information System in Science and Technology (UNISIST)

UNESCO in collaboration with the ICSU conducted a feasibility study for the establishment of World Science Information System in 1967. They believed that information is pivotal for social and economic development and information transfer is the key factor in the application of knowledge and technology for the betterment of society. As a result of such a study, the UNESCO launched the programme of UNISIST in 1972 as a loose network enlisting the voluntary cooperation of all the World's information Systems. It was first promulgated as an Inter-Governmental Cooperative Programme of UNESCO in the field of Scientific and Technological information. Now it is serving as a Network of information transfer in all fields of knowledge through sponsorship of UNESCO/PGL.

i) Aims and Objectives

The primary objectives of UNISIST are to

- 1) promote the international cooperation among the information systems and services;
- 2) initiate and help in the improvement of standards, codes, manuals, rules etc, which are essential for international cooperation;
- 3) help the individual libraries and information centres in the improvement of infrastructural facilities;

4) provide financial assistance in the improvement of library resources and information services;

5) encourage in the introduction of various information services and products.

6) provide facilities to train the information specialists in the productive use of modern methods and techniques.

7) help and advise the individual organisations in planning their programmes and future growth;

8) encourage the regional and international cooperation for creating the networks for information exchange; and

9) assist financially and extend technical advice to the developing countries in improving their library resources and information services, and development tools, etc.

UNISIST has provided the guidelines for the designing of international information systems like INIS, AGRIS, MEDLARS and INSPEC.

ii) Activities

UNISIST also provided the guidelines and standards for International Serial Data System (ISDS). It has also provided the guidelines for the establishment and development of monolingual and multi-lingual thesaurus, AGROVOC for Agricultural terminology of AGRIS.

UNISIST has prepared a reference manual for machine-readable bibliographic description.

UNISIST is involved in the international cooperation among 144 countries of UNESCO through PGI in the field of information transfer on broad areas internationally.

UNISIST also involved in the development of international networks of national information systems. INIS, AGRIS AND SPINES are examples of such cooperative information systems. Similarly, International Referral System for Sources of Environmental Information (INFOTERRA) was established with the initiation and support of UNESCO/PGI within the conceptual framework of UNISIST for cooperation and exchange of information in field of environment.

The Population Information Network (POPIN) and International Patent Documentation Centre (INPADOC) were established with the support of UNESCO within the conceptual framework of UNISIST for exchange of information in those specified subject fields among the member countries in cooperative venture.

UNISIST took part in the establishment of international information systems such as DEVISIS, GEMS, POPIN, etc.

UNISIST assisted in the design and compilation of International Directory of on-going research on information systems and services (ISORID).

UNISIST designed and developed a Broad System of Ordering (BSO) as for switching between different classification schemes and thesauri. UNISIST created the World Data Referral Centre in Paris in 1976. It also created a computer-based Data Retrieval System (DARE) for social science and humanities user community.

UNISIST collaborates with other international organisations to promote international cooperation in the transfer of information. It is showing a special emphasis for the development of such cooperation to the developing countries.

14.3 OTHER INTERNATIONAL ORGANISATIONS

Besides United Nations, a number of international organisations also are engaged in promoting information systems. Among them the following organisations are noteworthy.

14.3.1 Organisation for Economic Cooperation and Development (OECD)

European Economic Cooperation (EEC) was set up in 1948 in connection with the Marshall Plan. It was replaced by Organisation for Economic Cooperation and Development (OECD) in 1961, with an aim to create a forum for representatives of Governments of industrialised democracies in the world for discussing various aspects and coordinate their economic and social policies and programmes. Now it is functioning in an effort to coordinate the member countries in their economic, social and industrial policies and programmes.

i) Aims and Objectives

The aims and objectives of OECD are to

- foster economic and social development of member countries;
- assist and advise in their social and economic plans, policies and programmes;
- coordinate the effort of individual countries for over all development of region;
- promote the research and studies in social and economic fields;
- encourage the improvement of energy resources in the developing countries;
- encourage the use of nuclear energy for peaceful purposes;
- develop information systems on oil and energy markets;

- provide training facilities for specialists in the industrial and developing countries to make use of available resources in a productive way.

- encourage inventions and innovations through research in economic and industrial aspects;

- encourage the use of modern computer, and communication technologies for the benefit of users.

ii) Structure

The Governing Body of the OECD is its Council in which all countries are represented. The Council meets once in a year to discuss the policies and decide various pertinent aspects relating to social and economic development of nations. The recommendations of the Council are adopted with mutual consent of all its members. The Executive Committee is elected from the Council. It consists of 14 members and takes care of specific tasks apart from regular meetings. The Council, the committees and other bodies of OECD are assisted by the independent international secretariats headed by the Secretary-General.

In addition, there are Autonomous and Semi-Autonomous bodies to look after the activities of concerned areas. Some of them are as follows:

- 1) Centre for Cooperation with Economies in Tradition (CCET)

- 2) Centre for Educational Research and Innovation (CERI);

- 3) Development Centre;

- 4) International Energy Agency; and

- 5) Nuclear Energy Agency.

iii) Activities

OECD - Development Centre (a Semi-Autonomous Body) was set up in 1962 for the collection and dissemination of information in the fields of economic development, and research into development problems. It also provides training facility for specialists from industrialised and developing countries;

OECD also keen in the development of a system of information on the international oil and energy markets.

OECD has established a Committee for Information, Computer and Communications Policy to monitor the developments in telecommunications and information technology. This Committee is also very keen to identify the impact of such computer and communication technologies development on competitiveness and productivity

OECD also promotes the development of rules (Guidelines on information security) and analyse trade and liberalisation issues frequently. OECD has developed *Microthesaurus* for the information processing in the field of economic and social development. This thesaurus at present is used as an indexing and retrieval tool for IRDC, ILO, OECD, UNIDO, ITC and CLADES.

OECD is also collaborating with other international organisations in the fields of their common interest.

iv) Publications

There are many publications brought out by the OECD. They are as follows:

OECD Economic Outlook (two Issues per Year)

OECD Economic Statistics (")

OECD Employment Outlook (")

OECD Letter (Monthly)

Activities of OECD (Annual)

Economic surveys (Quarterly)

Financial Market Trends (Quarterly)

Financial Statistics

Foreign Trade Statistics

Agricultural Policy, Market and Trade (Annual)

Science, Technology and Industry Review (three per year)

Energy balances (3 per year).

14.3.2 International Council for Scientific Unions (ICSU)

The International Council for Scientific Unions started functioning right from 1919 under the name "International Research Committee". This was changed to the present name in 1931. However, a New Statute was adopted in 1990 with a renewed basic aim of promoting national scientific research in theoretical and applied sciences, and international cooperation among the member countries through intermediary international organisations.

i) Aims and Objectives

The aims and objectives of ICSU are

- to coordinate the activities of international scientific unions;
- encourage scientific activity in the national and international level;
- act as coordination centre for national organisations adhering to ICSU;

- keep in touch with the various Governments with an aim to encourage and promote scientific research in their countries;
- encourage and help in the establishment of standards at the international level; and
- make all such plans and programmes as are deemed necessary with other councils, unions, which have in common interest areas.

ii) Structure

ICSU is composed of two categories of members National Members and Scientific Unions. There are at present 92 member countries and 17 International scientific unions. America is a National Associate. ICSU is administered by the General Assembly which is elected by the representatives. It meets once in two years to discuss policies and programmes. Executive Committees meets once in a year to implement the policies and programmes.

There are several Ad-hoc Committees to look after the activities of the concerned fields. They are as follows:

- 1) Adhoc Committee on Agriculture
- 2) Adhoc Committee on Fisheries;
- 3) Adhoc Committee on Aquaculture;
- 4) Scientific Committee on Antarctic Research;
- 5) Scientific Committee on Space Research;
- 6) Scientific Committee on Water Research;

In addition there are several Committees and Commissions to look after the activities of specific areas work. They are Inter-Union Committee on Frequency Allocation for Radio Astronomy and Space Science, Radio Astronomy, Spectroscopy and Lithosphere.

iii) Activities

ICSU is collaborating with other international organisations to encourage and promote the scientific research on various fields. For instance, it has an agreement with UNESCO for collaborative work right from 1946 onwards.

Similarly, it has a close relation with the World Meteorological Organisation (WMO). A joint project "Global Atmospheric Research Programme" (GARP) was taken up and completed in 1967. In the same way it has collaborated with IAEA-ICSU in 1960, with FAO-ICSU in 1963, and with

WHO-ICSU in 1964. In all such collaborative ventures ICSU has promoted the scientific information and provided training facilities, established standards, data centres, etc.

ICSU has taken keen interest in sponsoring the seminars / conferences and facilitating the member countries to discuss various aspects relating to scientific research and studies.

ICSU is also involved in establishing the international standards, units, nomenclature to facilitate communication and comparison. It also coordinates the task of critically evaluated numerical data. It also maintains the World Data Centre in International Geographical Year (IGY).

iv) Publications

The following are the publications of ICSU:

ICSU Bulletin

ICSU Yearbook

Science International (Quarterly)

Annual Reports

14.3.3 International Development Research Centre (IDRC)

The International Development Research Centre (IDRC), Canada, came into existence, on the recommendation of the World Bank Commission on International Development chaired by Lester B. Pearson Report in 1971. Its main objective is to stimulate and support the scientific and technical research in developing countries for their own benefit.

i) Aims and Objectives

The aims and objectives of IDRC are to

- initiate and stimulate the research work in science and technology;
- to support and encourage indigenous research in the priority areas of national interest;
- encourage the application of research results to socio - economic development;
- develop technical know-how for country's industrial and economic growth;

ii) Structure

The IDRC has Board of Governors which consists of 21 members drawn from different fields basing on their international reputation and eminence. The Board of Governors formulate the policies and guide the work and operations. Eminent personalities like Theodore Schultz, a Nobel Prize winner, Prof. Y.Nayudamma (India) and Gelia Castillo have served as Governors of IDRC.

iii) Activities

The IDRC usually provides financial and technical support for the institutions in the developing countries to initiate and develop indigenous research which helps to improve their scientific, technical, social and economic activities. The fields covered to receive such a financial assistance include - farming, food storage, processing, distribution, forestry, fisheries, animal sciences, energy, tropical diseases, water supplies, maternal and child health, education, population studies, economics, communications, urban policies, science and technology policy and, information systems. The support for research work relating to the fields carried out under four programmes as shown below:

- 1) Agriculture, Food and Nutrition science;
- 2) Health Sciences;
- 3) Social Sciences; and
- 4) Information Sciences.

Since its inception IDRC showed a keen interest in the development of information sources and services and established a separate Division 'Information Science' to make grants for the improvement of various activities in the field of library and information science, particularly in the developing countries. Such a support usually provides for the organisation of information systems, improving their capabilities, developing the discipline-oriented information systems and networks, improvement of information sources and services and encourage cooperation among the existed information systems for mutual exchange of information. To carry out such programmes the Information Division (IS) again has three sections as shown below:

- 1) Science and Technology Information
- 2) Socio-Economic Information; and
- 3) Information tools and methods.

IDRC is also providing the financial support for Specialised Information and Analysis centres (SIAC), for improving the provisions of information services and of evaluated and analysed output products with the cooperation of scientists and information specialists. Since 1971, it has extended the financial support to 15 centres of excellence in their own field. Some of the centres working on topics such as buffaloes (Thailand), Coconuts (Sri Lanka), Small ruminants and tropical weeds (Indonesia), Rattan (Malaysia), Cassava (Colombia), and Sorghum and Millets (India). The Sorghum and Millet Information Centre (SMIC) located in ICRISAT, Hyderabad, has conducted promotional seminars in Africa with the continued support of IDRC. Similarly, the Coconut

Information Centre of Sri Lanka is providing answers to queries to users and rendering service to more than 83 countries all over the World.

