Science and technology can flourish only if each scientist interacts with his colleagues and his predecessors, and only if every branch of science interacts with other branches of science. In this sense science must remain unified if it is to remain effective....

Weinberg*

7.1 Why NISTI for India

In India, at present, the needed and desired benefits are not obtained from the multifarious efforts made in respect of organizing science information services. A number of programmes have been started; several kinds of services are offered; and publications are issued to facilitate the timely communication of the needed information to scientists. Yet an average scientist still complains that the needed scientific information is not made available or not communicated well in time. Such a situation has arisen because various institutions, programmes and services are mostly decentralized, unplanned and unco-ordinated and, therefore, are not able to make a significant impact. Due to lack of co-operation, clear codes of conduct and non-availability of up-to-date tools for location of material, requests for procurement of documents amongst the libraries are made haphazardly. The satisfaction rate of such requests is low, because leaving aside a few libraries, the resources of scientific and technical libraries are poor on the whole. If no positive

response is received from an institution, another one is requested. The document supply is much delayed in this process and a lot of time is wasted. In view of scarce financial resources, continuous resource improvement of all the libraries is not easy. At present, there is no library or documentation centre in India which may ensure the maximum scope for providing a document quickly. Under such a situation, India needs to establish a central agency which may be able to supply almost every document demanded by various scientists and institutions. Centralization of certain other information services will also help to improve information communication facilities. If certain information services cannot be centralized due to some reasons, they must be co-ordinated by a central agency. Such co-ordination is possible only if the central agency itself is extremely resourceful and known as a national-level institution for rendering science information services and for making efforts for improving them. Improvement of commercial information services too is essential for the overall betterment of science information communication activities in the country. Such an improvement is possible if a central agency offers advice to the commercial publishers in this matter, and shows them the way to improve their services, as well as gain more profits through such attempts.

7.1.1. Present Decentralization

Keeping in view the geographical magnitude of the country, Indian institutions usually favour decentralization of information services. However, some of the present decentralized centres are not able to render effective information services. According to Chakrabarti, "Regional Centres of INSDOC have not been functioning properly to the desirable extent. It has been observed quite often that indents for photocopies placed with a regional centre have been diverted to other centres, not due to lack of document resources but due to some other reasons". Decentralization is not so effective when the

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various components are not properly co-ordinated, integrated and controlled. A most resourceful central agency is usually more effective when the decentralized institutions fail to render proper information services. Chakrabarti also supports this view when he says, "In fact...[INSDOC's Regional Centres] have failed to play the role assigned to them for catering to the needs of respective regions. It signifies that a centralized copying centre supported by strong collection of documents would have been more useful".\(^2\) The vast geographical area of the country can be centrally served, if certain other agencies cooperate (e.g. the postal authorities) and if document supply is facilitated through air mail services.

### 7.1.2 Performance of Existing National Level Institutions.

Following the patterns of some developed countries, India has already established a few national-level institutions, such as INS/DOC, DES/DOC, NSL, NML, etc. A Science and Technology Division has also been established at the National Library, Calcutta and presently, there is a strong proposal to convert the IARI Library, Delhi into the National Agricultural Library of India. These libraries and documentation centres are also trying to perform all the functions which similar institutions in the developed countries perform. However, financial and other resources available to national-level institutions are not adequate if one compares these with the size of the country and the strength of its scientific manpower. Financial resources of National Libraries in India are also meagre as compared to similar libraries in the developed countries (Tab. 7.1)

<table>
<thead>
<tr>
<th>National Libraries in USA</th>
<th>Budget* (Amount in Rs.)</th>
<th>National Libraries in India</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library of Congress</td>
<td>2100359040</td>
<td>National Library, Calcutta</td>
<td>9644000</td>
</tr>
<tr>
<td>National Agriculture</td>
<td>72936000</td>
<td>IARI Library, New Delhi</td>
<td>2686500</td>
</tr>
<tr>
<td>Library</td>
<td></td>
<td>(Proposed to be National)</td>
<td></td>
</tr>
<tr>
<td>National Medical Library</td>
<td>440000000</td>
<td>National Medical Library, New Delhi</td>
<td>3000000</td>
</tr>
</tbody>
</table>


