

*ELEVENTH IASLIC CONFERENCE, DHARWAR, 1977*

**PLANNING OF NATIONAL INFORMATION  
NETWORK**

( Papers )



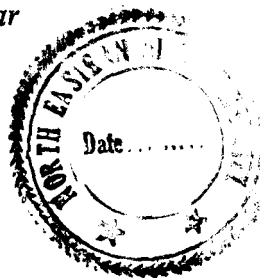
IASLIC Calcutta

ELEVENTH IASLIC CONFERENCE

at

*University of Karnataka, Dharwar*

November 2-5, 1977



**PLANNING OF NATIONAL INFORMATION  
NETWORK**

EDITORS

S. K. KAPOOR and S. B. GHOSH



**INDIAN ASSOCIATION OF SPECIAL LIBRARIES &  
INFORMATION CENTRES**

P-91, C.I.T. Scheme No. 6M, Kankurgachi,  
Calcutta-700054

1977

5/2866  
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NO. No. 157307  
Date by 11/11/89  
Class by D.W.  
Sub. Heading by 24/11  
Date by D.W.  
25.11.89

CO-DIRECTORS OF THE SYMPOSIUM :

T. S. RAJAGOPALAN  
GIRJA KUMAR

PC  
001.50954  
KAP

PRICE : Rs. 120.00 ; \$ 20.00 ; £ 12.00

## P R E F A C E

The NISSAT scheme has been launched. The complex network comprising a variety of information systems and sub-systems is expected to take 25-30 years to be established in its entirety. Simultaneously, the network of information systems in the fields other than science and technology has also to be planned and developed. The organisation of such a super structure calls for joint and concerted efforts on the part of information scientists, computer technologists, systems analysts and telecommunication technicians and needs the most careful planning, evaluation and monitoring at every stage of development. The symposium on 'Planning of National Information Network' organised by IASLIC is expected to focus fruitful discussions towards the formulation of guidelines to be followed in the future development of the information systems and the adoption of effective models of networking to ensure free and rapid flow of information.

The present volume contains the papers contributed to the national symposium. The editors had a formidable task of bringing out the voluminous publication in less than a month available to them. A number of articles could not be included in full and only their abstracts have been given, partly owing to the extreme paucity of time and partly on account of the very late submission of papers.

Our sincere thanks are due to the authors for their generous response in letting us publish their important contributions. We sincerely apologise to many of the esteemed contributors whose papers could not be included in full due to a variety of reasons. We also thank Servashri T. S. Rajagopalan and Girja Kumar, the co directors of the symposium for the painstaking efforts in securing valuable contributions from various experts and scrutinizing the papers and also for their invaluable suggestions.

We thank all the members of the Executive Committee for their generous support.

We thank the printers and block engravers for their fullest co-operation in producing the present volume in exceptionally short time.

S. K. KAPOOR  
S. B. Ghosh  
*Honorary Editors*

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## **A : BASIC APPROACH AND CURRENT STATUS**

# INFORMATION POLICY AND PLANNING FOR ECONOMIC AND SOCIAL DEVELOPMENT : A DYNAMIC APPROACH\*

## Introduction

1. The aim of this background paper is to aid discussion on three main issues :

- (a) Assessment of major national goals for economic and social development and of their information requirements.
- (b) Formulation of national information policy for this purpose and design of a medium-term programme and budget.
- (c) Establishment and operation of a national focal point for information.

2. Though Unesco has prepared no previous paper with these precise aims, the following papers are relevant and make useful pre-seminar reading :

- (a) *The Director-General's circular letter to Member States of July 1973.*

This deals with the formulation of national policy for scientific and technical information (STI) and the establishment of national focal points and national committees.<sup>†</sup>

- (b) *Information Policy Objectives (UNISIST Proposals)*<sup>1</sup>
- (c) *Information Policy for Development : National and International Responsibilities*<sup>2</sup>

In this report are presented the main issues discussed at the first UNISIST meeting on the planning and implementing of national information activities in science and technology, held at Herceg Novi in April 1976.

- (d) *Guidelines on the Planning of National Scientific and Technological Information Systems*<sup>3</sup> *Design and Planning of National Information Systems*<sup>4</sup>
- (e) *Planning National Infrastructures for Documentation, Libraries and Archives*<sup>5</sup>

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\* Working document prepared for Unesco by Mr. John C. Gray, British Library, United Kingdom.

+ See document UNISIST/ROSTSEA/1/4

# STEPS IN PLANNING A NATIONAL SCIENCE AND TECHNOLOGY INFORMATION SYSTEM

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## O Main steps in Planning National STI System

The main steps in planning the science and technology information (=STI) system/programme include the following :

1. Formulation of the overall objectives of the national STI system ;
2. Study of the STI infrastructure of the country ;
3. Establishment of a national STI focal point ;
4. Preparation of the STI plan ; and
- 5. Initiating programmes and activities conducive to the development of the STI system.

## 1 Overall Objective of the STI System

As a guide to the planning process, it is helpful to have the broad objective of the STI system formulated as clearly as possible. The statement of the objective could subsequently be refined and incorporated in the national policy for STI. The objective of the national STI system should be co-ordinated with and derived from the national science and technology policy/plan/programme. It is, obviously, desirable that the national S and T policy/plan/programme is co-ordinated with the national development policy/plan/programme. Therefore, a careful study of the national development policy/plan/programme and the national S and T policy/plan/programme is a prerequisite to the formulation of the national STI system objectives. This would also help to identify the priority sectors of the economy and of the R and D programme needing immediate information support structures and those which could be taken up for development in subsequent phases of the plan/programme. An example of a statement of the overall objective of an STI programme is given below :

— To ensure that the specialised and professional knowledge and expertise available within the country and elsewhere in the world are efficiently and effectively utilised in guiding the development of all sectors of the national economy ;

— By providing research workers, engineers, technicians, development planners, policy makers, managers, extension workers, farmers,

# COORDINATING AGENCY FOR THE NATIONAL STI SYSTEM

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## 0 Introduction

In another paper contributed to this Seminar it has been pointed out that it would be helpful to establish a national agency (called the national focal point) to facilitate the implementation of the national STI plan, resource mobilisation, co-ordination and monitoring of programme activities, and assessment of system performance. Although socio political factors and the character of the government structure would influence the choice of the national focal point (=NFP) and its functions, there are several common features among existing NFPs in different countries. The Unesco Guideline provides useful ideas on the structure and functions of NFP. In order to ensure the effective functioning of a NFP, the following aspects should be given attention from the outset :

1. Position of the NFP in the federal government structure ;
2. Objectives and terms of reference ;
3. Functions and activities ;
4. Organisational and management aspects ; and
5. Financial resources.

These aspects are considered in the succeeding sections.

## 1 Position of the NFP

It is desirable to have a single NFP placed as high as possible in the governmental hierarchy, for example, in the Prime Minister's Office, Ministries of Education, Science, Planning, Industry, etc., so as to secure adequate support to the STI system development. The Ministry of Education or Science is the usual locus. The NFP should be endowed with adequate policy making, financial and executive powers. Table 1 indicates the location (or proposed location) of the NFP in several countries.

## 2 Terms of Reference

Existing models indicate a possible choice between a NFP with only an advisory role to one with policy making, advisory, planning, and operational functions. The choice would depend upon

- how large is the community to be served ;
- financial resources of the NFP ;
- the state of development of the existing information services in the country ; and
- the extent of the coordination and the extent of centralisation and decentralisation of information activities.