In order to solve the language problem of terminology technical terms, (names of plants and animals), IDRC has provided the financial help to Agricultural Projects Services Centre (APROSC), Nepal to develop a *Glossary of Important Nepali Plants and Animals*.

IDRC is also partially interested in the development of scientific and technical information for industrial development. It has provided financial help in formation of Asian Network for Industrial Technology Information and Extension (TECHNONET ASIA) at Singapore. More than 14 organisations from 11 countries participate in this network which aims to improve the quality and efficiency of production in small and medium industries by applying the appropriate technical know-how and information in the process, methods, techniques, equipment and approaches to existing operations.

The other projects in the science and technology information area which received the financial and technical assistance from IDRC are Geographical Information System (GIS), Regional Mangrove Information Network (REMIN), Lanslat in Bangladesh, and Aquatic Sciences and Fisheries Information System (ASFIS).

In the field of social sciences and economics, IDRC is providing assistance for the promotion of information services in development economics, health, nutrition, population, environment, human settlement etc. It has developed Development Sciences Information System (DEVISIS) in 1975. The Development Information Network on South Asia (DEVINSA) was started in 1986 to coordinate the information activities on developmental sciences in the South Asia region. JNU is the inputting centre of DEVINSA. IDRC also provided financial assistance to develop Debt Recording and Management System (DRMS), a software package by the Commonwealth Secretariat.

IDRC also helped International Centre for Diarrhea Diseases Research, Bangladesh to start International Diarrhea Disease Information Service and Documentation Centre, with an aim to provide high quality of bibliographic services to medical workers in South Asian countries. The Centre for Development of Instructional Technology (CENDIT), in New Delhi, has created a SALUS India, a computerised database, exclusively to cater to the information needs of rural health information.

The Third Programme Section of IS Division of IDRC is Information Tools and Methods, whose concern is the application of methods and technology to information sciences and services in developing countries. Under this programme the IDRC is supporting Information Centre on Development Policy Modeling (ICDM), at the Systems Research Institute (SRI), Pune. This project mainly concentrates in the collection, processing and dissemination of information through its specialised documentation centres.

Besides the above programmes, IDRC also developed MINISIS Software in 1971, which is a generalised information management package used mainly in bibliographic information systems. More than 180 institutions are using this software. In India, National Council of Applied Economics Research (NCAER), New Delhi, and Asia and Pacific Centre for Technology Transfer (APCTT), Bangalore are using the MINISIS software package in their libraries.

IDRC is also encouraging the students of library and information science to obtain training and education by providing awards and fellowships. India is a recipient of such IDRC support. Thus a number of national, regional and international scientific information centres and networks have received IDRC support in the form of financing, technical assistance and training.

IDRC is also maintaining a big library which consists of documents of unique variety and publications of FAO, UNIDO, USAID, etc. It is made the services available to the clientele around the world through its Development Databases. The databases available through IDRC are as follows:

- 1) BIBLIOL: IDRC library collection 59,000 books and 5,000 serials;
- 2) IDRIS: The Interagency Development Research Information System.
- 3) AGCRONYM: Information on English, French, Spanish acronyms relating to international development.

14.3.4 International Atomic Energy Agency (IAEA)

The production of large quantities of nuclear data as a result of experiments all over the world and the need for use of such data for the development of nuclear science and technology made it necessary for international cooperation in the compilation, exchange and dissemination of nuclear science data. As a result, the International Atomic Energy Agency (IAEA) has emerged in 1964. IAEA Nuclear Data Section (NDS) is in a unique position catering to all aspects of nuclear science and technology. IAEA is recognised as the nuclear data centre, coordinating on international scale, concerned with the compilation, exchange and dissemination of accurate nuclear data. It is also responsible for the transfer of nuclear data and information from developed to developing countries, between Eastern and Western IAEA members. IAEA has celebrated 30th Anniversary in 1987.

i) Aims and Objectives

The aims and objectives of IAEA are to

- promote the international cooperation in all phases of nuclear data activities;
- support and promote the improved nuclear methods techniques;
- promote the international and national nuclear programmes;
- promote the research and study in nuclear science;

- collect, compile and consolidate the nuclear data and information;
- promote the exchange of nuclear data and information
- facilitate the easy transfer of nuclear data and information from developed to developing countries; and
- encourage the use of nuclear data and information for peaceful purposes.

ii) Structure

IAEA/NDS has its own advisory body, the International Nuclear Data Committee which was formed in 1967. It guides the IAEA/NDS programmes and activities as per the requirements of member states. This Committee consists of 13 eminent nuclear scientists from the member countries. In addition forty liaison officers provide direct communication links between scientists in these countries and the INDC through IAEA/NDS. Its main task is to promote international cooperation in all nuclear energy programmes and nuclear data activities. It advises the Director-General of IAEA on nuclear data activities.

iii) Activities

Under the aegis of IAEA, four regional neutron data centres agreed to compile, consolidate and exchange the data and information in those regions. Each of these regional centres process the data on computer and render information to any user in the world for peaceful use. The four regional centres of IAEA are

- 1) OECD Nuclear Agency, France (mainly serving the developed countries in Western Europe and Japan);
- 2) National Neutron Cross-Section Centre, USA (serving USA and Canada);
- 3) USSR Nuclear Data (serving USSR); and
- 4) IAEA Nuclear Data Section, Vienna, Austria (mainly serving developing countries in Asia, Central and South America, Eastern Europe and Australia).

IAEA/NDS is also maintaining huge amount of data generated all over the world in its library EXFOR. It consists of 2.6 millions of nuclear data records. In addition it maintains 40 different evaluated nuclear data libraries which consist of comprehensive general purpose files to smaller files for special applications. Its activities and services are advertised through a *Nuclear Data Newsletter* to their user community.

IAEA publishes an annual index of microscopic neutron data- under the title *CINDA* which is indispensable tool for the nuclear scientists and engineers. The master file of *CINDA* is kept in NEA

Data Bank. IAEA also compiled a handbook of small data sets on nuclear activation cross-section to meet the nuclear data requirements for many-fold applications of nuclear activation analysis techniques.

The IAEA/NDS also issues three report series:

- 1) Progress in Fission Products Nuclear Data;
- 2) Compilations and Evaluations of Nuclear Structure and Decay Data; and
- 3) World Request List for Member States for Improved Nuclear Data for Fission and Fusion Reactors and Nuclear Materials Safeguard.

The IAEA/NDS provides cost-free data centre services to scientists working with nuclear interest in forty member countries. It is primarily providing useful service to developing countries, by transferring the nuclear data and associated information and technical know-how from the developed to those developing countries with nuclear interest as follows:

The IAEA as a whole can be considered as one of the most comprehensive sources of information in the nuclear science field. With its 113 members it is serving as a focal point for information exchange among its members for peaceful uses of atomic energy through its numerous scientific and technical programmes. It is solely responsible for the creation and maintenance of information systems such as International Nuclear Information System (INIS), Power Reactor Information System (PRIS) and Incident Reporting System (IRS), etc.

iv) Publications

The following are some of the publications of IAEA

Nuclear Data Newsletter (Few times a year)

CINDA: Index of Literature on Microscopic Neutron Data (Annual)

WREND: World Request List for Nuclear Data (biannual)

Handbook of Nuclear Data Activation Cross Section

IRDC Reports (Series brought out by IAEA/NDS)

Three Annual Report Series of IAEA/NDS:

- a) Progress in Fission Product Nuclear Data
- b) Compilations and Evaluations of Nuclear Structure and Decay Data;
- c) World Request List for Nuclear Data.

14.4 LET US SUM UP

We are living in an information - based society. Information which is nothing but knowledge in usable form, is playing a key role in all developmental activities in the society. There is an increasing awareness among the people of the value and need for information for their professional as well as personal activities. The nations are being demarcated today as information-rich and information-poor countries in the World. Thus, every nation is trying to strengthen their own information systems.

However rich they are, it seems it is impossible to achieve the self-sufficiency as the universe of knowledge is dynamically growing and such a growth is reflect in its publications. Therefore, resource sharing appears to be an inevitable aspect for libraries and information services. The international organisations described above are also striving their level best to achieve cooperation among the nations to formulate networks of libraries to facilitate easy flow of information from one place to another from one country to another with the help of telecommunication links.

The international organisations are extending their technical and financial help to improve the library and information systems at the national level, to coordinate the activities of organisations in the information science, and to achieve cooperation among the various organisations for the over all improvement of situation in the information field. Also they are trying to help the developing countries in improving their information systems and to get sources and services from the developed countries to a maximum extent. In this area, the above international organisations are making their contribution for the improvement of library and information field.

14.5 RECOMMENDED BOOKS

GERRY, Tooney. "IDRC: A researcher's friend". (IN *The Handbook of Libraries, Archives and Information centres*. Vol. 4; p.201-205

JAIN, V.K. "FID and its activities" (IN *The Handbook of Libraries, Archives Information Centres*. Vol. 6 p. 281-289.

UNESCO. *National Libraries: Their problems and prospects*. Paris: Unesco, 1960.

UNESCO. *Symposia of the feasibility study on the World Information System*. Paris: Unesco, 1971.

WOODSTON, J. "The future of International Information systems". *Proceedings of the American Information Science*. 1972. p.23-24.

14.6 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) Give a brief account of activities of UNESCO
- 2) Briefly describe the structure and activities of UNISIST.
- 3) Describe briefly the cooperative activities of ICSU at the international level.
- 4) What are the IDRC's activities in the field in promoting research and studies in library science.
- 5) Describe briefly the activities of FAO in the collection, consolidation and dissemination of information relating agriculture, food and forestry.
- 6) Mention some of the International Organisations which are working for the promotion of information science.

II SHORT NOTES

- a) ILO
- b) OECD
- c) INIS

UNIT - 15 : ORGANISATIONS PROMOTING INFORMATION SYSTEMS IN INDIA

Structure

15.0 Aims and Objectives

15.1 Introduction

15.2 University Grants Commission (UGC)

15.3 Department of Science and Technology (DST)

15.4 Defence Research and Development Organisation (DRDO)

15.5 Indian Council of Agricultural Research (ICAR)

15.6 National Institute of Small Industries Extension Training (NISIET)

15.7 Indian Council of Social Science Research (ICSSR)

15.8 Indian Council of Medical Research (ICMR)

15.9 Council of Scientific and Industrial Research (CSIR)

15.10 Let Us Sum Up

15.11 Reference

15.12 Glossary

15.13 Assignments

15.14 Recommended Books

15.15 Model Examination Questions

15.0 AIMS AND OBJECTIVES

This unit aims to provide an overview of the organisations promoting information systems in India.

After studying this unit, you should be able to-

- discuss the role of various organisations, such as UGC, DST, DRDO, ICAR, NISIEET, ICSSR, ICMR and CISR in promoting information systems and programmes in India.
- explain the objectives, structure and activities the above organisations

15.1 INTRODUCTION

There are a number of organisations such as UGC, DST, DRDO, CSIR, ICAR, ICMR, ICSSR and NISIEET, which have been fostering the growth and development of research and development in their respective fields. Also they are coordinating the research and development activities carried in various organisations in the country.

Besides assisting, encouraging and funding the research and development activities in their respective fields, they are also sponsoring the research projects. They also provide training facility in research and produce scientific knowledge and technical know-how, which are very essential for the country's self-reliance.

Some of the organisations have been encouraging scholarship and to this end conducting seminars/conferences to provide an opportunity for scientists to meet and exchange their ideas and experiences.