\(^2\)Ibid, p. 294.
National libraries and documentation centres in India are not providing as comprehensive services as similar institutions in advanced countries are doing. Moreover, they receive a much smaller number of requests as compared to requests received by similar institutions in advanced countries. The number of requests for documents handled by the INSDOC in a year are handled by the BLLD, U.K., in a day. The rate of development of resources and services of national libraries and documentation centres in India is also slow as compared to the developed countries. For example, VINITI of the USSR, established one year after the INSDOC (1952), has developed into a huge centre, whereas the growth rate of INSDOC has been comparatively slow. The VINITI's growth rate is evident from the growth and development of its services. "For instance...the total number of abstracts covered by the Referativyi Zhurnal grew from 100,000 in 1954 to over 2,00,000 in 1955 and to some 400,000 in 1956. In 1970 some one million abstracts were made from 177 countries".  

Keeping in view the financial resources available, India should not duplicate the information services by establishing too many national libraries and documentation centres. Even a resourceful country like Canada has only one National Science Library (now converted into Canada's National Institute of Scientific Information).

7.1.2.1. Experience of other Countries.

Before planning any science information programmes, India should keep in view the institutions and developments in other countries. The British Library came into being with the amalgamation of several library and information organizations, including the British Museum Library. Recently, even the India Office Library claimed by both India and Pakistan, was also merged with it. The success story of BLLD, UK supports the contention that comprehensive and efficient document supply services can be organized through a central agency. More than eighty percent

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of the document supply requests received by the BLLD are satisfied from its own collections. A majority of the requests are complied with in one or two days. Table 7.2 records the holdings of BLLD as well as its annual intake.

### TABLE 7.2
Holdings of the British Library Lending Division

<table>
<thead>
<tr>
<th>Type of Documents</th>
<th>Holdings</th>
<th>Annual Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serials</td>
<td>1,35,000 titles</td>
<td>50,000 titles</td>
</tr>
<tr>
<td>Monographs</td>
<td>2,000,000 volumes</td>
<td>70,000 volumes (excluding donations)</td>
</tr>
<tr>
<td>Reports in Microform</td>
<td>1,700,000</td>
<td>110,000</td>
</tr>
<tr>
<td>Dissertations</td>
<td>320,000</td>
<td>45,000</td>
</tr>
<tr>
<td>Music</td>
<td>34,000</td>
<td>6500 (including donations)</td>
</tr>
<tr>
<td>Conference Proceedings</td>
<td>97,000</td>
<td>14,000</td>
</tr>
<tr>
<td>Translations</td>
<td>430,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Source: *Journal of Scientific and Industrial Research* vol. 38, February, 1979, p.54

Maurice B. Line also supports the provision of document supply from a central agency. According to him, "...the British Library Lending Division can provide a better service to many foreign libraries than they can obtain in their own countries. ...The country making the heaviest use of the service is the United States of America, the country with the richest library resources in the world, and with a well developed co-operative system. What is more, a third of its requests are for articles from American journals." Countries like the USA, France and

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FRG are also considering the establishment of central document supply centres on the pattern of BLLD. Various developed countries maintain at least one large library and information centre so that it should be able to meet the information needs of the users most comprehensively. A characteristic feature of Japan National Diet Library is that it maintains a complete collection of doctoral dissertations submitted in Japan since 1923.

The Centre National De La Recherche Scientifique (CNRS) is a central institute of scientific information in France. "At present its library collection consists of nearly 10 million documents...53000 doctoral theses, 17000 proceedings..." The Soviet Union is a country of much larger geographical area than India, still many of its libraries and information services are centralized. For example, centralized cataloguing is undertaken for libraries and catalogue cards are printed and distributed. Various countries maintain big national libraries not merely for keeping the collections symbolising national heritage, but to provide active information services to their users. "In 1978, LC staff responded to more than 41,000 letters, 58,000 phone calls, and 220,000 requests in person...." In India, too, large libraries like the National Library, Calcutta; NSL, Delhi; NML, Delhi, were established with the object of serving the needs of researchers and other users. Regarding the National Library, Calcutta, Jawahar Lal Nehru said, "I do not want Belvedere for the mere purpose of stacking books. We want to convert it into a fine central library where a large number of research students can work and where there will be all the other amenities which a modern library gets". However, the National Library of India could not develop into a service oriented institution as envisioned by Nehru. It did not develop any national document supply

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service. Even other national libraries and documentation centres are not performing the document supply function comprehensively, economically and timely. T.S. Rajgopalan says, "...[user] is not aware that...National Science Library could satisfy hardly five percent of requests for copies of documents and, therefore the INSDOC has to depend upon other libraries and information centres. It has no control over the time factor." Keeping in view the performance of existing national libraries and documentation centres, India needs to establish NISTI, which will also provide efficient document supply services at the national level.