# NATIONAL INFORMATION SYSTEM FOR SCIENCE & TECHNOLOGY (NISSAT)

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## 1 Introduction

For the first time in 1971, serious thought was given to the need for building up a strong national network of documentation and information services to meet the expanding information needs of scientists and research workers, spread out in the various states of the vast Indian sub-continent. In August 1971, a request was made to Unesco for a short term mission of a Consultant to advise the Indian National Scientific Documentation Centre (INSDOC), New Delhi for establishing such a service. Dr Peter Lazar was accordingly assigned the mission by Unesco during March-April 1972 and he prepared a report recommending the establishment of a National Information System for Science and Technology for India. In the meanwhile, the Government of India had constituted a high powered apex body, namely, the National Committee on Science and Technology (NCST), in October 1971, and entrusted it with the task of preparation and continuous updating of national scientific and technological plans ; both Five-Year Plans and Perspective Plans. The NCST, then for the first time in the country's history, set itself the task of preparing a comprehensive Science & Technology Plan for a five-year period, with a view to integrate the S & T Plan with the Nation's Fifth Five Year Plan of 1974-79. Of the several panels and planning groups constituted by the NCST for preparation of various sectoral plans, one panel group was on the 'Information' sector. The report of the panel group prepared in 1973 recommending the establishment of a National Information System for Science & Technology (called NISSAT in short) under the Department of Science & Technology was incorporated in the Science & Technology Plan for 1974-79. An outlay of Rs 150 millions was proposed for the scheme for the five year period. The planning of NISSAT commenced from 1975 and

**INFORMATION SYSTEMS FOR GOVERNMENTAL  
MANAGEMENT—THE NATIONAL  
INFORMATICS CENTRE  
PROJECT**

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*NIC, ELECTRONICS COMMISSION, GOVERNMENT OF INDIA*

**Introduction**

The National Informatics Centre (NIC) with its main objective of providing a centralized and integrated information system to assist the Government of India in its administration and developmental activities of a vast and varied country like India, is a project with few parallels anywhere in relation to its magnitude, complexity and scope. The genesis of the NIC can be traced to the report of a panel of experts set up by the United Nations Secretary General to consider the application of computer technology for development. The panel reported that computers and the integrated information system that comes from them would enable developing countries to plan on a national scale according to their national priorities ; and these developing countries would be able to do this in ways which even the industrially advanced countries are only beginning to learn. The panel also suggested that in trying to achieve such an advanced level of computer usage, the stress should be on integration of Governmental Information systems, encouragement of computer related and appropriate information processing disciplines, sponsoring research in computer areas where expertise has developed and adoption of computers to special needs. The Government of India concurred with the above point of view. The basic infrastructure for a few centralised information system in the country is already well-established. Faced with the bulk of data and consequent delays, many Government Departments have already been utilising computers to speed up their data handling. The Government

# INFORMATION NETWORK PLANNING WITH REFERENCE TO INDIA

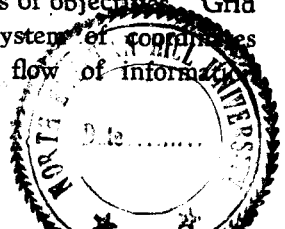
T. S. RAJAGOPALAN

*INSDOC, New Delhi*

## 1 What is a Network ?

In the information field, a network would mean a formal organisation of group of libraries and information centres following some common pattern or design for information exchange and communication with a view to improve efficiency and effect economy in an overall manner. It is an assemblage or a combination of information centres and services forming a unitary whole. Network implies pulling together sub-sets of information centres and libraries in order to act in a concerted manner with pre-determined obligations. It offers a potential for increased access to larger resources and for a greater measure of service than the sum of all the constituent parts. Network is now identified, especially in western countries, more as interlinking of automated library and information systems through communication channels.

The age-old practice of library cooperation may be regarded as a forerunner of the present-day concept of networking. Library cooperation is both informal and voluntary and is largely the initiative of professional people and forums. Later in time, coordination began to be emphasized. It is more formal than cooperation and stands for harmonious combination and sharing of resources and facilities in order to avoid duplication. System is also a related term. It means an organisation of people, resources, facilities and procedures to participate in a common service programme. It is based on partnership and mutual dependence and the components are considered holistically as a part of a single organisation. Consortium is yet another related term and it means a formal association of libraries and information centres having the same or inter-related services or objectives. Grid is also a term mentioned in this context. It is a system of coordinators and subordinates permitting a multi-directional flow of information and ensuring accessibility at all nodes.



157397

**B : POLICY, PLANNING, NETWORKING,  
COORDINATION AND DEVELOPMENT**

# PLANNING OF NATIONAL INFORMATION NETWORKS WITH SPECIAL REFERENCE TO INDIA (NATIONAL INFORMATION POLICY)

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## Abstract

Planning is essential for systematic development. In planning national information networks some predetermined objectives are to be considered. The increasing role of information science has been realised all over the world. The birth of several international and national information systems is the outcome of such realisation. In India attempts have already been made but with the passing of time and growing demands much remains to be done. The national information network—the concept and its future outline have been discussed with the help of available guidelines.

## 1. Introduction

In ordinary sense we all understand what is meant by planning. Planning is the basis of all scientific growth. It has to do with anticipating some aspects of the future, considering alternative courses of action and choosing a particular sequence of actions. It also has to do with the allocation of vital resources—space, money, machine, labour, information and time—for some predetermined purposes. In planning the national information networks careful attention is to be given to the potential effect of network operations on individual libraries and other information facilities and on their ability to serve local needs.

## 2. Need

With the growing awareness of the role of information science in India and abroad, it is realised that proper planning and development of capability in information handling and dissemination helps in decision making, advancement of knowledge, eliminating duplication of efforts and so on. It is also being realised that in the present day world no nation can prosper without getting high grade information networks. Developing countries like India need proper planning

# NATIONAL INFORMATION POLICY WITH SPECIAL REFERENCE TO INDIA

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## Abstract

Stresses the need of an integrated, well defined information policy specially where National Information Systems are yet to be established. Gives the objectives and functional aspects of an information policy and a detailed infrastructure of the National Information System for Housing and Building Technology (ISHBT) to be set up in India as approved by the Government of India under NISSAT Programme developed by the NCST and the Department of Science and Technology (DST).

## Introduction

### THE KNOWLEDGE EXPLOSION

If knowledge is power, the communication of all the available knowledge to potential users anywhere in the world, at reasonable cost is a matter of paramount importance for the welfare of the human race.

Man's capacity to communicate with other members of his species, and communities is marked by four distinct and revolutionary developments, viz., evolution of spoken words, emergence of written language, invention of movable types, i.e., printing and the machine language in the form of computer, which is the latest technique of communication in this scientific era.

There are three elements which are basic to all human activities, viz., Information, Energy and Materials. Admittedly all these are equally important, but 'Information' has special consideration because it is the substance of all intellectual activities of man. Just as the harnessing of 'Energy' brought about the Industrial Revolution a

# A MISSION-ORIENTED ORGANISATION AS AN ACTIVE REAGENT IN THE NATIONAL INFORMATION SYSTEM

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## Abstract

Important role played by any existing mission-oriented Library and Information system is assessed. The need for establishing a network is emphasized. A short description of the organizational set-up of the Library & Information Service, BARC, is given. The role of the Library & Information Services, BARC, is explained in the context of the proposed national information system for science and technology. The impact of computer techniques on information systems is emphasized and possibility of creating machine readable data bases is explored.

## 0. Introduction

Knowledge builds upon knowledge as new findings are reported. The tremendous growth in published literature poses problems in searching for information in it. Prof Bernard has rightly described this in his book as : "It is sometimes easier to rediscover a phenomenon than to learn from literature that it has been discovered earlier."

The total number of scientific and technical publications today is conservatively estimated at 2.5 million. Hence, an effective information system is indispensable for scientific research to keep abreast of the rapid developments taking place in the world.

## 1. Need for establishing information system

A well developed information system helps in identifying the research gaps or lacunae for developing methodology and transfer of technology. It also helps in planning projects including reviewing and monitoring research activities. The reasons for setting up an information system are :

- (a) Due to the inter-disciplinary nature of information, it gets scattered and creates a need to establish some mechanism to organize it ;

# NETWORKING IN LIBRARY AND INFORMATION SYSTEMS AT NATIONAL LEVEL : AN IDEAL MECHANISM FOR SHARING OF RESOURCES

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'NETWORK' appears to be the "in" word of the moment, somehow appearing to be the panacea for all diseases of the Library and Information System, indeed Interlibrary Loan. Telephone Lines, Invisible Colleges, Computer Systems, Railroad Links, TV Consortia, Off-line and On-line Systems, RJE Digital and Analogue Systems, Teletype Systems—all are described as Networks.

## Definitions

From the point of view of Library and Information Science, Greenberger and Arnofsky have defined the term as a 'mode for sharing resources and linking otherwise incomparable procedures and formats, of different systems and organisations'.

Miller has described the term as 'a cooperative system established by libraries and information centres which are brought together by common subject, geographic proximity—to share informational resources, human resources and all other elements essential for providing effective information service'.

## Characteristics of Networks

Network must —

- (i) have a communications component and operate through communications technology (e.g. telephone lines, cable, microwave radiowaves, etc.) rather than face to face.
- (ii) have a set of protocols or procedures to which users must conform to effect communication.
- (iii) have fairly clearly defined service goals which managers subscribe and that are describable to users.