15.2 UNIVERSITY GRANTS COMMISSION (UGC)

After Independence, the Government of India, has appointed several committees and commissions to find out the means and measures for the development of higher education in the country. Dr.S. Radhakrishnan has emphasised in his report the need for the development of higher education on sound footing. Accordingly, the University Grants Commission was established in 1956 under an Act of Parliament and Dr.C.D. Deshmukh served as the first Chairman of the UGC. The primary task of UGC is to take effective measures for promotion and coordination of university education, and to produce necessary scientific manpower required to work in various fields in Independent India.

The main objectives of UGC are as follows:

- to promote higher education in the country;
- to encourage and support research activity in universities;
- to maintain standards in higher education so that skilled manpower is produced;
- to provide financial assistance to universities for strengthening their infrastructural facilities, lab facilities and library facilities;
- to recommend the establishment of new universities; and

- to build up library and information services need for study and research work carried out in universities.

The University Grants Commission is an autonomous body primarily to take care of the growth and development of higher education in the country.

There are 206 universities working under the purview of UGC. Out of them 12 are Central Universities and 34 Deemed universities. There are 111 colleges, which are identified as 'Autonomous Colleges' by the UGC. All the universities and colleges identified by the UGC are provided financial assistance for the staff salaries, buildings, library development, laboratory equipment as per the norms and guidelines identified for this purpose.

There were only 30 universities and 762 colleges in 1951. The number raised to 206 universities and 8,175 colleges in 1994. The growth of universities and colleges over a period of four decades is very significant in the field of education. The UGC and its liberal attitude is responsible for such a growth.

UGC has also extended a helpful hand for the development library buildings, library documentary collection in universities and colleges by granting sumptuous grants.

In 1991, it has launched a huge and ambitious Information and Library Network (INFLIBNET) with an aim to develop computer-based resource sharing of all major university libraries using modern computer and communication technologies. This programme has already been started and UGC identified some major university libraries as nodal points for the network development.

The progress of the INFLIBNET is aimed at transforming the library scenario in the country towards modernisation which involves computer and communication applications.

15.4 DEPARTMENT OF SCIENCE AND TECHNOLOGY (DST)

The Department of Science and Technology was set up in 1971. Its main objective is to evolve policies and guidelines for the growth and development of Research in science and technology in the country. It also assists, encourages and supports grant-in-aid projects to institutions and professional bodies. It serves as a catalyst in coordinating the research activity in science and technology field in the states and union territories.

The basic objective of Department of Science and Technology is to promote the research in science and technology. The specific objectives of the DST are as follows:

- to formulate policies and guidelines in planning the scientific research in the country;

- to identify the thrust areas of research in science and technology in view of the country's priorities;

- to financially support the institutions and professional bodies in improving their research infrastructure;

- to coordinate the research carried out in various organisations;

- to sponsor seminars and conferences to discuss pertinent issues.

The Department of Science and Technology is an autonomous body created under the Ministry of Science and Technology, Government of India. It takes up the responsibility of planning and coordinating the research and development work in science and technology.

The activities of DST in the last decade has gathered momentum and may be summarised as follows:

Individual research projects are selected and approved through Science Technology Research Council. Every year more than 800 projects are received and 200 projects are approved for grants.

The main areas of concentrated research the programmes of this Department are on chemistry, seismicity, robotics, optics, new fibres, etc.

The Department has also developed Regional Sophisticated Instrumentation Centres (RSICs) to carry out research activity. It also strengthened the existing facilities for materials research, carried out at different organisations.

Technology Forecasting and Assessment Council (TIFAC) of the Department aims to establish Technology Information System to carry out technology assessment and forecast studies. It also helps and supports the national superconductivity programme (NSP).

15.4 DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)

Defence Research and Development Organisation (DRDO) was established in 1958 under the Ministry of Defence, with an aim to organise and coordinate R&D in the field of Defence. It mainly concentrates on the research relevant to our Defence needs. The headquarters of DRDO is located in New Delhi. DRDO achieves its target this achievements. A separate Department of Defence Research and Development was formed in 1980, which operates through a network of 50 laboratories and establishments.

The main objective of DRDO is to formulate policies and execute programmes of scientific research, design and development relating to national security. The specific objectives of DRDO are as follows:

- to formulate policies of research, design and development required for national security;
- to engage in the pursuit of self-reliance in critical technologies relating to armed forces;
- to encourage and support research projects relating to defence interest;
- to advise scientific top management in the Defence Department -- Scientific Adviser to Raksha Mantri;
- to coordinate the research activity carried in various organisations; and
- to finance the organisations engaged in research to develop infrastructural facilities.

Defence Research and Development Organisation (DRDO) was formed by amalgamating Defence Science Organisation and some of the Technical Development Establishments in 1958. In 1980 a separate Department of Defence Research and Development was formed to control and coordinate a network of 50 defence research laboratories and other allied establishments. It functions under the control of Scientific Adviser to Raksha Mantri, who is also Secretary of Defence Research Development.

The research work carried out under this Department covers aeronautics, robotics, missiles, electronics, instruments, combat vehicles, engineering systems, naval systems, armament, technology and explosives research. It also covers systems services including advanced computing, life sciences, high altitude agriculture, physiology, food technology and nuclear medicine.

Notable achievements of DRDO are flight simulation for aircraft, 68mm reusable rocket pad for aircraft, brake parachute, for fighter aircraft, light field gun, illuminating ammunition for enhancing night fighting capability, cluster weapon system for fighter aircraft, and low level flying radar Indira-I and Indira-II.

Other significant achievements of DRDO are *Arjun* Battle Tank, *Prithvi* (surface to surface tactical battle field missile), *Nag* (third generation anti-tank missile), etc. It also offers special training programmes for armament technology at Institute of Armament Technology (IAT), Pune and Defence Institute Technology Management (DITM), Mussori. These centres have been evolved primarily to meet the needs of DRDO, Department of Defence Production and Supplies and three Services.

Department of Defence Research and Development also assists para-military and police agencies by supplying the bullet proof vehicles and vests.

The publications of DRDO are

- 1) *Defence Science Journal* (Q);
- 2) *R&D Bulletin* (Q)
- 3) *R&D Digest* (Bimonthly);
- 4) *Popular Science & Technology* ;
- 5) *DRDO Newsletter*.

15.5 INDIAN COUNCIL OF AGRICULTURAL RESEARCH (ICAR)

The Famine Commission (1880) emphasised the need for revamping the agricultural potentiality in the British-India. Dr.J.A. Voelekar's report (1881) also reiterated the need for strengthening the work on agricultural research. In 1936, Government of India, has appointed a Royal Commission on Agriculture to examine the conditions of agriculture and rural economy in India. Based on the recommendations of Royal Commission, the Imperial Council of Agricultural Research was established. Later it was renamed as Indian Council of Agricultural Research (ICAR).

The main objective of ICAR is to promote agriculture and animal husbandry research in conjunction with various State Government agricultural needs, and also State and Central Government research programmes.

The specific objectives of the ICAR are as follows:

- to identify the thrust areas of research in the field agriculture and animal husbandry;
- to entrust, encourage and support research work in the field;
- to coordinate the research programmes carried out in different organisations;
- to provide education and training facilities for scientists in the field;
- to sponsor projects and provide finance for infrastructural facilities to carry out research in productive way;
- to provide required library resources and information services to scientists working in various aspects of agriculture and animal husbandry.

ICAR is serving as an apex body in the country to coordinate research activity in the field of agriculture, animal husbandry and forestry. There are 42 research institutions and 21 national

research centres working under the guidance of ICAR. ICAR tries to achieve its tasks through the above research institutions and research centres which are spread throughout the country.

ICAR is serving as an apex body to coordinate the research activity in the field of agricultural, animal husbandry, fisheries, and allied sectors.

There are nine Project Directorates to manage and supervise fundamental and allied aspects of individual crops, commodities and disciplines, which have some relevance to agriculture, animal husbandry and fisheries. Some of its projects are multi-local and multi-discipline and cover important commodities' research areas.

The achievements of ICAR are quite significant in the field of agriculture, and in improving the food production in India.

ICAR is maintaining a good library, whose aim is to cater to the information needs of scientists in the field of agriculture. It is planning to start a National Grid of Cooperative Research, in which universities and other educational institutions and scientific organisations would participate.

ICAR has the following publications:

- 1) *Indian Journal of Agricultural Sciences*
- 2) *Indian Farming*
- 3) *Indian Horticulture*
- 4) *Krishi Chayanika*

15.6 NATIONAL INSTITUTE OF SMALL INDUSTRIES EXTENSION AND TRAINING (NISIET)

When the Government of India launched a systematic and concrete programme for the development of Small Scale industries, it felt the need for starting an organisation to coordinate the various activities of small scale industries in India. As a result, the Small Industries Extension and Training Centre (SIET) was started in 1962 mainly to assist, help and promote and modernise small industries through training, research and consultancy activities.

The primary objective of SIET, now called National Institute of Small Industries Extension Training (NISIET), is to promote the growth of small industries in the country. It has the following specific objectives:

- to identify and maintain a list of small industries in the country;

- to maintain a record of the products produced by different small industries in the country;
- to provide scientific and technical assistance to small entrepreneurs;
- to provide information relating to availability of raw material, and equipment, market feasibility, financial resources etc. to small entrepreneurs;
- to provide required training facility to workers in small industries;
- to provide technical reports to users;
- to coordinate the activities of different organisations in the field small scale industries.

NISIET is serving as an apex body in the field of small industries. It coordinates the activities of other organisations in achieving its main objectives, that is, to assist, help, promote and modernise the small scale industries.

The major achievement of NISIET is the establishment of SENDOC in 1971, whose primary aim is to provide required information support to administrators, scientists, technicians, and others, who are working in the small scale industries environment in the country.

The Library of NISIET has a rich collection of documents primary and secondary periodicals and newsletters of national and international organisations. It maintains a central file of 50,000 records of indexes and abstracts of various micro and macro documents. It has also developed its own thesaurus.

It prepares product profiles of organisations of small industries and keeps it ready for use by its clientele. It prepares trade literature, report literature, institutional literature for the sake of its users.

In addition to library and information services, NISIET provides training facilities for storage and retrieval of information for foreign students. It has established a national documentation centre, called SENDOC.

SENDOC is now planning to play a significant role as a National Clearing House of Information for specialised agencies and institutions connected with the development and promotion of small industries.

NISIET is periodically organising seminars/conferences with an aim to create awareness among the participants about the need for and importance of information to different operations at different levels and also to provide a forum for participants for exchange of ideas and discuss pertinent problems.

The publications of NISIET are

SENDOC Bulletin

SENDOC Chronicle Round Up

Directory of Entrepreneurship Development, Training and Development Research Institutions in India.

Index to Product Profiles of SENDOC

15.7 INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH (ICSSR)

The research activity in social sciences remained solely an academic activity oriented to obtain degrees, like Ph.D. and D.Litt. in universities till Independence. The creation of Community Development Programme gave an impetus for the research in social sciences. The National Institute of Rural Development (NIRD), Ford Foundation and US-Educational Foundations are also encouraging research activity by providing the financial assistance in this field.

However, the Planning Commission has appointed a Committee under the Chairmanship of Dr.V.K.R.V. Rao to identify the current status of research activity in Social Sciences and to make recommendations. Based on this recommendation, the Government of India has established the Indian Council of Social Science Research in 1969.

The primary objective of ICSSR is to promote and encourage research and development in the field of social sciences. The specific objectives of ICSSR are as follows:

- to identify the priority areas for research in social sciences;
- to encourage and research and developmental activities in the field;
- to financially support individuals and institutions to build up their infrastructure facilities;
- to coordinate the research activity in the field;
- to build up comprehensive documentary sources and information services in the field;
- to bring out publications for the use of researchers and social scientists in the field.