7.1.3. Overlapping and Duplication of Information Tools

It is evident from the para 6.2 that efforts for compiling and publishing information tools are unplanned, unco-ordinated and, in many cases, duplicating each other. Regional and local-level efforts for bringing out national-level tools are encouraged, because no national level institution has been properly entrusted with the responsibility of compiling, publishing and revising them. In such a situation, the establishment of NISTI will be an appropriate step.

7.1.4 International Participation

So far, India has fully participated in various international programmes and projects e.g. with UNISIST. For effective and profitable participation in international programmes, and to further enhance its participation, India must have an institution, which may practically execute various programmes at national level.

7.1.5 Scientists' Dilemmas.

A majority of scientists remain in a dilemma i.e. what to do to get a particular piece of information if it is not available either at the parent library or at other local libraries. References can be searched from the comprehensive international

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information services, but from where to get the required docu-
ments is the question that haunts them. Many Indian scientists are not aware of the existing national and international insti-
tutions undertaking the supply of documents. Therefore, India needs to establish an institution which may comprehensively meet the document supply requirements and be fully popular among the scientific community.

7.1.6. Scientists' Opinion

As far back as in 1948, at the Royal Society Information Conference, J.D. Bernal suggested the centralized reprint centre to facilitate the supply of current scientific information. If one goes and talks to scientists throughout the length and breadth of the country, one finds that Indian scientists too demand the setting up of an institution like NISTI. Personal inter-
views with scientists gave the present researcher the impression that scientists in fact demanded a big national centre which might meet some of their information requirements, especially through the supply of photocopies of literature which is not locally available. Scientists who attended a conference held in Delhi in 1958 to discuss the implementation of Science Policy Resolution also demanded such a centre (Heading 2.2.5.6.)

7.1.7. Document Supply System

Both bibliographic searches and document supply are two inter-connected operations, which are of crucial importance for running an efficient and need based information service. Any attempt toward improvement of scientific information services must focus on both these aspects. Improvements in information search-
ing tools, SDI and CAS services and bibliographic searches are rendered useless, if an efficient document supply system does not exist in the country. India has made attempts to improve bibliographic services and she is also participating in inter-
national bibliographic systems, e.g. INIS, AGRIS, but adequate attempts have not been made for the improvement of document supply systems. A real national-level document-lending system
is practically non-existent in India.

7.1.8. Utility of Existing Resources.

Every year, thousands of dissertations are submitted, and reports generated and hundreds of scientific conferences, symposia, seminars etc. are held in India. A lot of finance is involved in these intellectual activities generating new knowledge which should be easily available to others to undertake further research and investigations. Dissertations mostly remain confined to the depositories of university libraries. Conference proceedings may not be published at all or published after a gap of several years, and are not properly publicized. The technical reports usually remain scattered in government departments. In this situation, it is rather difficult, sometimes nigh impossible, to know the existence or location of any needed document. To ensure proper organization of such resources and facilitate access to them, their management through a central institute like NISTI will be most desirable.

7.1.9. Inefficiency of Institutions.

Under decentralization of services, inefficiency of some of the institutions may render the whole system inactive. In such a situation, a large and resourceful national-level centre like NISTI if it maintains a high degree of efficiency can satisfy those information requirements of scientists, which can not be satisfied locally.

7.1.10. Unplanned Decentralization

In the absence of a big national Institute disseminating scientific information, unplanned decentralization of information services proliferates, because individual institutions set up their own documentation centres, and compile and publish various kinds of information tools. However, such unplanned decentralized services are prone to be irregular, since, due to lack of funds during a particular period, the publication may remain suspended. Irregular efforts of bringing out some services and sprouting up
of many small services from several places mars the purpose of organizing economical and timely scientific information services. Due to lack of national-level efforts to achieve comprehensiveness, maintain standards, publicize services and take proper measures for circulation, various services remain largely unknown and under-utilized. Efficiency, regularity, comprehensiveness and utility can be increased if such services are issued with proper planning and organization by a well-known national agency.