# STEPS IN OVERALL PLANNING OF NATIONAL LIBRARY AND INFORMATION NETWORK

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## Abstract

The generation and transfer of information and the inadequacy of existing information systems have been discussed ; and the need for and advantage of national library and information networks are briefly mentioned. The need for planning such networks and the advantage of planning are stated in brief and the major factors that should be considered in planning are described. A general outline of the various steps in overall planning of national library and information network has been given and discussed in details. These steps include (i) setting up a planning body, (ii) stating the objectives and functions of the network, (iii) study of present and future requirements of the users, (iv) survey of existing resources and facilities for library and information services, (v) augmenting facilities to strengthen and to develop the resources of the network, (vi) organising the structure of the network and coordinating the components of the network, (vii) planning various activities and services like aquisition and storage, document supply services, alerting services, information services, etc., and (viii) keeping liaison with other national and international information agencies. The need for standardization in planning such activities and services of the network has been emphasized and different areas of library and information activities and services amenable to standerdization are mentioned.

## 1. Introduction

### 1.1 Information explosion

Knowledge is generated at many points in the world over—research institutions, universities and other academic institutions, and industrial and commercial organisations. From the point of generation, the knowledge is recorded and communicated, within the organisation and outside it, through a variety of channels. Thus the output of literature as a whole is increasing exponentially. This is the so called information explosion. Recently it was estimated that the scientific and

# ACADEMIC INFORMATION SYSTEM IN A BROAD PERSPECTIVE

GIRJA KUMAR

## Abstract

Basic objective of information network defined. Stress laid on developing traditional forms of library co-operation. Emphasis on resource sharing as basic requisite. Lack of co-ordination deplored. Central University Libraries viewed as a model. Special situation in developing countries considered. Need for balance between traditional and modern techniques stressed. Plea against underestimating the potential of India. Examples of FAUL and Chicago University Library Data Management System as models for India. Basic requisites of developing academic information network analysed. Network as a geographical connotation. Important role of U.G.C. and its library advisory committee. Scheme for the intellectual organization. Sectoral information systems for subject specialization. Need for the standardization of cataloguing procedures. Text-books banks for metropolitan areas. Need for formulating a basic policy and for initiating a public debate. Stress on the creation of formal organization and the establishment of national commission on libraries and information science. Academic network as subsystem of national information network. Need for cultural innovation.

## Basic Objective

The National Commission on Libraries and Information Science of the United States has stated its goal in the following words: "To eventually provide every individual in the (country) with equal opportunity of access to that part of the total information resource which will satisfy the individual's educational, working, cultural and leisure-time needs and interest, regardless of the individuals location, social or physical condition, or level of intellectual achievement". The objective of the proposed academic information network in our country is to be stated in roughly the same words. Ideally speaking, the system should be able to answer to the requirements of undergraduate, graduate and post-graduate students, research scholars and academic staff belonging to more than 100 universities and 3,000 colleges spread over the length and breadth of this vast country. A tall order indeed considering the fact that we have even not thought of the first steps in this direction.

## **C : RESOURCE SHARING AND NETWORKING**

# APPROACH TO NATIONAL DOCUMENT SUPPLY SERVICES

## A Proposal For An Interim System

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### Introduction

It was in 1950's and 60's that an awareness grew among scientists and research workers throughout the world for better access to scientific and technical information. In contemplation of this fact the next decade saw an active participation of International Organisations like UNESCO in an endeavour to meet the growing demand for information. The role of International Council of Scientific Unions (ICSU) in this context can also be emphasised in evidence, as an international body working on behalf of world scientific community for this cause. Consequently these activities invoked for a World Information System and thus evolved a philosophy, viz. UNISIST. This philosophy expounded in the beginning of seventies subscribed to initiate the International Systems like INIS, AGRIS, etc.

In the context of the new awakening and renewed consciousness for information it was imperative to organise National Information System by each country to participate in the larger international systems.

### NISSAT and its Activities

#### The NISSAT

India's National Information System, i. e., NISSAT is largely based on the report entitled, INDIA ; A National Information System for Science and Technology, prepared by Dr. P. Lazar. Under the advice of UNESCO the Department of Science and Technology was created as the Focal Point for NISSAT activities. At this juncture it is gratifying to note the National Committee on Science and Technology (the sponsoring body of DST) has given further impetus to this programme by identifying 'Information' as one of the Twenty Four priority projects. Thus the System has gained the Governmental support and attained national importance.

## REGIONAL COORDINATING CENTRES FOR UNIVERSITY AND ACADEMIC LIBRARIES\*

S. K. HAVANUR

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It is ideal for an academic library to be self-sufficient and to cater to the needs of every researcher. For this purpose it has to hold in its collection the entire reading material in almost all disciplines, and continue to acquire such material. But is this ever possible? Not even the affluent university libraries in the developed countries can afford to be so self sufficient. Funds, space and enormous efforts in processing the material for ready reference are major impediments in achieving this objective. Therefore, the university libraries in countries like U.S.A. have drawn up plans (one of them is known as Farmington Plan) for mutual cooperation and coordination, and are endeavouring to make the optimum use of research material available in a specified library. In a developing country like ours, the paucity of funds, as also, of foreign exchange is bound to be there and its impact is felt on the growth of a library, especially when the number of books and journals is fast increasing and at much higher costs.

More important, the reading material may already be available in a neighbouring library but not known to the one who is in need of it. It would be a sheer waste of effort and of money if it is duplicated. There is the caricatural example of the 'Chemical Abstracts' the costliest journal in the world, individually subscribed to by some libraries situated within an area of just 3 kms., in cities like Delhi and Calcutta. Ironically, some of these libraries were not even aware of the availability of 'Chemical Abstracts' with their neighbour. And those who were aware did not think of avoiding subscription by sharing the material with the other library, while at the same time complaining of paucity of funds because of which they were faced with the prospect of discontinuing subscription to some other journals. Even otherwise the libraries in a region get the same set of journals and have the same problem of nonavailability of others. Similar is the position with regard to books acquisition.

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\* A proposal made on behalf of the Bombay Science Librarians' Association.

**D : SECTORAL INFORMATION SYSTEMS**

# NATIONAL INFORMATION SYSTEM FOR NATIONAL COMMODITIES AND SERVICES—A STRATEGY FOR DEVELOPMENT

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And

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*The Jute Corpn. of India Ltd. Calcutta*

## Abstract

States that in present day world no information unit can think of serving its clientele in any subject field all alone. Need for developing a network by co ordinating and integrating an optimum number of related units is essential. It is desirable that such a structure should be built up from base upwards so that through gradual merger of units or adjustment of domains between the units the network continues to grow. Plan for developing an advanced centralised machine oriented gigantic monolithic structure on a backward socio-economic condition and an equally backward information service infrastructure is likely to get delayed or to cause inconvenience for several administrative and other reasons.

## 1. Comparative Importance of Information

Information, we all know, is an essential requirement for decision making at any level of human activity, whatsoever. We can ignore information only at our own peril. Social or individual importance of information may decrease with the importance of the ultimate result of the activity. Where the end product is of national importance, the need for supplying appropriate information to the system producing the product should also be considered to be of national importance. Our approach for developing a structure for supplying the needed information will therefore have to be absolutely pragmatic.

## 2. Need for Network of Information Services

So far as the structure of the information service is concerned, we should remember that in this complex world it is not possible for

# INFRASTRUCTURE FOR NATIONAL INFORMATION GRID, ITS FUNCTION FOR INDUSTRIAL DEVELOPMENT

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## Abstract

The paper enumerates the importance of National Information system and its function for industrial development of the country. The structure of different proposed units that are going to be established around a nucleus have been described. Suggestions for efficient functioning and improvement of the system are offered. A properly co-ordinated National Information Grid can help reduce information gap and duplication of work. Decentralization of the activities is suggested.

## 0. Introduction

Information may be broadly defined as the oral, written, numerical or graphical representation of any event, activity or condition, past, present or future. Industrial information includes those items of scientific, technical and economic intelligence that can be communicated or applied to facilitate and accelerate the operation and growth of an enterprise. Information now-a-days is as vital a tool as finance, manpower, equipment, etc. Industrial information, therefore, can be considered as a commodity; its value can be established through its application in planning, decision-making, production purposes, products and process development, etc.

An information system, is a method, or a combination of methods for acquiring, classifying, recording and disseminating knowledge for proper application with speed. Information system and information unit when spoken together are referred to as the information service.

## 1. Nature and scope of industrial information

In industrial establishments the concept of information retrieval and storage emanate from the very idea of setting up an industry. Here information is mainly required at two different stages: (i) pre-investment information, i.e., information required for planning,

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The views expressed are those of the author and not necessarily of the organisation he represents.