The ICSSR, whose headquarters is located in Delhi, is an apex body to plan and take decisions regarding research programmes in the field of social sciences. It implements its programs through regional centres established in Mumbai, Calcutta, Chandigarh, Hyderabad and Shillong. The regional centres take care of research activity, i.e., accepting the applications for grants, sanctioning

travel grants, preparation of bibliographical tools etc in the concerned regions under the guidance of ICSSR.

In the short span of its existence, ICSSR has set up Social Science Documentation Centre (SSDC) which was renamed as National Social Science Documentation Centre (NASSDOC) in 1970. Its main objective is to develop comprehensive document collection and required information services for the sake of researchers in the field.

During 1971-72, ICSSR has brought out two important directories. They are

Directory of Social Science Institutions, and

2) Social science organisations.

It has also brought out the Union List of Serials in Social Sciences in 1970, which runs in 35 volumes. ICSSR maintains a list of social scientists in India, which consists of 5 volumes covering more than 10,000 scholars working in the field.

ICSSR has a plan to start a National Information Grid, through coordination of centres working at present and involving the institutions and organisations in the field of social sciences.

ICSSR is also planning to identify the existing of periodicals in various institutions in this field, with an aim to bring out a consolidated list for resource sharing to support research activity.

ICSSR is also planning to start a network of centres and institutions to facilitate selection, processing and communication of ideas from one another in the country.

The publications of ICSSR are

ICSSR brings out the following journals:

ICSSR Research Abstract (Q);

Indian Dissertation Abstract

Five abstracting journals relating to Psychology, Sociology,

Social Anthropology, Criminology, Economics, Geography and

Political Science.

15.8 INDIAN COUNCIL OF MEDICAL RESEARCH (ICMR)

The Health Survey and Development Committee, which is popularly known as Bhore Committee (1964) has recommended the establishment of an apex body to plan and promote research

in the areas of biomedical and health in the country. The Udappa Committee has endorsed the above recommendation. As a result, the Indian Council of Medical Research (ICMR) was established in 1967 with an aim to identify thrust areas and plan for intramural and extramural research in the field of biomedical and health.

The primary objective of ICMR is to encourage and support research activity in the field in conjunction with the national priorities. The specific objectives of the ICMR are as follows:

- to identify the national priorities of research in the national interest;
- to plan for sustained research in the country;
- to encourage the people involved in research;
- to support the research institutions by providing the infrastructural facilities;
- to develop indigenous technology and methods in research; and
- to develop suitable library and information facilities required for the research work carried out in the field medicine.

ICMR in India is working as an apex body in the field of biomedical and health research. There are 20 permanent research institutions and eight Regional Medical Research Centres, which are located in different parts of the country working under ICMR and whose headquarters is located in New Delhi. Considerable amount of research activity is being carried out through the above bodies in the national health priorities and identified thrust areas.

Besides ICMR, Research is also being carried out in Centres for Advanced Research and a large number of centrally coordinated multi-centric projects in medical colleges and hospitals and non-ICMR research institutions.

ICMR maintains National Institute of Nutrition, Hyderabad, National Institute of Virology (Pune), T.B. Research Centre, (Madras), etc.

The main research activity of ICMR may broadly be divided into Intramural and Extramural. The *Intramural research* is carried out in permanent research institutions located in different parts of the country and Regional Medical Research Centres. The *Extramural research* is implemented through Centres of Advanced Research and large number of centrally coordinated multi-centric projects in medical colleges, hospitals, and universities.

The main thrust areas of research in biomedical and health identified by the ICMR are communicable diseases, reproductive biology, contraception, maternal and child health, nutrition, environmental and occupational health and non-communicable diseases. Research on indigenous drugs and traditional medicine are also considered as thrust areas in the recent past.

Since 1985, ICMR is giving much emphasis for the information and communication activities with an aim to provide required information support to different target groups in research in biomedical fields. It is also providing supporting facilities such as bio-statistics and medical education technology to strengthen infrastructure for advanced research in the field.

ICMR is also planning, with the support of NIC, to develop databases for the benefit of researchers. It is also providing the online information service in collaboration with MEDLARS.

ICMR has instituted a number of prizes to encourage scientists in research activity.

ICMR publishes the following:

Indian Journal of Medical Research (Monthly)

ICMR-Research Information Bulletin (Monthly)

ICMR-Patrika (Q) in Hindi

Annual reports

Survey reports

ICMR - Ek Sankshipta Paricharya Vartman Anusandhan Gatividhan (Hindi)

15.9 COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH (CSIR)

Council of Scientific and Industrial Research is founded in 1942 under the Ministry of Science and Technology, Government of India, with the basic aim of promoting and developing Science and Technology. It is an autonomous body registered under the society Act 1860. However, its growth and expansion were more in post-Independence period. Now, it is serving as an apex body in the country encouraging, promoting and supporting research in Science and Technology.

CSIR was started with a wide charter for promoting, encouraging and supporting the research in the field of science and technology in the country. The specific objectives of CSIR are

- to identify thrust areas in the field of science and technology for research;
- to encourage research activity in science and technology by giving awards, granting fellowships and associateships to individual scientists;
- to encourage indigenous research in the field;
- to produce scientific manpower by sanctioning scholarships and conducting training programmes;

- to bring out useful publications in the field; and

- to develop library sources and information services for supporting the R&D work in the field.

CSIR is serving as an apex central body for the promotion of research in the field of Science and Technology except in nuclear science. It carries out its main task through 40 national research institutions, which are considered as National Laboratories and spread through out the country. Besides, it maintains 80 field extension centres in the country to cover the entire gamut of R&D work in science and technology.

The main focus of the CSIR at present is to develop indigenous technologies and utilisation of indigenous sources. The contribution of CSIR in the independent India is very significant to societal, technological and for scientific missions.

CSIR contributions are innumerable covering areas such as Aerospace Energy, Bio-technology, Food Technology, Leather Science, Coal Mining, Environment, Electronics, Machinery and Ocean Sciences.

The principal sources of CSIR services are indigenous technology databases and wide range of other services. It licensed 2,000 technologies to 5,000 parties, yielding 2,000 crores of rupees to the country's economy.

CSIR started INSDOC in 1952 with an aim to provide required information support to R&D work carried out in all national laboratories. It is planning to provide a computer-based network of library services using national resources, international online services and CD-ROM databases.

CSIR publishes the following:

Technical Manpower Bulletin (M)

Wealth of India

Wealth of Raw-materials

Industrial Products

15.10 LET US SUM UP

At the end of World War II, most of the Western countries realised the value of scientific knowledge and importance of scientific research for industrial growth, economic prosperity and to gain power over others. Accordingly, they have planned scientific research programmes, providing sufficient financial support to carry out research in different fields. Also they have attracted the best of the brains from other parts of the world, by offering good facilities to carry scientific

research. As a result, the developed countries are now enjoying the superiority in technological development over other countries. It was Winston Churchill who said "Future is for those who have brains" at the end of World War II.

Of late, the developing countries have also realised the need for and importance of scientific research to develop indigenous technology for their specific national needs. Government of India has realised the need for the development of indigenous technology to explore and exploit vast natural resources for the benefit of people at large in the country through scientific research. Accordingly, a number of national laboratories were established in India during the 1950 and 70s to carry out research activity in their respective fields. Government has also established national bodies in different fields such as CSIR, ICAR, ICMR, IARI, UGC and ICSSR to monitor the research activity in their respective fields in view of the country's economic, industrial and social priorities. It was the First Prime Minister, who has initiated such scientific activity kindling the scientific spirit among scientists and academicians. As a consequence significant results have been achieved in scientific research in some of the fields in India.

Besides establishing national organisations, the Government of India has been providing sumptuous grants to assist, encourage and sponsor research projects. In addition, the above organisations are also fostering the growth of information systems services in their respective fields. They are also encouraging information scientists for research, and establishing information networks, seminars and conferences.

15.11 RECOMMENDED BOOKS

AGARWAL, S.P. "National Information System in Social Sciences". *Indian Journal of Library and Information Science*. 7(1); 33-60.

BENARJEE, S.R. "Agricultural Libraries: Resources and partnership". *AALDI Bulletin*. vol. 16(1-12); 1978.

BENARJEE, U.K. "Social Sciences Information System". *Economic Times*, 7th July 1978.

RAMAIAH, L.S. "Academy of Library and Documentation". IN *Handbook of libraries, archives and information centres in India*. vol.10. pp.148-154.

UGC *Annual Report*, 1994.

VASHISTH, C.K. "ILA". IN *Handbook of libraries, archives and information centres in India*. vol.10; pp.96-108.

15.12 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) What are the aims and objectives of ICAR?
- 2) Give a brief account of the information activities of DRDO in the field of defence science.
- 3) Describe the activities of ICSSR in the library services
- 4) Discuss the role of ICMR in the establishment of medical information systems in India.
- 5) Briefly describe the activities of UGC in establishing information networks and popularising the information services.

II SHORT NOTES

- a) DST
- b) NISIET

UNIT-16 : PROFESSIONAL ASSOCIATIONS PROMOTING INFORMATION SYSTEMS

Structure

- 16.0 Aims and Objectives
- 16.1 Introduction
- 16.2 Professional Associations in LIS - International level
 - 16.2.1 FID
 - 16.2.2 IFLA
 - 16.2.3 ISKO
- 16.3 Professional Associations in LIS - National level
 - 16.3.1 ALA
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 - 16.3.3 The LA
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- 16.4 Professional Association in LIS - India
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 - 16.4.2 IASLIC
 - 16.4.3 SIS
 - 16.4.4 ALSD
- 16.5 Let Us Sum Up
- 16.6 Assignment
- 16.7 References and Recommended Books
- 16.8 Model Examination Questions

16.0 AIMS AND OBJECTIVES

This unit provides a brief account of professional associations working in the field of library and information science at international, national and regional levels.

After studying this unit, you should be able to

- describe various professional associations in the field of library and information science, viz., FID, IFLA and ISKO

- explain the role of professional associations in library and information field at the national and local levels, namely, ALA, the LA, SLA, ILA, ASLIB, SIS and ALSD.

16.1 INTRODUCTION

The very object of a professional association is to strive for uplift of the profession and work for the progress and welfare of the professionals. In the field of library and Information science there are a number of such associations working at the international level, namely, FID, IFLA, and ISKO; and at the national level - ALA, SLA, LA, ASLIB, ILA, IASLIC and SIS; and at the local level - ALSD.

Most of the associations are non-governmental bodies, but are playing a significant role in the promotion of the profession and professionals. They are providing an opportunity for professionals to exchange their ideas and experiences by conducting conferences, seminars, workshops etc. Also they are bringing out a number of publications to make the professionals aware of the latest trends and developments in the field.

Some of the organisation are conducting training courses and short-term courses to give an opportunity for professionals to improve their qualifications, and their professional skills and techniques and getting practical experience in the modern technologies.

In the following sections, we present you with a penpicture of some of the prominent professional associations at the international, national and local levels.

16.2 PROFESSIONAL ASSOCIATION IN LIS - INTERNATIONAL LEVEL

There are several professional association in the field of library and information science at the international level. In this unit you learn about three major associations, namely, FID, IFLA and ISKO.

16.2.1 International Federation for Information and Documentation (FID)

The International Federation for Information and Documentation was founded in 1895, by two Belgian lawyers Paul Outlet and Henri La Fontaine in Belgium under the name 'International Institute of Bibliography' (IIB). The idea of starting the above organisation had originated at the Conference Bibliographique Internationale held in Brussels from 2-4 September, 1895.