7.1.11. Reprint Exchange

Maintenance of a resourceful central library will result in a saving of time and money of scientists whose reprints are demanded. The problems of reprint exchange will be solved, as the needy scientists will be able to get cheap photocopies of papers from the comprehensive collections of the library constituting one of the components of NISTI.


M. Galley, Minister of Science, France had said, "By 1975 any nation which does not have an automated information service for science and technology will be a fifth rate state and of little economic significance". Advances in communication technologies have provided plenty of opportunities for the networking of libraries and methods through which information can be communicated speedily. Application of such technologies, however, requires considerable finances. It is too costly for India to have a total networking of scientific and technical libraries and information centres throughout the country. It will be more economical to have a national information institution provided with this facility, connected through telecommunication satellites to various information and data centres in the world to have quick access to them to provide Indian scientists expeditiously the information they require.

7.1.13. **Geographical Distance and Resources' Scattering.**

Because of the vast geographical area of the country and unplanned decentralization of library resources, scientists are not able to get the needed information comprehensively and timely. The telephone is not a very common media of communication among scientists for gathering information. Any piece of information which is not locally available is gathered from other places usually through personal visits or by contacting specialists through correspondence. Therefore, a central scientific institution should be established to reduce the present wastage of thousands of manhours in visiting different scattered institutions, searching addresses and writing to a number of other institutions and specialists.

7.1.14. **National Level Liaison with Various Services.**

A constant liaison with various institutions and agencies bringing out indexing and abstracting services and other information bulletins helps in an effective national-level planning of such information services. Through proper co-ordination and sharing of resources among various institutions, such services can be considerably improved. However, proper co-ordination is not possible until and unless certain directives are given to various institutions to follow a particular course. An institution like NISTI can issue appropriate directives.

7.1.15 **NISTI—Apex of Information Services.**

The need of NISTI is also felt because, presently, there is no such institution which through its leadership, can accelerate the improvement of information services and tools. In the absence of such an institution, several institutions will try to develop national-level information services in their respective disciplines. The latter trend will lead to a haphazard growth and hence duplication of information services.

7.1.16. **Advantages of a Central Institute.**

Whether it is a document supply centre supported by a large
library, or an information centre, the centralization and comprehensive development of resources have several advantages. The most effective performance of BLLD as a document supply centre is well known all over the world. The services of ISI data bases in the USA clearly demonstrate the advantages of comprehensive data bases. In fact, various programmes for organizing scientific information services are highly inter-linked. Organization of one programme may bring other benefits. The compilation of Union Catalogues may act as a source of guidance for building library resources avoiding duplication as far as possible. Organizing bibliographic services may help to organize document supply services also, e.g. Xerox University Microfilms is publishing Dissertation Abstracts International, as well as supplying the microfilm or xerox copies of dissertations needed by users. The ISI, USA also provides document supply service to scientists all over the world.

Besides the above factors, a central institution, serves the needs of all the scientists without any consideration of authority, influence, colour, caste, or creed. Moreover, a central institution will not observe any distinction between junior or senior scientists and information will be democratically disseminated.

7.2. NISTI-not a new Institution

For planning any institution or programme for improvement of information services, the existing institutions and facilities available in the country must be taken into consideration. Keeping in view the existing infra-structure in the country, the NISTI should not be a new institution.

Such an institution can be developed in due course of time by taking the INSDOC as the base. The INSDOC is already rendering several documentation services and maintaining the National Science Library. Efforts should be made for faster and continuous development of the INSDOC so that it may ultimately develop into the proposed NISTI. The INSDOC should initiate those programmes which the proposed NISTI will perform. The goals and programmes
which are to be achieved by gallops and those which are to be accomplished by canters, must be clearly defined.

7.3. Existing Efforts and Expenditure

If one compares the present expenditure on information services and their benefits to the scientific community, one finds that the present services are not profitably and economically organized. In the capital city of Delhi alone, the INSDOC is spending about 2.28 million per year; Delhi University Library System has a budget of ten million rupees; the libraries of IIT, IARI and Jawahar Lal Nehru University together spend more than ten million of rupees; the DESIDOC is spending more than 5 millions of rupees. Besides these, there are several other good libraries attached with AIIMS, NPL, NIHFW, CRRI, INSA, Cement Research Institute, Sri Ram Institute, Jamia Millia Islamia, etc., which spend a considerable amount on library and information services. The NML is also at Delhi. The total annual expenditure on scientific and technical libraries and documentation centers is more than 50 million rupees in the city of Delhi alone.