# PLAN FOR A NETWORK FOR COMMERCIAL INFORMATION SERVICE IN INDIA

DR (MISS) JAYATI ROY

## Abstract

There is a need to organise a network of commercial information services and facilities to help the large number of traders who are spread over the entire country. The network should be so planned as to avoid unnecessary duplication and to ensure maximum utilisation of available resources. The paper suggests a model system for decentralised collection, centralised processing and decentralised dissemination of information to achieve the desired results.

## 1. Trade and Commerce an Essential Endeavour

“Trading between countries is an universally accepted phenomenon. No country of the world can afford to live in a completely isolated condition.” The statement is true inspite of the fact that at times autarchic tendencies develop and make some countries believe that they can live without trade relations with other countries. Repeated failures of such tendencies indicate that they can not live in such an isolation.

If the fact of trade has to be accepted as a necessity, there would obviously be attempts in different countries to derive the maximum benefits out of it. To make the trade contribute to national economy, a country must develop potential and acquire capability to compete with other trading partners.

## 2. Role of Information in Trade

The comparative advantages of different countries in raw materials, technology, kinds of economic services that enter into trade or expertise of people developed for producing the products of trade in the desired form and such other matters are not dealt here. This paper deals with only one aspect and that is about commercial information and its availability to traders.

Need for proper and timely information by traders does not require any special emphasis. Terrific competition is characteristic

# PLANNING AN INFORMATION NETWORK FOR THE SMALL INDUSTRY IN INDIA

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## Information Scene in India

Information is increasingly being recognised as an important resource for accelerating national developments at all levels. It is also increasingly being felt that with the tremendous proliferation of information and inter-disciplinary nature of knowledge it is no longer possible for any one—individual or organisation—to keep track of all relevant facts of ones interest. This has not only given rise to a number of specialized information centres in every country, it has also lead to the awareness of the desirability of having some sort of co-ordination and co-operation amongst these centres to maximise their usefulness.

Information centres in India are mostly of post-independence era. A variety of information centres, with differing functions, scope and efficiency, are distributed over a large number of agencies—R & D organisations, institutes of higher learning, professional associations, government departments, public and private sector industries, and other institutions. Most of these meet the needs of the local clientele and vary greatly in their level of development and standard of services rendered. The need has been felt, to develop on a priority basis, a national scientific and technical information system to interlink and co-ordinate the various information centres and their services. This would facilitate identifying lacunae in the existing information resources and services. The gaps could then be filled up by augmenting the resource for providing more effective, efficient and relevant services.

NISSAT or the National Information System for Science and Technology envisaged in the Science and Technology plan during the Fifth Plan period, is based on the existing information facilities. The functioning of the National Information System is in several tiers. In the system, national centres of information (NCs) are proposed for

# INFORMATION SYSTEM FOR EARTH SCIENCES

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## Abstract

Earth sciences have assumed great importance for the exploration and development of mineral and energy resources. Several scientific organisations are actively engaged on the study of earth sciences and the exploitation of resources in the country. There is an imperative need for an organised system for collection, storage and dissemination of information to these organisations. The paper reviews the existing information resources in the country and also the national and international systems in earth sciences available to assist the geoscientists. It is proposed that a national information system for earth sciences in India may be developed on the existing library and information infrastructure of the Geological Survey of India and its network of Central, Regional and local centres throughout the country and integrating these with the information systems of the specialised organisations dealing with the specific branches of earth sciences such as geophysics, groundwater, oceanography, oil and natural gas, mining, etc.

## 0 Introduction

Study of Earth sciences illuminates the past, sustains the present and promotes the future. Focussing its attention to the past, it reveals the fascinating story of formation, evolution and development of the earth. It sustains the industrial growth and prosperity of the present human society by searching, locating and utilising resources of the world. It is also laying a helpful hand in planning and promoting the developmental activities of the future by assessing available resources in the world. In recent times the scope and coverage of Earth sciences have increased much due to successful attempts in exploring undersea beds and landing of man on the Moon. Thus study of Earth science has not remained restricted under and on the surface of the earth but has been extended to the sea and the sky.

Importance of Earth science was felt long back. Kautilya (3rd Century B.C.) in his Arthashastra mentioned अाकरः प्रभनः कोषः (Mines are the sources of treasury) and thus recognised the importance of the subject in the economic development of a country. Government

# TOWARDS A NATIONAL PLAN FOR ESTABLISHING ENVIRONMENTAL INFORMATION NETWORK

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## **Awareness of Environment**

Environment is the sum of all external conditions and influences affecting the life and development of organisms. Today, there is a growing awareness amongst the scientists, engineers, research workers, Govt. and the general public of the degeneration of the environment as a result of our assault on it. Increasing population, developing industry, changing agricultural patterns, alongwith a desire for higher standard of living have focussed attention on the multiple sources of contamination, pollution and the need for extensive control of pollution.

## **Importance of Environmental Information**

An efficient recorded information system in any discipline is very important for its development and environmental science is not an exception to this. It is therefore essential that collection, collation, organization, storage, access, retrieval and dissemination of environmental information should be made as effective as possible. In order to maintain a high standard and to achieve national goals set up by our planners in the field of environmental control, it is necessary to have at the back an effective environmental information system. The development of a national plan to construct an efficient Environmental Information Network is one of the ways to accomplish this objective. The need for such a network is felt more because of the interdisciplinary nature of subject and ever increasing amount of information on one hand and the contracting resources on the other.

## **Need for a Network**

At present, a number of Govt. departments, research institutions, corporations, municipalities and universities, State and Central Water Pollution Control Boards, environmental control agencies, societies, associations and consultancy firms are showing deep interest in environmental aspects and are engaged in R & D activities in the field.

# PHYSICS INFORMATION SYSTEM : A NECESSITY

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And

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Much alarm has been created by literature explosion. Several national and international information systems have come into existence during the recent years to meet this alarming situation and to fulfil the basic and crying need for improving the organisation, accessibility and flow of information. They also owe their existence to the realization of the fact that social and economic system of a country would function more efficiently if availability of reliable information is ensured at the right time to the right users<sup>1</sup>. Scientific information is being regarded as an important national resource<sup>1</sup>. The exponential increase in the output of scientific literature tremendous increase in the user population and increasing costs of materials and services are some of the problems faced not only by the developed nations but by the developing nations also. Developed nations strive to achieve greater efficiency through co-ordination of existing resources and facilities, while the developing ones hope to improve their indigenous capability and to create new ones<sup>1</sup>.

## 1. Development of Information Systems in India

Complexities brewing up in the field of information handling and transfer have also been catching the attention of the Indian Government from time to time. A number of reports as mentioned below relating to the growth and development in the information field have been brought out.

'Krishnan Report (1955), Thacker Report (1958), One Man (Dr S. R. Ranganathan) Committee report to the Planning Commission (1959), Kothari Committee Report (1960), Lazar Report (1964), and Nihar Ranjan Ray Committee Report (1967)<sup>2</sup>. UNSIST programme

# PLANNING OF A NATIONAL BIOMEDICAL INFORMATION CENTRE : A BLUEPRINT FOR ACTION

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## Abstract

The paper has outlined a blueprint of the National Biomedical Information Centre which will be responsible for promotion of biomedical documentation services in India under the network of NISSAT. The modus operandi including financial implications and other requirements in this regard have elaborately been discussed.

## Introduction

Before planning a National Information Centre for any area or discipline of science and technology, it is necessary to have a clear idea about (i) the world's total output of information generated in that field and (ii) the trends of research going on in the country in that particular field and the problems faced by concerned scientists in obtaining their information needs. These aspects have therefore to be considered first before preparing a blueprint for a National Biomedical Information Centre to meet the information needs of Indian bioscientists and biotechnologists.

## Information Generated in the Field of Biomedical Sciences

Biology is one of the most active and growing fields of research at the present times. The emergence of new frontier areas and the application of new concepts have given a fillip to both pure and applied research during the past three decades. The opening up of new areas of investigation like molecular biology, molecular microbiology, molecular pharmacology, molecular pathology, molecular genetics, biochemical pharmacology, bacterial genetics, cellular and sub-cellular biochemistry, membrane biology, enzyme engineering, etc. has accelerated the pace of biomedical research. Bioresearch projects to-day being connected with these newly developed specialities and in consequence multidisciplinary in nature to a unique degree. If we consider a

# ALL INDIA ANTIBIOTICS INFORMATION REFERRAL CENTRE : A PROPOSAL

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## Abstract

The chances of new antibiotics discovery exist in any microbiological laboratory. But to prove it to be new, it has to be compared with already reported 4000 antibiotics, which needs a fairly good collection of antibiotics literature and good indexing system.