IIB became a federation in 1924 with five national Foundation members - Belgium, the Netherlands, Germany, France and Switzerland. The IIB changed its name as 'Institute International de Documentation' (IID) in 1931, and as 'Federation International de Documentation' (FID) in 1938. The headquarters of the FID was shifted to the Hague in 1938. As it has assumed new roles, the activities of FID have been expanded and the organisation is now known as International Federation for Information and Documentation, but under the old acronym FID. FID became truly International, having an association with other international organisations and taking up the activities which are of interest to the library professionals all over the world.

The main aim of FID is to promote cooperation among libraries and information centres, coordinate efforts of individuals and study and research in field of library and information science at the international level. It has the following specific objectives:

- 1) to foster the growth and development of information science and its application in different fields;
- 2) to promote study and research in the areas of documentation through international cooperation;
- 3) to provide a forum for organisations and individuals working in the field of information for exchange of their ideas and experiences and discuss their mutual problems;
- 4) to promote the organisation, storage, retrieval, dissemination and evaluation of information practices and services;
- 5) to coordinate the efforts of organisations and individuals relating to documentation and information science;
- 6) to encourage and support the documentation and information services at the national and regional levels;
- 7) to encourage the formation of networks in the field of documentation and information services;
- 8) to take up projects and conduct studies in the field for the benefit of libraries and information centers;

9) to provide and promote the traveling and educational facilities for the professionals working in the field of documentation and information; and

10) to formulate evaluating methods and techniques by using mathematics for application in the field.

The Membership of FID composed of National Members (one member from each country) and International members (from international organisations). It also accepts membership from Associates, Institutions and Personal affiliates. It has at present 69 National members, three International members and 250 affiliates.

The General Body, which consists of national and international members, meets once in two years and govern the administration and activities of FID. It has an Executive Committee, consisting of a President, a permanent Secretary - General and five senior officers. There is a Council in FID, which is elected by national delegates of General Assembly and it is responsible for carrying out the programmes and decisions of General Assembly. The day to day activities of FID are handled by the Secretariat, which is located in the Hague, and through the Secretariates of the Regional Commissions.

FID has appointed several Regional Commissions, Committees, Task Forces and Panels to carry out several of its programmes. Some of them are as follows:

- 1) FID/CAO = Commission for Asia and Oceania
- 2) FID/CLA = Commission for Latin America
- 3) FID/IM = Committee for Informatics
- 4) SUN = Studies of User Needs (Task Force)
- 5) BSO = Broad System of Ordering (Panel)
- 6) FID/CR = Classification Research (Technical Committee)

All the above commissions and committees are required to plan and execute different activities for implementing programmes of FID.

i) FID and UDC

FID is responsible for the origin, growth and development of Universal Decimal Classification (UDC) since its inception. The Central Classification Committee (FID/CCC) is responsible for the revision work of UDC from time to time. There are 31 international committees and experts from different subject fields to assist FID/CCC in this revision work of UDC. A sub-committee on 'Mechanisation' has prepared a machine-readable file of the full UDC schedule and kept at the Headquarters at the Hague for reference. A publication entitled, *Extension and Correlations to the*

UDC is being published annually since 1975. It consists of proposals for revision and revisions made during the period for use of libraries.

ii) *FID - BSO*

FID - BSO is a Panel on the Broad System of Ordering, initially developed for UNESCO's UNISIST Programme. BSO is a classification scheme of the whole field of knowledge. It was designed, developed and tested under the joint sponsorship of BSO and UNISIST. It was published and revised under the title BSO - Broad System of Ordering Schedule and Index in 1978, which consists of nearly 6,000 subject codes and captions.

iii) *FID - International Cooperation*

FID extends its cooperation to IFLA, UNESCO International Council of Archives and the Technical Committee of International Standard Organisation (ISO/TIC) in conducting various programmes which are of common interest in the field of library and information services and documentation.

iv) *Regional Committees*

FID and its Regional Commissions conduct congresses for every two years at different parts of the world. FID's technical committees and groups also convene seminars and conferences and workshops meetings to discuss various problems of the profession and to create a forum for its members for exchange of ideas and experiences.

v) *FID - ISORID*

The International Information System on Research in Documentation (ISORID) is a joint project of UNESCO and FID. The aim of this project is to collect, organise, analyse, store and disseminate information on research and development in the field of library information and documentation. The main objective of ISORID is to serve as referral service to persons and organisations undertaking research on specific topics. The information thus collected is published in *FID Bulletin* as R & D Projects in Documentation and Librarianship.

vi) *India's Participation in FID Activities*

India's association with FID began in 1948, when Dunker Duyvis, the Secretary-General of FID, invited Dr. S R Ranganathan, the Father of Library Science in India, for many meetings. As a result of his active participation, Dr.S.R. Ranganathan later became Rapporteur-General of FID/CA Committee on General Theory of Classification. He submitted ten reports which helped in defining and disseminating the concepts such as Fundamental Categories, Facet Analysis, Common Isolates, etc. He also served as Vice-President on FID Council for the Asian Countries for three terms from 1953-1961. In 1957 FID has honoured him as a Member of Honour for his significant contributions made in the field of library classification.

INSDOC is a national member of FID. Several people served on FID Council in the later periods. Dr.S.R. Ranganathan has served as Honorary Chairman for FID/CR, when it was constituted in 1962. When the FID/CR Secretariat returned to India, Prof.A.Neelamegham was elected as its Chairman for two terms, 1973-1980. The Third International Conference on Classification Research was organised by FID/CR at Bombay at BARC Centre in 1975.

FID has a consultative status with UNESCO's General Information Programme (UNESCO-PGI) and World Intellectual Property Organisation (WIPO). It also maintains close association with Food and Agricultural Organisation (FAO), International Atomic Energy Agency (IAEA), UN Industrial Development Organisation (UNIDO) and World Meteorological Organisation (WMO).

FID also maintains cooperation with International Council on Archives (ICA), International Council of Museums (ICOM), International Federation of Library Associations and Institutions (IFLA) and International Organisation for Standardisation (ISO).

vii) Publications

FID is very keen in bringing out publications from the beginning. The first publication of FID was the *Proceedings of the Conference on International Bibliography* held in 1895. Some of the major publications of FID are as follows:

Universal Decimal Classification

Seventy Years of FID - A Bibliography

Curriculum Development in the Changing World

FID Directory (Bi-Annual)

FID News Bulletin (Monthly)

R & D Projects in Documentation and Librarianship

The Extensions and Corrections to the UDC

International Forum on Information and Documentation (Q)

16.2.2 International Federation of Library Associations and Institutions (IFLA)

The International Federation of Library Associations and Institutions (IFLA) was established in 1927 under the name, "The International Library and Bibliographical Committee". With an aim to promote fraternity, understanding and cooperation among the people working in the field of library and bibliography. It was also aim of the Federation to create a forum to discuss their problems, exchange of ideas and experiences for the library professionals.

The name of the association was changed to "The International Federation of Library Associations" in 1929. The present name was adopted in 1976.

In addition to the basic aim of promoting understanding and cooperation about libraries and bibliography, IFLA has the following specific objectives:

- 1) to provide a forum for the librarians of the world to discuss their problems at the international level;
- 2) to do all such activities which are congenial and necessary for the welfare of professionals in the field;
- 3) to encourage and promote cooperation among the library associations, libraries and professionals at the international level;
- 4) to formulate and furnish guidelines and standards for various types of libraries, their activities;
- 5) to formulate code of conduct for library professionals;
- 6) to provide training facilities for the professionals;
- 7) to promote research and studies on various current and pertinent aspects of library and bibliography;
- 8) to help and assist the libraries of developing countries in their activities;
- 9) to promote the bibliographical activities; and
- 10) to promote the literary production.

IFLA has three types of memberships -- Associations, Institutions and Personal. The Federation has 175 Association members and 825 Institutional members representing different countries of the world.

IFLA has at present the following bodies to carry out its functions and activities at various levels:

- 1) Council, which is a supreme governing body to make policies and adopt new spheres of activities from time to time;
- 2) Executive Board which is mainly concerned with the overall administration of the Association. It also looks after the financial aspects of the IFLA;
- 3) Professional Body which deals with the planning the programmes, receive the proposals and recommendations from Divisions and Sections on various library matters and library activities, and coordinate the professional activities of different divisions;

4) A Committee on Bibliography was established in 1965 under the guidance of Mr. V I Shunkov, Director of the Soviet Academy of Sciences for studying the practical problems relating to Bibliography, formulate standards in bibliographical preparation, and to achieve cooperation among the library institutions in the field of bibliography at the international level;

iii) Activities of IFLA

(1) Universal Bibliographic Control (UBC)

Universal Bibliographical Control (UBC) Programme is one of the major activity of the IFLA. It established an office for UBC in London in 1974 with an aim to encourage and use of standardisation of bibliographic descriptions -- standardising the forms, choice of headings, rendering, compilation of national bibliographies and machine readable bibliographic data.

(2) Universal Availability of Publication (UAP)

In 1973, IFLA took up the 'Universal Availability of Publication' (UAP) programme with an aim to provide information on the availability of published material, in whatever form and wherever it is published without any hinderance. It facilitates to have an easy access to all documents available in all types of library and information centers covered under this programme.

(3) Machine Readable Cataloguing (MARC)

Having realised the need for and importance of the Machine Readable Cataloguing (MARC), IFLA has launched an international programme for the development of new computer and communication techniques, to meet the present day requirements of computer based information retrieval activities of libraries in the world.

(4) International Standard Bibliographic Description (ISBD)

IFLA has designed, developed and published the International Standard Bibliographic Description for Monographic publications, ISBD(M), in 1974. It provides basic rules for description of monographic material and included it in AACR2. Similarly, IFLA in collaboration with the Joint Steering Committee, has developed the General International Standard Bibliographic Description, ISBD(G), which will serve as the basis for the bibliographical description of all types of publications in different media.

(5) Medium Term Programme (MTP)

In order to make the IFLA programmes more active and effective, it has launched five Medium Term Programme (MTP) projects to cover the professional activities during the period, 1976 to 1990. Thus, the IFLA is very active in taking up the professional projects and programmes.

(6) IFLA and Developing Countries

IFLA is taking a special interest in the growth and development of libraries in developing countries. For this purpose IFLA has constituted a special division of Regional Activities, which is entrusted with the problems of developing countries in the field of library and information science. The Working Group on Developing Countries established in 1971 also serves as a coordinating agency on different sections and committees of IFLA to take up the issues on library matters interested to Third World countries.

(7) Education and Training

IFLA promotes the training course programme in Asia and Africa and updates its database, the Experienced Library and Information Personnel in Asia and Oceania (ELIPA), for the development of library facilities in the developing countries.

(8) Cooperation with Institutional Organisations

IFLA has a keen interest in collaborating with other international organisations such as UNESCO, FID, ICA and ISO in carrying out many programmes which are of common interest and for the betterment of libraries and their services in the world.

IFLA takes part in the organisation of conferences and seminars on various topics relating to libraries.

Publications

The IFLA serial publications are as follows:

IFLA Journal (Quarterly)

International Cataloguing (Quarterly)

IFLA News (Monthly)

IFLA Directory (Bi-Annual)

IFLA Annual.

16.2.3 International Society for Knowledge Organisation (ISKO)

The International Society for Knowledge Organisation (ISKO) was formed by a group of International specialists in the field of library classification in 1973. It is primarily devoted to concept theory, classification, indexing and knowledge organisation. Dr. Ingetraut Dahlberg is serving as the editor of the official organ of ISKO, *Knowledge Organisation*.