To help any microbiologist working in any part of India, on antibiotics, a proposal is put up for establishing ALL INDIA ANTIBIOTICS INFORMATION REFERRAL CENTRE. This proposed centre headed by organic chemist, will do consultancy in addition to normal information services. By establishing such a centre, it is hoped that possibility of discovering new antibiotics in India will be enhanced.

## 0 Introduction

Our mid-20th century is often called as the "Era of Antibiotics". The flurry of antibiotics has come about chiefly for two principal reasons: (1) necessity for human conquest of microbial diseases and (2) belief that special chemical compounds could provide control over these diseases. The application of antibiotics in the conceptual schemes of chemotherapy, in the short span of a few years, has exerted tremendous influence upon modern medical practice, the drug business and human society. About 4000 antibiotics have been reported in literature. Out of them only 50 antibiotics are in clinical use.

The most widely accepted definition of "antibiotic" is put forth by Waksman in 1953 and is thus: *Antibiotic is a chemical substance produced by microorganisms, which has the capacity to inhibit the growth and even to destroy bacteria and other microorganisms, in dilute solutions*".

## 1 Development of antibiotic

Many scientists, physicians and especially the public at large have the impression that the history of antibiotics began with penicillin.

# MEDICINAL AND AROMATIC PLANTS INFORMATION SERVICE (MAPIS)

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And

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## **Introduction**

The knowledge of use of plants for medicinal purposes in India can be traced to the remote past, as found recorded in the *Rig Veda* (4500-6000 B.C.). *Susruta Samhita* and *Charaka Samhita* (1000 B.C.) respectively dealt on therapeutics and the materia medica as was known to the ancient Hindus. During the Buddhist period much knowledge was gathered on the cultivation of the medicinal plants, and it was later enriched due to contacts with Greece, Rome, Arabia and Persia.

Indian Materia Medica of the indigenous system of medicine has become expensive and heterogenous. Medicinal properties have been discovered in a large number of plants, and it is now estimated that 1,800 different species of plants with possible medicinal and toxic properties grow in this country. Some of them are also being commercially cultivated to meet the demands from the West European countries and USA for the natural drugs.

The question of production of drugs from plants has been taken up on priority basis because of the facts that drugs form one of the most important needs of a country, perhaps next only to food, and that our country is quite rich in plants, and utilization of such plants is economically feasible. Over 60% of all pharmaceuticals are of plant origin (including fungi and bacteria). Indian pharmacopoeia records about 100 medicinal plants and their preparations.

## **Need for the proposed service**

One of the greatest handicaps confronting the research workers, farmers, entrepreneurs and industrialists is the paucity of information

# ROLE AND RESPONSIBILITIES OF A NETWORK FOR THE NATIONAL INFORMATION AND DOCUMENTATION SYSTEM FOR MACHINE TOOLS AND PRODUCTION ENGINEERING (NIDSM)

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## Abstract

Outlines the need for information services in Machine Tools and Production Engineering. Proposes a model for network for the National Information and Documentation System for Machine Tools and Production Engineering. The role of NIDSM in furthering the growth of use of information is described.

## 0 Introduction

Enormous quantities of valuable information which are available are not being used because of the obstacles which separate the information from its user<sup>1</sup>. A user will have to be kept aware of what is going on in his field and in addition, in the related fields. This is obtained from published literature, seminars and conferences and through conversation with specialists. So an information centre, which accepts the responsibilities of serving its clientele, should necessarily collect information from all these sources. No individual library or information centre can afford to be self sufficient with regard to resources. Immaterial of whether it is a small library or a big one, it has to depend on others to discharge its responsibilities fully. The conventional library cooperation has always been a panacea for this.

The information requirements of various categories of users are varied and the quantity enormous. The responsibility of an information system is not just enough in supplying information, but also include knowing whether the information disseminated was used by the enquirer and whether it helped him in arriving at a better and a quicker decision.

Nowadays a new concept in library cooperation has arisen, which we call networking. Instead of the informal adjustment, as we see in the conventional cooperation methods, in networking it becomes formalised, although it is only an extension of the earlier.

# IMPLEMENTATION OF THE FOSTIS PLAN : CURRENT STATUS AND FUTURE ACTION

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AND

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## **Introduction**

Though the agricultural production in India has doubled during last 25 years, a sizable percentage of agricultural produce go waste due to various kinds of losses. In order to overcome these losses and also in view of the growing demands for processed foods, it is necessary to promote proper application of food science and technology which is making rapid progress during the last few decades. Hence, a well organised information service is an important requirement.

The Science and Technology plan formulated by the National Committee on Science and Technology<sup>6</sup> has, in its proposal to organize the National Information System for Science and Technology (NISSAT), included an information centre for food among those Branch Information Centres being organized on a priority basis during the Fifth Five Year Plan. This information centre, which has already started functioning, is designated Food Science and Technology Information Service (FOSTIS) and located at the Central Food Technological Research Institute (CFTRI), Mysore, where proper infrastructural facilities needed for the development of such an information centre are available.

## **2. Food Science and Technology Information Service (FOSTIS)**

### **2.1 CFTRI**

CFTRI was established in 1950 to carry out R & D work in food science and technology suited to the needs of the country. Its main laboratory complex in Mysore consists of 17 disciplines and 7

# NIS FOR GLASS AND CERAMIC IN INDIA AND S & T INFORMATION NETWORK FOR THE RURAL SECTOR

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## Abstract

An attempt has been made in this paper to study the role of SICs in the NISSAT network, with specific reference to 'Glass and Ceramic Sector' in India. The importance of inter-sectoral network in the NIS structure has been stressed. The need for the establishment of 'Rural Technical Information Centres' (RTICs) by developing the existing rural libraries in all Community Development Blocks has also been pointed out with the suggestion to interlink the RTICs with all SICs within the NISSAT network.

## 0 Introduction

Emergence of NISSAT in India indicates the awareness of our science policy makers that information is a vital national resource for accelerating the pace of socio-economic development. NISSAT has been conceived as a multi-tier network to build up a strong information infrastructure by interlinking and coordinating existing information resources, services and systems.

Sectoral Information Centres (SICs) in the second tier form the most important sub-system of NISSAT. Since SICs are discipline/mission-oriented information networks mostly devoted to the industrial areas, they assume the nucleating and catalysing role in the overall growth of NISSAT.

## 1 Sectoral Information Centres for Glass and Ceramics in India (SIC/GC)

Selection of a sector for building up NIS network is based on two major criteria :

- (i) status and importance of the sector in the economic development of the country, and
- (ii) level of existing information infrastructure in the sector.

## ABSTRACTS OF PAPERS

### A CONSORTIUM FOR RESOURCE SHARING THROUGH SHARED CATALOGUING

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To make the optimum use of the available resources in any region, cooperative ventures like resource sharing are fast becoming the order of the day. A system for shared cataloguing as a means of resource sharing, is presented as a model to operate in a metropolitan city. The major objective of this consortium is to facilitate effective sharing of scientific and technical books and the facilities and manpower required for processing and servicing these books among the libraries participating in the consortium's activities.

The system may operate as a local level network, with a central coordinating agency responsible for the complete operation of the system and the participating members providing cataloguing input to the system. The network could also be linked to other similar networks.

The coordinating centre will maintain complete record of inputs in the form of master record and provide facilities for duplication to ensure supply of unit cards to participating library whenever required. The data base of catalogue records so built up will also aid in inter-library loan services, verification of bibliographic information for books, compilation of union catalogues, notification of new arrivals, compilation of book catalogues for desiring libraries, and help in cooperative acquisition programme.

It is estimated that the annual expenditure of the consortium on this project will be around Rs 1 to 1.25 lakhs and the unit cost of processing for a title will be about Rs 3. The funds may be raised by contributions from members, government grants, membership, etc.

The system of shared cataloguing is expected to result in overall cost reduction to the extent of 30-40 per cent per title. It will also benefit

the members of the consortium to develop a balanced collection, avoid undue duplication, operate an economical and quicker inter-library loan system, achieve a generally higher level of operational efficiency and function as one integrated system to interact smoothly with other similar systems.

## NATIONAL AGRICULTURAL RESEARCH INFORMATION SYSTEM

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The pressing need for an organised information system in agriculture has prompted ICAR to initiate steps to establish the National Agricultural Research Information Services (NARIS) at IARS, New Delhi. The aims of NARIS are primarily to organise agricultural information system and establish strong rapport with the cooperation and coordination of all the agricultural libraries to serve the agricultural scientists and scholars of India. The activities of NARIS will involve integrating, coordinating and union listing of the existing resources and extending various documentation and information services such as indexing, abstracting, current awareness, bibliographic compilation, setting up data bases, reprographic and translation services.