The main objectives of the ISKO are

- to promote and encourage the activity relating to study, research in library classification;
- to evolve methods and techniques and processes useful in practical classification;

- to create a forum for its members to discuss various aspects relating to classification and knowledge organisation;
- to evolve new mechanical and intellectual procedures in the automatic compilation of classification;
- to identify, formulate and standard terminology for consistent use in the field;
- to design and develop concept thesaurus in different subject fields wherever necessary;
- to publish a journal for the propagation of new ideas, articles and research results to members and others who are working in the field of knowledge organisation;
- to convene conferences and seminars with an aim to provide an opportunity for members to discuss various aspects of their common interest;
- to collaborate with other international and national organisations to carry out its set tasks; and
- to promote study and research in the field of knowledge organisation.

The ISKO is working with its headquarters at Frankfurt, Germany. There are regional Chapters which consist of groups of ISKO Members living in a well defined geographical region. The aim of such regional chapters is to promote the interest of ISKO and its activities in the region. Each regional chapter has a Chairperson and two Deputy Chairpersons who are elected every two years.

Since its inception, ISKO has been publishing a journal under the title *International Classification*. From 1989 onwards this name has been changed to *Knowledge Organisation*. However, it served as vehicle for improvement of classification methods and processes. It usually covers original articles, reports, conference proceedings, newsletters of ISKO and FID/CR, book reviews, letters to editors and extensive annotated bibliography of recent literature published in classification and indexing. Thus, the *Knowledge Organisation* is serving as the official organ of ISKO.

ISKO also takes keen interest in organising the conferences and seminars on various matters relating to knowledge organisation at different places. The Second International ISKO Conference was held in Madras from 26-28 August, 1992. The theme of the conference was "Cognitive Prodigms in Knowledge Organisation"

ISKO published *Who's Who in Library Classification and Indexing*, which consists of 700 professionals from 43 countries. It has also taken up the task of publishing another source document *Who's Who in Knowledge Organisation*, which is in preparation.

16.3 PROFESSIONAL ASSOCIATIONS IN LIS - NATIONAL LEVEL

The professionals in the library and information field in a country form an association for their common good and professional development. Let us understand the contribution of various professional associations in LIS field from USA, UK and India.

16.3.1 The American Library Association (ALA)

The American Library Association (ALA) was established in October 6, 1876 by Melvil Dewey, the Father of Library Science, with its headquarters in Chicago. It is one of the oldest and largest library associations working in the world. Its motto is "the Best reading for the greatest number at the least cost". The primary objective of ALA is to bring the libraries to the people through user-oriented life-long service for their betterment of life. Justin Winsor and Melvil Dewey served as its first President and Secretary, respectively. ALA, which has an abiding faith in spreading the ideas of intellectual freedom, was incorporated under the Laws of Massachusetts on the 10th December, 1879.

The specific objectives of the ALA are

- to encourage and promote the use of libraries;
- to popularise the services among the people;
- to improve the quality of library services;
- to strive for maintenance of high standards in the library activities, functions and services;
- to improve the educational and professional standards of librarians;
- to work for spread of ideas of intellectual freedom in the country;
- to create an awareness among the public about value of libraries and their services; and
- to improve the status and working conditions of library professionals.

The membership of ALA is open to all people interested in libraries in the world. There are four types of memberships - Personal, Charter, Organisation and Special Membership. ALA has nearly 50,000 members which is perhaps the largest organisation in the field of library and information science in the world.

ALA has three important organs - a) General Body, which elects the President, Secretary and other office bearers; b) the Executive Body to look after the day to day affairs and management of the association; and c) Councils to look after various other aspects. There are 56 Chapters, 13

Divisions and a number of Committees and Round Tables to look after and serve the people on various aspects. There are many sub-groups in ALA, such as Social Responsibility Round Table, the Feminist Task Force and Black Caucus working for the benefit of special category of people.

ALA is playing a significant role in bringing out the legislation at the state and national levels for the improvement of quality of library services in the country. It has succeeded in achieving the following aspects of legislation:

- 1) Passing of Library Service Act of 1956 which gave an impetus for the development of public libraries in rural areas;
- 2) The above act was amended in 1964 as Library Services and Construction Act (LSCA) :
- 3) The Library Bill of Rights approved by the ALA in 1948 preserves the intellectual freedom to citizens to read whatever he wants and form his own judgment without censorship.
- 4) Promoted the legislation dealing with postal rates, copyright and funds to library services;
- 5) ALA has opened a Federal Office in Washington to attend to the matters dealing with library legislation.

ALA has a Committee on Accreditation to maintain standards of library curriculum and examinations and library education. The Board of Education for Librarianship of ALA takes care of upgrading the deserving schools as fullfledged departments in the country. It assists for the establishment of library schools and development of library education within the country and abroad. Notable among the institutions which received such an assistance from ALA are - Keio Library School, Tokyo, University of Ankara, National Taiwan University, University of Philippines and the University of Delhi.

ALA regularly convenes seminars and conferences to give an opportunity for the professionals to share their ideas and experiences on several professional matters.

ALA has close relations with other international bodies like IFLA, FID, UNESCO, and LA. It serves as a clearing house to render any information on international library affairs. It is closely associated with the LA and Library of Congress in bringing out the AACR I (1967) and AACR II (1978). Through its international sub-committees, ALA also helps the Third World countries in establishment and development library schools, libraries and their services.

ALA often recruits staff for overseas assignments and selects persons and institutions of merit and accomplishment for professional assignments to different parts of the world.

ALA encourages the professionals for research in the field by providing grants. The Library Technology Programme (LPT), which tries to explore the possibilities of using modern technology in libraries is one of such projects. It also tries to evolve standards for services for all types of libraries, which will serve as yardsticks to measure and estimate the quality of services.

Every year ALA - Notable Book Council announces the standard books which serve as significant additions to the world of books.

ALA has instituted several awards, medals, scholarships and prizes to encourage scholarship among authors, students and professionals in their professional work. Such awards are presented in the annual conferences. The following are the some the such notable awards instituted by the ALA:

Clarence Day Award - for promoting love of books and reading

Melvil Dewey Award for creative professional achievement

The Bessie Moore Award for excellence in library service to the aging population

John Cotton Dana Publicity Award

E.P. Dutton - John Macrao Award for advanced study and service to deprived children

Ralph R Shaw Award for further education to individuals of Hawaii and Pacific area.

Dr.S R Ranganathan received the Margaret Mann Citation Award for his outstanding achievement in the field of classification and catalogning in 1970 from ALA. ALA has brought out more than 200 publications covering various aspects of library and information science and bringing out several periodicals and other publications. Notable among them are as follows:

American Library Pioneer Series

ALA Catalogue Rules;

AACR I and AACR II

ALA Glossary of Library Terms by E.H. Thompson

American Library Laws

College Research Libraries

American Libraries

Reference Quarterly

Library Technology Reports

16.3.2 Special Library Association (SLA)

The Special Library Association (SLA) was established at the annual conference of American Library Association held at Bretton Woods (New Hampshire) on July 2, 1909 at the initiative of John Cotton Dana. Dana served as a public librarian and realised the importance of developing

special collections for business community in public libraries and put a lot of efforts in establishing a separate association for special libraries. The motto of SLA is "putting knowledge to work".

The basic aim of SLA is to promote the collection and development of literature useful for scientists, biologists, social scientists and humanists and use of such literature for user community.

The specific objectives of the SLA are

- 1) to encourage the establishment of special libraries basing the user need in the society;
- 2) to encourage the development of collection of literature on the specialised subject fields;
- 3) to promote the fraternity among the staff working in special libraries for exchange of ideas;
- 4) to convene seminars and conferences to provide an opportunity for special librarians to meet, discuss and exchange their ideas and experiences on various aspects of special libraries;
- 5) to provide continuing education facilities training programmes for staff in special libraries;
- 6) to promote the awareness about the activities and services of special libraries in the country among the user community.

The activities of the SLA are controlled by its Chapters. There are about 54 chapters in USA, which are organised on regional basis. These chapters look after the activities of the SLA at regional level. There are Divisions, which look after such aspects as pharmaceutical, social science, science and technology, etc. Each chapter and division has its own offices to carry out their business. At the apex, there are Chapter cabinets and Division cabinets to guide the work and to formulate policies.

The Chairmen of these Cabinets are represented on the Board of Directors, who plan and decide the activities of SLA at the national level. The Board consists of a President, Treasurer, Chapter Cabinet Chairmen, Division Cabinet Chairmen and 10 other Directors. The Board is assisted by SLA Committees. The Office bearers and the Directors are elected by members in annual meetings.

SLA conducts continuing education programme for its members with an aim to meet the changing needs of information specialists. In order to make the professionals ready for the changing situations, SLA conduct courses on topics such as management, communication, library automation and, computer and communication technologies. Since 1982, SLA has been running a 5-Unit programme called Middle Management Institute (MMI) to bridge the educational gap between the library schools and the requirements of middle level management position in library information management.

SLA conducts annual conferences giving an opportunity for professionals to discuss various current and pertinent aspects of special libraries. In these conferences, generally papers are presented

and discussions are carried out. The topics covered in such conferences include, for example, 'the Information Specialists: a bridge to the new communications'; 'Excellence in the World of Information', 'Information Professional: An unparalleled resource etc.

In order to encourage the professionals in their activities SLA offers various medals and awards. They are

- 1) Hall of Fame Award
- 2) SLA President Award
- 3) SLA John Cotton Dana Award
- 4) Professional Award
- 5) H.W. Wilson Award
- 6) Leadership Award
- 7) Plenum Publishing Award
- 8) SLA PR Award
- 9) Affirmative Action Award

SLA has brought out a number of useful publications in the field of library and information science. Some of the significant publications of SLA are

- 1) *The Library: An Introduction for Library Assistants*
- 2) *Special Librarian as Supervisor or Middle manager*
- 3) *Librarian's Guide to Personal Development*
- 4) *Special Libraries and Information Centers - An Introductory Text*
- 5) *Directory of Map Collections in US and Canada;*
- 6) *Specialist* (Monthly)
- 7) *Special Libraries* (Quarterly)
- 8) *Who is Who in Special Libraries.*

16.3.3 The Library Association (LA), U.K.

The Library Association (LA) in U.K. was formed at the first International Conference of Librarians held in London on 5th October, 1877, with an aim to unite all persons engaged in the

library field and work for the betterment of the profession. John Winter Jones served as its first President. LA with the motto "The Thoughts of Men are Commonwealth", seeks to encourage the establishment of libraries, promote their administration and improve the status and services conditions of library professionals. LA takes care of the public, academic and research libraries in the United Kingdom.

The LA, since its inception, is striving to improve the conditions of libraries and status and salaries of the professionals as well.

The specific objectives of the LA are

- 1) to encourage the establishment of libraries wherever it is necessary for the public;
- 2) to improve the standards of library facilities and services;
- 3) to improve the qualifications of professionals by conducting examinations at different levels;
- 4) to work for the betterment of service conditions and salaries of professionals;
- 5) to work and convince the authorities for bringing out legislation relating to library matters.
- 6) to conduct surveys and studies to identify the existing conditions of libraries in the country.

The Membership of the LA is open to all in the World. It has three types of members - Professionals, Students of Library Profession and People interested in the Library profession. LA attained the Royal Charter in 1898 and changed its character from that of a learned and liberal nature to a professional one.

LA has a Council which is an elected body. It is the supreme body concerned with all matters relating to library field and is responsible for convening the conferences and seminars of LA. There are four Committees - Executive, General Purpose, Library Services and Professional development and Education to advise the Council in its activities. There are 12 Regional Branches and 18 Special Interest Groups to carry out various functions of LA.

LA takes the initiative in bringing out the legislation dealing with the public libraries. It took an active part in passing the Public Libraries Act of 1892 and again in 1919 which allowed the establishment of libraries in England and Wales. It also makes suggestions for the revision of By-Laws of Public Libraries and Museum Act of 1964 and help the Government in the library matters. LA takes up the responsibility of identifying the existing phenomena in public libraries by conducting surveys and recommend suitably for the improvement of libraries.

LA works for devising and implementing standards for all types types of library activities and functions, including standards of service to users and ethical code of very high standard for its members. It has evolved a code of ethics for librarians.

LA from the beginning, has been providing education and training in the field of library science with its own syllabus. Just like any other school it conducts examination offers and awards Associateships and Fellowships, maintaining its own Register of Chartered Librarians. It also runs short-term and refresher courses for the benefit of the professionals. There is a high value for the degrees awarded by the LA throughout the World. The Educational Committee of LA looks after the training programmes and education etc. It also encourages and promotes research activity in the field of library and information science on various aspects.

The LA's help and assistance is there in bringing out the British National Bibliography since its inception in 1950. It also promotes cooperation among libraries and offer consultation services in the matters of library and information science.

LA has taken up an active part in extending their help and assistance in the improvement of libraries in Commonwealth Countries. It offers scholarships, conducts surveys, and implements British Council programmes in the developing countries. It played a key role in forming Commonwealth Library Association (COMLA) at Lagos, Nigeria. LA helps the British Government in all library matters. It helped to form Regional Library System in Great Britain and inter-library cooperation among different libraries. It also helped the Government in the reorganization of British Library in 1973 and handed over its own library to it. The Members of Parliament also consult LA on library matters.

The International Relations Sub-Committee of the LA looks after the Association's international policy, co-operation activities with other international organisations and coordinates the international activities of its branches. It also takes care of exchange of library personnel and programmes through internships for professionals in developing countries.

LA also conducts international exhibitions in cooperation with other associations. On request, it organised several seminars and conferences such as 'Seminar on International Lending' held in Banbury, Oxfordshire in 1973, 'Workshop on Educational Methods for Information Students' conducted at Harrot, Sussex on behalf of the British Council and Commission of European Community respectively.

It also encourages student exchanges programmes to different countries with an aim to improve fraternity among the professionals of different countries.

In token appreciation of outstanding work and contribution and service rendered by persons in the field of library and information science, LA has instituted the following awards and medals:

- 1) LA Carnegie Medal for Best Children, Books
- 2) LA Kate Greenaway Medal for Illustrated Children, Book :
- 3) LA Wheatley Medal for Outstanding Index:

- 4) LA Besterman Medal for Outstanding Bibliography:
- 5) LA McColvin Medal for Outstanding Reference book :

LA is bringing out a number of books and periodicals from time to time for the benefit of the profession. The prominent among them are

Books: 1) *History of Public Libraries in Great Britain:*

2) *Walford Guide to Reference Material:*

3) *Anglo-American Cataloguing Rules:*

4) *Library Association Yearbook:*

Periodicals:

1) *Library Association Record* (Monthly)

2) *British Humanities Index* (Quarterly)

3) *Journal of Librarianship* (Quarterly)

4) *British Technology Index*. (Monthly).

5) *Library and Information Science Abstracts* (Bi-Monthly)

6) *Current Research in Library and Information Science*

16.3.4 The Association for Information Management (ASLIB)

After World War I, the specialists in metallurgical industries felt the need for and the value of information for their work in the industrial environment. As a result, they convened a conference at Hertfordshire to examine the feasibility of establishing a new organisation to coordinate the libraries in the systematic use of knowledge and information for the use of activities carried out in the field of sciences, commerce, industry, and public affairs. As a result the Association of Special Libraries and Information Bureaux (ASLIB) was formed in 1924. The ASLIB came into existence, with the basic aim of coordinating the information activities in the country and highlight the importance of information in all spheres of national activities in the Post-War reconstruction economy.

In 1948, the British Society for International Bibliography was merged with the association and later it assumed new roles and dimensions and extended its activities in the field of library and information service. Currently the name of the association has been changed as "Association of Information Management" but the acronym is continued as ASLIB.

The primary objective of Aslib is to promote the use of knowledge and information in all spheres of national activities. The ASLIB has been assuming the new role from time to time and

aims to achieve the following specific objectives:

- 1) to promote the special library activities;
- 2) to coordinate and consolidate the activities of special libraries to make use of sources and services in a productive way;
- 3) to promote and encourage cooperation among the special libraries for exchange of their sources and services;
- 4) to bring out publications;
- 5) to promote the professional activities;
- 6) to encourage and promote library automation, use of modern technology, formation of networks and encourage research activity in the field.

The membership of ASLIB is open to all library professionals in the world. At present it has 2,500 members from 80 countries. It has three regional branches at Scotland, North of England and Midland. ASLIB has two groups :

- 1) Subject Groups to cover the activities in various subject fields, and
- 2) Technique groups to cover translations, informatics and computer applications.

ASLIB is providing valuable information services to its members. It provides practical advice to solve their day to day problems in the library management and referral service to solve their personal problems. The areas covered in those services include the following:

- 1) Online information retrieval methods and systems;
- 2) Library automation
- 3) Networking, including local area networking
- 4) Software for library and information retrieval application
- 5) Modern library/information resources management.

In support of its service capability, ASLIB has established an Online Information Centre to provide enquiry service concerning the availability of databases on specific subjects, coverage of data, search strategy, equipment and telecommunications.

ASLIB provides photocopy service to members and non-members to the extent of availability of books in its own library. It is also maintaining a list of translators to render translation services.

ASLIB is providing education and training facilities to members by conducting short-term courses on various essential and current aspects of library and information science field. The topics covered in those courses include - Use of computers, Information sources, Reference work, UDC, Thesaurus construction, etc.

ASLIB and its specialist groups regularly conduct seminars, conferences and meetings to discuss various pertinent aspects of library and information field. It has also sponsored some of the international conferences, which are of general interest in collaboration with other associations.

ASLIB has made significant contribution in bringing out valuable publications in the library and information field. The most prominent among them are ASLIB's *Handbook of Special Librarianship and Information Work* and *Creating an Information Service* by Sylvia P. Webb and the *Translator's Handbook*, edited by C. Picken.

ASLIB is also bringing out the following serial publications:

- 1) *Journal of Documentation* (Quarterly)
- 2) *ASLIB proceedings* (Monthly)
- 3) *ASLIB Information* (Monthly)
- 4) *Technical Translation Bulletin* (three issues a year)
- 5) *Current awareness bulletin* (Monthly)
- 6) *Program-Automated Library and Information System* (Quarterly)
- 7) *ASLIB Newsletter*.

16.4 PROFESSIONAL ASSOCIATIONS IN LIS - NATIONAL LEVEL

The need for a professional association in library field was felt long before the Independence. In this Section you will study the major professional associations in LIS in India.

16.4.1 Indian Library Association (ILA)

In the beginning of the present century, stalwarts of library movement like Sayaji Rao Gaekwad III of Baroda, Iyyanki Venkata Ramanayya of Andhra Desa promoted the library consciousness among the people in the country. For the first time Shri Iyyanki, a doyen of library movement has started Andhra Desa Library Association (1914) and All India Public Library Association (1919) at Vijayawada. They organised many conferences during the freedom struggle.

However, the First All India Library Conference was held in the Asiatic Society Hall at Calcutta on September 12, 1933 with the initiative of Shri K.M. Asadullah, the Librarian of Imperial Library. The Conference was inaugurated by the M.J. Leitch Wilson, the Education Commissioner of Government of India.

During the conference, a Draft Constitution of the Indian Library Association (ILA) was adopted on September 13, 1933 with the following office bearers:

- 1) Prof. A.C. Woolner, Vice-Chancellor of Punjab University as Chairman
- 2) Dr. M.O. Thomas, Librarian of Annamalai University, as Vice-Chairman; and MLC, Bengal
- 3) Shri Kumar Munindra Rai Deb Rai Mahasai as Vice-Chairman
- 4) Shri K.M. Asadullah as Secretary.

The Objectives of ILA are as follows:

- 1) The furtherance of the library movement in India;
- 2) Improvement of library services in the country
- 3) Promotion of library education, improvement of training facilities and accreditation of library schools in the country
- 4) Improvements of status of librarians
- 5) Promotion of research in library science
- 6) Promotion of bibliographical studies
- 7) Establishment of libraries, documentation centers and assistance in their maintenance
- 8) Organisation of conferences / seminars to create a forum for its members to exchange of their ideas and experience
- 9) Promotion of library legislation at the Centre and in States
- 10) Publication of bulletins, journals which promote the realisation of objectives of the association
- 11) Working for the betterment of status, salaries and service conditions of the library personnel
- 12) Affiliation with other national and international organisations which have common interests and objectives;
- 13) Cooperation with other national and international associations for the promotion of library services

14) Accreditation of institutions for imparting standard education and training in the library science

15) Promotion of standards, norms, and guidelines for management of library and information systems and services.

The organisation of ILA is a three-tier structure consisting of the General body, a Council and an Executive Committee. It has 13 Sectional Committees. The Executive Committee looks after the day to day functions of the Association. It consists of President, Vice-President, General Secretary, Treasurer, Librarian, Public Relation Officer and three nominees of the Council. Similarly, each of the Sections has a Chairman, a Convenor and five members.

The Membership of ILA includes patrons, honorary members, life members, ordinary members, institutional and associate members. In addition, ILA has State Library Committees and five Zonal Councils for coordinating the activities of the association.

Since its inception, the ILA has been the organising the conferences and creating an opportunity for the library professionals to meet once in a year at the national level for exchange of ideas and experiences. Also it selects one topic as theme of the conference discussions. The first All India Library Conference was held on 14th November 1919 at Gokhale Hall, Madras and it was convened by Iyyanki Venkataramanayya. The 44th ILA conference was held at Hyderabad in 1999. Keeping the above historical dates, in view the ILA has decided to observe the National Library Week from 14-20 November every year. On that day a variety programmes are organised in libraries in the country to carry the message and mission of libraries with renewed vigor among the masses of the country.

ILA also interacts with the Government by submitting a memorandum bringing various pertinent issues to the notice of the Government. The issues taken up with the Government include staff salaries, uniformity in cadres, working conditions of the professionals, modernisation of library services creating suitable promotional channels for staff working in various departments and National Policy on Library and Information Service.

As it is not possible to have a well-coordinated network of public libraries in the country, ILA is lobbying with the Government of India and pleading for passing proper library legislation for the Centre and the States. In 1942 itself the ILA has prepared a draft for Model Public Library Act under the guidance of Dr. S.R. Ranganathan and the same has been discussed in several seminars and conferences. It was discussed in the National Seminar held at Delhi on 14th February, 1990, organised by the Raja Ramamohan Roy Library Foundation.

Since 1986, the ILA has been running several workshops with the financial assistance given by the NISSAT to give an exposure on latest advanced aspects, for the benefit of the professionals.

ILA is also providing the consultancy service in the planning, organisation and services of libraries. Such consultancy projects, includes surveys, data collection, directory projects, etc.

ILA is maintaining cordial relations with international organisations such as IFLA and COMLA and also sending representatives to the conferences and seminars conducted by these organisations. It also represents on the national bodies like Raja Rammohan Ray Library Foundation, National Book Trust of India and Indian Standard Institute. The other bodies with which the ILA is maintaining relations include, Joint Council of Library Associations of India (JCLAI), Committee on National Policy on Library and Information Systems (CONPOLIS), Good Offices Committee, UNESCO, FID/CR, State Trading Corporation, National Book Trust etc.

ILA has instituted an award, "P.V. Verghese Prize" for the best article published in the *ILA Bulletin* every year, ILA Vedanayaki Fellowship for the Best qualified women student of B.L.I.Sc., course every year in the country and ILA - Kaula Endowment Award for the Best Librarian in the country. The "Abburri-Shriyali Research Award" is presented for the Best Research work carried out in the field of Library and Information Science in every alternative year.