NARIS will also actively participate in international information systems. It is already supplying Indian inputs to AGRIS data base at Vienna and cooperating with the CARIS project of FAO with the object of collecting, organising and disseminating basic data on agricultural research, programmes and activities carried out by various organisations.

The personnel policy for manning NARIS should be prudently followed. The influx of persons from other disciplines into the library and information field need be stoutly resisted. Adequate training and experience in library, documentation and information work in addition to the subject background is essential for the sound organisation of the information systems.

The NARIS system with its sub-systems is proposed to be linked on the one hand to the international agricultural systems such as AGRIS and CARIS and on the other hand to NISSAT, being developed in India.

# PLANNING OF A NATIONAL INFORMATION NETWORK ON CANCER RESEARCH IN INDIA

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National Information Network demands a master plan. The programme requires co-operation in activities and use of resources in a way that can strengthen National infrastructure through efficient working of Institutions and services, that share the responsibility of collecting, storing, processing and retrieving as well as for evaluating, analysing and disseminating the information contained in their collections. Maximum availability and use of existing information resources has to remain integrated with the development plans for best utilization of resources. Users of information range from individuals to policy makers. National information system is actually an aspect of educational, scientific and cultural sphere and thus its plan should form a part of the overall economic plan.

An integrated information network on cancer research, coordinating the library and information activities of the four Cancer Research Centres in India is proposed for maximum utilisation of available resources in this vital field of human concern.

## INFORMATION SYSTEM FOR HEALTH ADMINISTRATION, EDUCATION, TRAINING AND FAMILY WELFARE

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In order to ensure good health and welfare of the people in any country, it is necessary that information should flow freely and rapidly from policy makers down to the grass-root workers. A well organised information system which collects, processes and disseminates information is essential to have free and rapid flow of information to all those concerned with health and family welfare.

To meet the above objective, a National Documentation Centre (NDC) is being established in the National Institute of Health and Family Welfare, which aims to build a fairly comprehensive document base and information base for generating various categories of documentation services. The Centre will also assist in building a network of document bases in the field of health and family welfare within the country. The various research centres, health and family welfare training centres, All-India Institute of Hygiene and Public Health, National Institute of Population Studies, etc. will form components of the network. The Centre will also be linked, as a sub-system, to NISSAT at national level and to Global Information systems like POPINS at the international level.

**PROPOSAL FOR AN INFORMATION NETWORK FOR SMALL  
INDUSTRIES IN TAMIL NADU :  
A POST SCRIPT TO MALA SEMINAR**

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The paper proposes a model small industry information network for Tamil Nadu taking into consideration the existing resources and facilities in the state. The proposed model envisages interlinking of switching/coordinating centre which also functions as the central information unit for the small enterprises in the state. It is suggested that TIS (Guindy) be developed as a Central Information Unit by building up the necessary resources to meet the information needs of the small industry. TIS may also assist in setting up a number of Local Information Units wherever there is a concentration of small industries.

The TIS and the LIUs should develop a complete range of information services such as technical information service, product process information bulletin, market survey reports, technical digest, management digest, data compilation, current awareness service, etc. in a phased manner. to meet the unique requirements of small industry.

## **SECTORAL INFORMATION CENTRE FOR RAILWAYS**

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The systematic and organised R & D activities in the present Railways were undertaken only at the dawn of this present century. The fruits of research can be shared by all railway organisations through proper dissemination of information among themselves. Before 1930, the important information required for the management of railways was based on imported technical know-how. In spite of recommendations of different committees starting from Pope Committee (1939) for an organised R & D, the development of research activities progressed at slow pace till 1952. In 1957, the Research Design & Standards Organisation was set up for the purpose. Describes the characteristic of information handling in the R & D activities in Railways. Describes the main objective of the proposed mission/professional oriented Sectoral Information Centre for Railways within the framework of NISSAT. The objectives of this library-based information network can be achieved only when its components—(a) information Bases (Technical Library), (b) Information Service, (c) Information use promotion, are developed within the organisation and interphased with related systems in an effort to exchange and interchange relevant information. Discusses the existing infrastructure of the information base and information services of the Indian Railways and future services for the proposed information centre. The envisaged centralised Rail Information System will integrate the existing information bases of the Indian Railway system. Describes the task to be performed by the sectoral information service when fully developed.

## **INFORMATION AND DOCUMENTATION SERVICES IN CHEMISTRY AND CHEMICAL TECHNOLOGY**

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Growth of Chemical literature has been very rapid since the earlier days. The coverage of Chemical Abstracts is very comprehensive and could be regarded as the nearly total world output. The quantitative growth of items in CA is reflected by figures. The no. of items in 1907, 11,874 has grown into 3,90,905 in 1976. The average annual growth of abstracts is 8.2%. Any R & D organisation in Chemistry and Chemical technology has to scan 4.54 lakh items annually, which necessitates well organised information centres to handle and organise the literature properly.

Describes the various activities and services of NCL Library available at present. The library has total collection of 47000 volumes of books, monographs etc., with an annual intake of 2000. There are 25,000 bound periodicals, the current titles received being 460 and no. of Indian patents available is around 1,10,000. Besides it receives foreign patents of about 200 a year. It also receives all Indian Standards and limited number of foreign standards, total being around 2500. Gives developmental proposal from 1977/78 to 1981/82. With the facilities available at present, it is thought that this library could be expanded and developed as a national information centre for Chemistry and Chemical Technology, which will form part of NISSAT and will work as a link between national centres of information in higher level and local information units at lower level. The structure, organisation and function of the proposed centre in relation to its objectives and responsibilities are discussed.

## TECHNICAL INFORMATION SYSTEM FOR IRON & STEEL INDUSTRY IN INDIA

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A Technical Information System (TIS) has been evolved to meet the information requirements of iron and steel industry in India. It is a two tier system in which a Technical Information Centre (TIC) attached with R & D Centre for Iron & Steel, H.S.L., Ranchi, constitutes the upper level of organisation and Local Information Units (LIUs) at Steel Plants and other subsidiaries of SAIL form the second level organisation. The constituents of TIC and their functions are briefly described.

**IDENTIFICATION OF SHORTCOMINGS IN EXISTING INFORMATION SYSTEMS AND THEIR REMEDIES—A PRIORITY IN PLANNING S & T INFORMATION NETWORK IN INDIA**

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The library and information system in India is composed of many independent autonomous units in the public and private sectors. With the implementation of Five Year Plans, a chain of specialist libraries and information centres have come up in the country. But the peculiar situation prevailing at various wavefronts of our national life is acting as an impeding factor in functioning of the existing information system with desired efficiency.

An attempt has been made in this paper to identify and analyse the practical difficulties and shortcomings in the existing S & T information systems at all levels in India. Since networking concept in developing a National Information System for Science and Technology primarily depends on interlinking existing library and information services and systems in the country, and its success lies in the effective organisation and coordination of the existing systems, it has been emphasised in this paper that the remedial measures for the shortcomings identified in the systems should be assigned priority while implementing the first phase of the proposed S & T Information Network. Suggestions have also been offered about the criteria for fixing priorities in achieving optimum functional efficiency of the overall system.

# **A NEED FOR ESTABLISHMENT OF NATIONAL INFORMATION NETWORK IN BIOMEDICAL SCIENCES IN INDIA, WITH A SLANT TO NUTRITION INFORMATION**

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Nutrition has been defined as food at work in the body. Literature pertaining to nutrition is growing abundantly in India. The fruits of research should be well disseminated by organizing a nutrition data bank at National Institute of Nutrition, Hyderabad. Network of the organizations of nutrition research has to be formed and the knowledge gained or produced has to be properly collected, collated and disseminated. The network in nutrition information should be developed by integrating and interlinking the existing information resources.

## **INFORMATION NETWORK IN PSYCHOLOGY**

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Progress in Psychology has been remarkable throughout the world in the last 100 years though in India it has not been so till 1950. After 1950 there has been an information explosion.

To cope with this explosion of information in the field of psychology a network has been established throughout the world. The Unesco which with numerous publications attempts to have a bibliographical control in the field is at the apex of the network. The International Union of Psychological Science publishes reports and works in collaboration with other national and international bodies, but this body cannot be treated as an apex body like the Unesco.

Among the national bodies the American Psychological Association is most active. Next come the national bodies of U.K., U.S.S.R. and Japan. In India, many organisations like NCERT, ICMR, IPA, ICSSR and different universities are engaged in Psychological research. The main problem here, so far as dissemination of information is concerned, is lack of coordination and network among these bodies. In India too, vast amount of information is generated through different kinds of documents, such as, printed, manuscripts and audiovisual materials.