ILA is also planning to develop a database of Indian libraries. The work is in progress.

ILA has hosted 1992 IFLA Conference in New Delhi in which nearly 2,000 delegates have attended. It has celebrated 'Diamond Jubilee Year of ILA', which was held in a fitting manner.

The publications of ILA are

- 1) *Library Bulletin* (1942-1946)
- 2) *ABGILA* (formerly, *Annals, Bulletin and Grandhalaya of Indian Library Association* 1949-1953)
- 3) *Journal of Indian Librarianship* (1954-1964)
- 4) *Indian Library Association Bulletin* (1965 -)
- 5) *ILA Newsletter* (1984 -)

ILA also brought out the following publications:

- 1) *Directory of Indian Libraries*
- 2) *Directory of Learned Periodicals in Asia*
- 3) *Union Catalogue of Periodical holdings in the South Asian Libraries*
- 4) *Libraries Book selection by S.R. Ranganathan*
- 5) *Fifty years of Librarianship in India*
- 6) *ILA Membership Directory*

16.4.2 Indian Association of Special Libraries and Information Centres (IASLIC)

As a result of a spurt in scientific and industrial research, planned economic development and programmes of social change a number of scientific and research organisations have sprung up in the post-independent India. They have organised their own libraries and information centres to meet the information needs of their scientists, engineers, technicians and research workers. An idea of starting a special library association was first mooted by Dr.G.T.Kala at the Librarians Conference held at Nagpur in 1949. But nothing has come up immediately.

Again with the initiative and efforts of J.Saha (Librarian, Indian Statistical Institute, Calcutta), A.K. Mukherjee (Librarian, Department of Anthropology, Indian Museum) and G.B. Ghosh, (Librarian, Geological Survey of India, Calcutta), the Indian Association of Special Libraries and Information Centres (IASLIC) was formed on 3 September, 1955 at Calcutta, on the lines of ASLIB (UK) and SLA (USA).

The primary objective of IASLIC is to promote and improve the special library services and foster mutual cooperation and assistance among them. The specific objectives of the association are as follows:

- 1) to promote the growth and activities of special libraries;
- 2) to improve the quality of library and information services;
- 3) to coordinate the activities of special libraries;
- 4) to foster mutual cooperation and assistance among special libraries for mutual benefit;
- 5) to improve the technical efficiency of library staff;
- 6) to help and assist the special libraries and information centers in the systematic acquisition, organisation and dissemination of information sources and services;
- 7) to encourage study and research on problems of special libraries;
- 8) to act as a centre of information in scientific, technical and other related fields;
- 9) to provide a forum for special library professionals;
- 10) to interact with each other to discuss their problems; and
- 11) to provide training facilities for library professionals.

There are five categories of members in IASLIC: Honorary members, Life members, Ordinary members and Institutional members. Every two years the members elect the Council which is the highest body and responsible for formulating the policies and plan for programme of work. The Council appoints members of Executive committee and Finance committee. The

Office bearers viz. President, six Vice-presidents, General secretary, Treasurer, two Joint secretaries, two Assistant secretaries and Librarian are also elected for a two - year term.

The Council also constituted one secretary and four members for each of the following divisions to look after the activities in those aspects:

- 1) Documentation Services
- 2) Education
- 3) Publication and publicity
- 4) Library services
- 5) Document reproduction and translation
- 6) Cooperation and coordination of libraries

From the beginning IASLIC has been organising seminars and conferences to promote the affinity among members, and create professional awareness of members. In every conference a current topic will be selected as theme and papers are invited for discussion. Such seminars will serve as an opportunity for members to know the latest developments and exchange of ideas and finding solutions for their practical problems. It has also organised a number of seminars in collaboration with other organisations.

IASLIC is organising training programmes regularly under continuing education programme with the assistance of NISSAT. It is also conducting training courses on language programmes and on library aspects which are of current interest, such as indexing systems, reprography, conservation of book material, manuscripts etc.

IASLIC organises the 'Study Circle' meetings in Calcutta, which provide an opportunity for professionals for exchange of ideas and share their experiences in library matters. It also encourages others to start such study circle units in other places, in the country.

IASLIC has drafted an 'Inter-Library Loan Code' to facilitate mutual exchange of books among the libraries in the country. It is being followed in most of the libraries in the country.

IASLIC is arranging special lectures by eminent people both Indian and foreign for the benefit of the professionals in Headquarters. Such lectures became an annual feature in the recent times.

IASLIC is taking special projects with the support of NISSAT and DST with an aim to identify the present trends in the field of library and information science. Some of the projects taken up and completed by the IASLIC are as follows:

- 1) Survey of library and information needs in India

2) Survey of losses of journals

IASLIC is making a significant contribution in the promotion professional literature by bringing out publications, which are as follows:

- 1) *IASLIC Bulletin* (quarterly) official organ
- 2) *Indian Library Science Abstracts* (annual)
- 3) *IASLIC Newsletter* (monthly)

In addition to the above it has brought out a number of special publications such as -

- 1) *Directory of special and research libraries*, 1985
- 2) *Glossary of cataloguing terms in Indian Regional languages*
- 3) *Library planning and management*
- 4) *Development of medical societies and medical periodicals in India.*

16.4.3 Society for Information Science (SIS)

The Idea of starting a society devoted to the development, promotion and application of information science came up in the Seminar on the Formation of the Branch Information Centres held at INSDOC, in 1975. As a result the 'Society for Information Science' (SIS) was started at New Delhi with Shri Y.R. Chadha and A.S. Raizada as its founder President and Secretary. However, the SIS started functioning only from 1981.

The basic objective of the SIS is to promote and encourage the activities of the libraries and information centers in the improvement of library services to the user community.

The specific objectives of the SIS are

- 1) to promote and encourage professional activities in the field of library and information science;
- 2) to create an awareness among the scientists about information services;
- 3) to encourage free flow information among the professionals and practitioners
- 4) to improve the standards in the professional activities and practices;
- 5) to promote the professional integrity and competence among professionals; and
- 6) to foster a sense of partnership among professionals.

The management of the ALSD rests with the General Body and Managing Committee. The General body consists of all members of the Academy. It is the supreme body, having the responsibility of formulating policies and planning the programmes of the ALSD. It elects the office bearers of managing committee once in two years. It has also the authority to make resolutions, adopt new policies and approve the annual report and audited accounts of the ALSD. Its membership has gone up to 400.

The managing committee is the executive body of ALSD and looks after the day to day functions of the body. It consists of 18 members which includes, President, two Vice-Presidents, General Secretary, Joint Secretary, Treasurer, and 11 Members. The Director of Public Libraries, Government of Andhra Pradesh or his nominee will be the ex-officio member of the Academy.

The ALSD, in order to fulfill its objectives, involved in performing the following activities:

The ALSD is regularly conducting the seminars, conferences on the topics of current interest for the sake of professionals. So far it has conducted 30 seminars/conferences/workshops, keeping the professional, particularly those who are working in the city of Hyderabad, and keep them abreast of the latest trends and developments in the field of library and information science. It also hosts the national conferences. It hosted 4th IASLIC seminar in 1966 and 20th, 27th, and 44th national conferences of ILA.

The ALSD has also arranged lectures of LIS experts for the sake of professionals. For this purpose, the Academy is utilising the opportunity of specialists visiting Hyderabad from other parts of the country and from abroad. Some of the prominent persons, thus visited the Academy are Prof. B.S. Kesavan, Prof. A. Neelamegham, Dr. V.A. Kamath, Mr. Girija Kumar and Dr. T.Raja Gopalan.

The Academy organises the short-term training courses on various aspects which are useful to practising librarians. In these training courses it covers academic, public libraries and special libraries. The topics covered in those training courses include Management of Information Storage and Retrieval, Library and Information work, Indexing, Library Cataloguing with AACR2, and DDC, UDC, etc.

In collaboration with IASLIC it is conducting Study Circles, to discuss and debate nascent ideas, current topics etc. Such a study circle meets help the professionals to keep abreast of the current trends and build up the confidence in expressing their ideas and build up talents etc.,

Members of ALSD, shall report in the regular meetings about the seminars and conferences they recently attended for the benefit of those who have not attended such seminars.

ALSD has also taken up a project to prepare a Union Catalogue of Science Periodicals from 32 libraries covering 1700 periodicals, and completed it successfully in 1973. It has also taken up a project sponsored by INSDOC to prepare a Union Catalogue of Scientific Serials in 1975 and covered 3,840 titles from 51 libraries situated in Hyderabad and Secunderabad.

The Academy has instituted a Gold Medal in the Department of Library and Information Science, Osmania University, Hyderabad to the student who tops list of the successful candidates in the BLISc examination.

The ALSD is now publishing a Newsletter covering latest information, recent appointments, for circulation of its members.

16.5 LET US SUM UP

Librarians and information scientists are mainly concerned with the organisation and proper management of information sources and services for the benefit of user community. The library associations are playing a significant role in the promotion of information activities, professional technics etc. They are also playing a crucial role in the transfer of information, exchange of ideas and experiences among the libraries and library professionals.

There are many professional associations, which are working at the international, national and regional local levels in the field of library and information science. The most prominent among them are FID, IFLA, ALA, SLA, LA, ASLIB, ILA, IASLIC, SIS, ALSD. Every endeavor and effort has been made to give a brief account of the growth, development, aims and objectives, activities and publications of those professional associations serving for very long time for the cause of professional growth and development.

16.6 RECOMMENDED BOOKS

ANDHRA PRADESH. Review Committee (Ekbote-1976). Report Chapters: I, II, III.

BATTON, W.E. *Handbook of special librarianship and information work*. London: ASLIB, 1975.

BHATIA, Santa Ram. "The Indian Library Association: Yesterday, Today". (IN *Indian Librarianship: Perspectives in library science*. New Delhi: Kalyani, 1981.

FIFTY years of ILA. (1933-83). New Delhi : ILA, 1983.

IASLIC: perspective, performance and promise/edited by S.D. Benarjee. IASLIC Silver jubilee Volume. 1980.

KAWATRA, P.S. "International Organisations: their programmes and activities". (IN *Fundamentals of documentation*. New Delhi: Sterling, 1983. p. 59-76.

MUNFORD, W.A. "The American Library Association and the Library Association: Retrospective and Prospective". (IN *Advances in Librarianship*) Vol.7. New York: Academic Press, 1977.

MUKHERJEE, A.K. *Fundamentals of Special Librarianship*. Calcutta: IASLIC, 1961.

SUBBA RAO, C.V. "Professional associations in India: IASLIC's record and services". *Herald of Library Science*. 26, 3-4; 1987. 192-202.

WINSTROOM, V. "International Federation of Library Association". (IN *Encyclopaedia of Library and Information Science*. Vol.12. New York: Marcel Dekker, 1974. p.403-407.

WORLD Books Encyclopaedia. Vol.20. Chicago: World book, p.15- 18.

50th Anniversary of IFLA. *Herald of Library Science*. Vol.17, 2- 3, 1977. p.203-209.

16.7 MODEL EXAMINATION QUESTIONS

I ESSAY QUESTIONS

- 1) Give a brief account of activities of IFLA for the improvement profession.
- 2) What is structure and activities of FID?
- 3) Give a brief account of growth and development of ILA?
- 4) What are the aims and Objectives of IASLIC.
- 5) Describe the activities of ALSD.
- 6) Discuss the role of professional associations in the promotion of library education and training.
- 7) Discuss the role American Library Association in the development of library services to the general public in USA.

II SHORT NOTES

- a) ALSD
- b) IFLA Publications
- c) ILA Awards

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