In conclusion, it may be mentioned that a national network of organisations engaged in research work in this field is needed for quick dissemination of information generated in this country.

# INFORMATION NETWORK AND MANPOWER DEVELOPMENT

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The development of well-integrated information system related to the users need of a country implies the need for a suitable manpower development policy. The education and training of library and information personnel, capable of organising effective library and information services to the users, is a very important aspect of manpower development policy of a country. Flow of appropriate number of library and information professionals, having different types and levels of specialized knowledge, is an essential pre-condition for success of programmes of national library and information networks.

It is, therefore, necessary for India to develop a manpower development policy to meet the challenge of the existing and the proposed library and information network in different sectors. This manpower development policy should consider, among others, the following facets: (a) Determination of Objectives and perspectives of Library and Information Science Education in the context of the need of the changing society, (b) Assessment of existing conditions of Library and Information Science Education in the country—entrance qualifications, levels and standards of courses, methods of evaluation, annual overturn etc., (c) Assessment of the need of different categories and levels of library and information professionals in the context of existing and proposed networks in different sectors, (d) Determination of different categories of library and information professionals and the required levels of their specialized knowledge, (e) Preparation of a guideline for designing curriculum for different types and levels of professional courses in Library and Information Science, (f) Programme for development of manpower for teaching of Library and Information Science, including continuing education programmes for teachers, (g) Faculty development and status of Library and Information Science Schools, (h) Local, regional and national cooperation: (i) between teaching schools and library and information centres, (ii) among the teaching schools, (i) Programme for continuing education for different levels of library and information professionals, (j) Research and Investigation in Library and Information Science, including determination of priorities in the context of the need of the society, and (k) Cooperation with different international programmes.

# **NATIONAL LIBRARY POLICY**

**DEVENDRA KUMAR KAUSHIK**

*Indian National Science Academy, New Delhi*

AND

**VASANT KUMAR N. HITTANGI**

*Parliament Library, New Delhi*

States that a policy is required to be laid down in all fields where certain goals are needed to be achieved. Information explosion that took place in the world urgently needs a policy to be formulated for proper bibliographical check and control over the ever exploding information. Need for information for all types of socio-economic activities has tremendously increased.

The role that libraries can play for dissemination of information at all levels as effective instruments for bringing about the socio-economic change has become outstandingly important. The situation therefore demands formulation of a national library policy with the objective of providing all who have some part to contribute in the national life with access to information they need and this as economically as possible. The basic plan would be built as national library system on the existing infrastructure by co-ordinating the present activities, and articulating the various library services.

In order to ensure uniform library development throughout India there should be explicitly defined central guidelines to the states. The guidelines could be issued through a permanent, statutory commission to be called as National Commission for Libraries. Enunciates the constitution, membership and objectives of the Commission.

## **A NETWORK OF ENGINEERING COLLEGE LIBRARIES IN INDIA-GUIDELINES**

**A. I. H. ZAIDI**

*Regional Engineering College. Srinagar*

Library cooperation and networking are increasingly being adopted to make maximum utilisation of available resources. With the rapid growth of technical and engineering education in the country, there has been a corresponding rise in the number of libraries to meet the needs of the students and scholars. An integrated technical information network with the proposed National Technical Information Centre at the apex and the five Indian Institutes of Technology and the fifteen Regional Engineering Colleges as sub-Regional Centres, is suggested with guidelines for functional responsibility and resource sharing.

# **FACTORS INFLUENCING SETTING UP AND OPERATING INFORMATION NETWORK**

**ASHOKE JAMBHEKAR**

*Indian Council of World Affairs, New Delhi*

The tasks of planning, decision-making and administration are increasingly dependent on the availability of reliable information. The formulation and implementation of a national information policy is the only way to ensure that all engaged in developmental process have access to the information they need.

In setting up an information network a series of stages are involved, including diagnosis, the definition of objectives, justification, indication of scope, design, programming, etc. But there are certain factors involved in execution of that program which should be taken care of before embarking on the program. The most important factors are (1) Technological factors, including the methodology to be applied and the instruments for data and information processing; (2) Infrastructural factors; (3) Human and environmental factors.

## **NATIONAL INFORMATION NETWORKS IN INDIA**

### **A Proposal**

**M. MAHAPATRA**

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Scientific and technological institutions in India are scattered in different sectors without having any system of network among them. These institutions function unilaterally in most cases. Information systems in them do not also have the proper facilities to cater to the information needs of the scientists and researchers working in them, to the extent required. Research which is a vital need of the country, is much hampered in this situation. Since information is the most vital resource for scientific and technological development of the country, a National Information System be developed with a subsystem structure of five level organisations, viz. State Information Units, State Coordinating Centres, Regional Centres, National Centres and National Coordinating Centre. Downward and upward flow of information from one unit to another is suggested.

## NEED FOR INFORMATION SERVICE IN INDOLOGY

BIJOYA NATH MUKHOPADHYAY

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The information problem of subjects in the field of humanities has not been given appropriate attention though their contribution to human happiness cannot be ignored. Indology is such a subject which needs to be studied thoroughly for proper understanding and interpretation of all aspects of Indian life which has contributed so much for the well being of the world.

The setting up of an all India organisation like the INSDOC which will look after proper development of reference tools and coordinate the services already available to ensure building up and development of an efficient information system in this field is suggested.

## NATIONAL INFORMATION SYSTEM FOR ANTHROPOLOGY

S. M. KULKARNI

*Anthropological Survey of India, Calcutta*

Anthropology is the most comprehensive academic discipline dealing with the "Study of Man". The subject has multidisciplinary base sharing with other well established fields of study. The explanation of similarities and differences among human groups has been the core of anthropology. It concerns all types of society—primitive, literate or industrialised.

Indexing, abstracting and current contents services from foreign countries have been the main source for retrospective information search so far in this discipline. The efforts in India have been mainly initiated by Anthropological Survey of India for collection and dissemination of information in the field of anthropology. Though there are more than two hundred institutions in India which are working directly or indirectly in the field of anthropology, there has not been an attempt to have a net-work of these information sources. In India, vast literature on different populations in different languages is available. Efforts for systematic gathering, processing, storage, retrieval and dissemination of wide range of information of interest to anthropologists will be a welcome step.

Directory of Institutions, Union Catalogue, Centralised Documentation and Bibliographical Services, Computer Centre and "On line" terminal for Anthropology in India, current contents, citation index and S. D. I. services are some of the important projects which can provide India with the necessary infrastructure for setting up the information system on anthropology.

## **ORGANIZATION OF A TECHNICAL INFORMATION NETWORK FOR THE BHEL COMPLEX**

**S. S. MURTHY**

*Bharat Heavy Electrical Ltd., Hyderabad*

In the field of power engineering, BHEL plays the predominant role. Libraries in the units of BHEL are resourceful and organised to the information needs of the scientists and engineers working in them. Considering that technical information is indispensable for the growth and development of power engineering and to make the BHEL effective for techno-economic development of the country, its management has already decided to develop a Technical Information Network of its existing Libraries and Technical Information Centres. With this end in view, an advisory body with the outstanding information scientists of the country has been formed.

A National Information System for Power Engineering and Technology may be formed in BHEL with a network of already established Technical Libraries in the complex and those in the other sectors in the field. The product/mission oriented organisation with a Coordinating centre in its R & D unit has been suggested.

## **NATIONAL INFORMATION SYSTEM FOR READING MATERIALS PUBLISHED IN THE INDIC LANGUAGES : A PLAN FOR ACTION**

**S. G. MAHAJAN**

*Jaykar Library, University of Poona*

Though the reading materials in the Indic languages are useful for carrying out research in the Humanities and the Social Sciences, access to this information is difficult in the existing situation ; so there is a need to organise a National Information System for reading materials published in the Indic languages. A draft plan for organizing such a system is presented. It is proposed that the work of collection and preservation of publications in the Indic languages be executed by National Central Library for each Indic language to be established for this purpose assisted by a chain of State Central Libraries and District Libraries. National Documentation Centres for Indic languages, utilizing to a maximum the existing facilities in India may be established. The role of the ICSSR, ICHR, the National Library, Sahitya Akademi in the implementation of such a system is discussed. Facilities for training in Documentation in Humanities and the Social Sciences should be provided.

## **AGRICULTURAL LIBRARY AND INFORMATION NETWORK FOR INDIA**

**S. DEVARAJAMMA AND N. ANURADHA**

*Documentation Research and Training Centre, Bangalore-560 003*

Discusses progress, proposal and programmes in agricultural research and development in India, emphasizing a growing demand for agriculture. Points out this information system should be developed as a national facility to meet this growing demand. Briefly describes the existing information infrastructure to support the activities in the agricultural and related areas. Emphasises the need for developing information and technology transfer facilities to farmers through extension and other services. Outlines a plan for networking the infrastructure components, indicating the functions and programmes of activity of the nodes at different levels in the network.

## **PETROLEUM INFORMATION SYSTEM IN INDIA**

**G. N. TRIPATHI**

*Oil & Natural Gas Commission*

Petroleum industry in India is of complex pattern. In order to make this industry viable for national economic growth, ONGC, an undertaking of the Government of India, has been commissioned. It is in the apex of the industry. Units of this agency are scattered in different parts of the country with direct or indirect liaison with other agencies in the government and non-government sectors.

Information needs of this industry are very much acute. In order to cater to the information needs, the Institute of Petroleum Exploration has drafted a plan for building up a Petroleum Information System suggesting its growth phase by phase. Manpower requirement and budget have also been envisaged.

The ONGC being the most important agency in the apex of the petroleum industry, a National Information System for Petroleum be instituted in the ONGC itself,

## **IDENTIFYING SOURCES OF INFORMATION FOR BUILDING RESEARCH**

S. SRINIVASAN AND S. P. GUPTA

*Central Building Research Institute, Roorkee*

Building research covers different subjects like chemistry, acoustics, architecture, foundation engineering, rural and urban planning etc. and thus is inter-disciplinary in nature. Hence information about the organisations specialised in the fields, published literature on this area and the sources of this information are relevant and useful in building research. The paper attempts to identify the Indian sources of information in this field. The sources of information have been classified as Primary, Secondary and Tertiary publications. A list of Indian primary periodicals on this subject has been appended with a suggestion to revise it periodically. Coverage and scope of CBRI Abstracts, CRI Abstracts, and NBO Abstracts have been dealt with in brief. Procurement of relevant Tertiary publications is also suggested. As CBRI is the prime research organisation in India in this field, its role and publication programme has been discussed at length. Future activities of Building Information Centre are suggested in conclusion, which include compilation of Union Catalogue for this area, reprographic facilities and mechanical devices for information retrieval.

Lists of (i) Building research organisations in India ; (ii) Selected Indian periodicals on building research ; (iii) Indian abstracting services on building research ; and (iv) Data regarding technical translations done at CBRI, are appended.

## **SUPPLEMENTARY ROLE OF CONSULTANCY ORGANISATIONS IN THE NATIONAL INFORMATION NETWORK**

P. VYASAMOORTHY

*IDL Chemicals Ltd., Hyderabad*

A number of consultancy organisations have sprung up recently in the country, in which information services range from literature procurement, literature survey, preparation of bibliographies, feasibility reports, trend reports, supervision etc. to handling complete projects on turn key basis. Consultancy Organisations can substantially contribute in enriching the effectiveness of the national network of libraries if adequate cooperation is taken from them.

# **ROLE OF PROFESSIONAL SOCIETIES IN THE IMPLEMENTATION OF NATIONAL INFORMATION SYSTEM IN THE FIELDS OF APPLIED SCIENCES**

**BUDHENDU BIJOY MISRA**

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Durgapur-9*

To face the present problem of literature explosion, National Information System (NIS) was suggested and the credit of generating an awareness about NIS goes to OECD. It aims to extend to the developing countries the benefit of experience of the developed countries in this field. The impact of this idea was felt by others and UNESCO launched the UNISIST programme in 1972. In India NCST took up the responsibilities of developing NISSAT. In India information problem has its peculiarities; while we are importing foreign know how at high cost for development of technology, many of the earlier Sanskrit manuscripts having much relevancy in medicine, geophysics, botany, astronomy etc. are not accessible to Indian scientists due to language barrier. This situation calls for increased co-operation of subject specialists and information scientists for economy and maximum use of information. Professional societies have a significant role to play in the inter-action of information specialists and subject specialists. Under NISSAT programme—there are two important areas (1) Co-ordination of information sources and (2) standardisation of techniques and procedures—where professional societies may contribute much.

## **MANAGEMENT INFORMATION SYSTEM FOR PLANNING OF NATIONAL INFORMATION SYSTEM**

**S. PARTHASARATHY AND RANJITA MAITRA**

*Documentation Research and Training Centre, Bangalore*

For planning an infrastructure for national information system, an organised procedure for collection and analysis of information on various factors that affect an information system is required. There is a need for a Management Information System which could provide comprehensive, exhaustive, analysed information for planning a National Information System. The major components which make up the MIS for planning of NIS are (i) National Development Policy and Plans; (ii) National Science and Technology Infrastructure; (iii) Models for science and technology information base. The questionnaire method would be helpful to collect data needed for MIS of NIS. The questionnaire can be multitiered one covering national and sectoral plans. The design and development of such a MIS for planning NIS will help the choice for appropriate model of NIS commensurate with the data on national development plan and the requirements of the country.

# INFORMATION NETWORKS : MODELS AND INTERLINKING

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*Documentation Research and Training Centre, Bangalore*

The conditions that establish the need for developing network are (i) The existence of a unique collection in a single location that is useful to a dispersed audience ; (ii) The inadequacy of local collections and the need for complementary support from other sources ; (iii) The centralization of particular capabilities or unusual resources with a dispersed need ; (iv) The need for interpersonal, direct communication ; and (v) The justification for the distribution of certain responsibilities among organizations or regions based upon economic or professional capabilities.

Network may be described as a physical entity intended to function as a unit and will comprise (i) A connection set, (ii) Network structure, (iii) A control system, and (iv) A set of terminals.

Network models may be cyclic Decentralized/Non-directed, Centralized/Directed and Hierarchical. The cyclic network may be of circular model type or chain model type. Two networks can be linked either directly or through one switching centre or two. The different types of network will have advantages as well as disadvantages and will develop different kinds of communication links.

Networks may also be of different varieties such as open vs. closed membership ; public vs. private organisational, integrated vs. non-integrated membership ; Information Retrieval vs. Processing Networks ; Central vs. Cooperative management ; Single vs. Multipurpose ; General vs. Special subject ; Commercial vs. Non-commercial ; Equipment centred and Activity centred.

Selection of the most suitable type of network for a purpose will have to be done on the basis of proper evaluation of the different types with reference to location of the units, orientation, personnel concerned, facilities available, products, funding and flexibility. Information network activities can also be categorised by types of transactions viz. Bibliographic data ; Materials flow (e.g. physical transfer of books and periodicals) ; Information services (e.g. answer to reference and literature search questions).

The links among the nodes for the creation of an information network should be based on : common objectives ; shared knowledge of the operations of all participants ; compatibility among the operations ; and practical working arrangements for collaborative effort to increase and accelerate information flow.

The constraints and problems in networking should be duly spotted for proper tackling. Generally these may fall into two categories (i) Bibliographical, (ii) Technical. Alert and informed handling may do away with both these problems.

The contentions have been illustrated with a case study of network for small scale industry.

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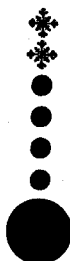


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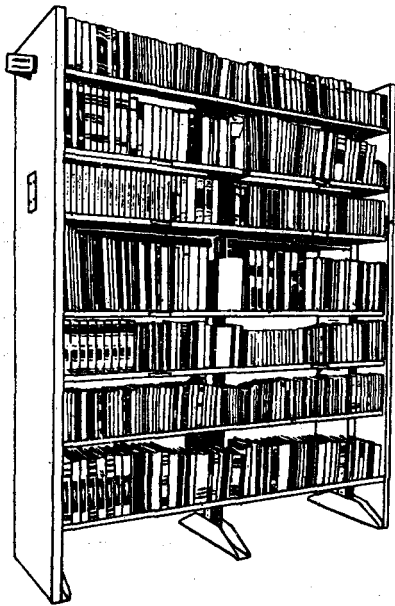
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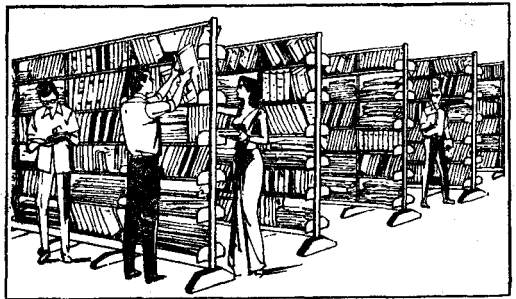
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