7.4. NISTI and NISSAT

The objectives of NISTI and NISSAT are not same or conflicting. The NISSAT plan is an excellent idea for strengthening and upgrading the country's infrastructure for scientific and technical information services. Because of slow implementation of the plan and exclusion of universities from its scope, the establishment of NISTI is essential. NISTI will supplement the country's information needs in all the areas of science and technology.

7.5. Size

How big NISTI should be? This will primarily depend upon the availability of finance and the magnitude of various services to be performed by it. It will also depend on whether it should be a centre for library and bibliographic services only, or an
integrated information institution. This institution should mainly concentrate on library and bibliographic services. However, some other information systems like on-going research projects, areas of specializations of scientists and their affiliation, scientific manpower, conference information and information system regarding availability of instrument facilities, and chemicals, etc. can also be developed, within the framework of NISTI. The Government may also establish the proposed system for technological information as one of the components of NISTI.

7.6 Organization

Information science and technology is fast emerging as a vast industry. Therefore, some private organizations may be interested in undertaking some of NISTI's functions. According to Vishwanathan, Assistant Professor, IIT Madras, certain private firms are interested in organizing a central agency to provide photocopying services to scientists. Whether further development of INSDOC into an institution like NISTI will be wholly done by the government and the private sector, is an important matter which should be fully discussed and considered by experts in the Government policy making department, so that a correct and proper decision is taken and implemented.

Fig.7.1 gives an organizational plan of the various divisions of NISTI. The organizational structure of NISTI may appear to be an ambitious plan for India, involving huge financial outlay, but it is a genuine requirement of the country. It will facilitate the satisfaction of India's growing science information needs and improve her existing scientific and technical information services. Various divisions of NISTI and their functions can be organized as under.

7.6.1. National Science Library.

NISTI should organize a most resourceful National Science Library (NSL). The NSL maintained by INSDOC can be further
Fig. 7.1 Organization Chart Showing The Various Divisions of NISTI
developed. Since the NSL would be undertaking document supply services, its acquisition policies should be designed in such a way as to enable it to procure important scientific and technical books and monographs without much delay.

The NSL should arrange, as far as possible, a comprehensive collection of scientific books, monographs and reference works. It may collaborate with some resourceful libraries for co-operative resource development, e.g. with G.S.I., Calcutta; BSI, Calcutta; NML, Delhi; DSL, Delhi; BARC, Bombay; TIFR, Bombay; CDRI, Lucknow, CFTRI, Mysore; NAL, Bangalore; CMTI, Bangalore, libraries of IITs and a few resourceful university libraries including the agricultural university libraries (Fig.7.2).

The NSL should procure all the scientific and technical periodicals published in India. Besides serving the various libraries and scientists, such a collection will help in compiling some information tools, such as directory of Indian scientific periodicals and Indian Science Abstracts. Besides this the NSL should procure at least 40,000 titles of foreign scientific and technical periodicals so that it may be able to satisfy almost every request for a periodical article.

Some of our services can be improved, if we properly regulate them through a suitable legislation. Such a regulation is especially necessary for the procurement of documents. The NSL should receive at least one copy of each dissertation (related to a scientific or technical subject, approved by a university or any other institution of higher learning in India. The availability of such a comprehensive collection of dissertations centrally will help in publishing a comprehensive service i.e. Indian Dissertation Abstracts (Science and Technology). The NSL will, therefore, be able to facilitate the bibliographic control of dissertations as well as supply of their copies when requested. Many universities possess the duplicate copies of dissertations. Such Universities may be approached to send one of the duplicate copies to the NSL to strengthen the latter's resources.

The access to reports literature is also problematic. In
the United States, NITS provides access to scientific and technical reports published in that country. To ensure bibliographic control and to facilitate document supply, the NSL should procure as far as possible, the maximum number of Indian scientific and technical reports. It should also procure important reports from other countries (e.g. through the agencies like NITS) so that these may be made available to Indian scientists.

The NSL may develop its resources regarding patents and standards with the co-operation of the Indian Patents Office Library and ISI Library, respectively. Besides these, it should procure all published and unpublished proceedings of various scientific and technical seminars, conferences, symposia congresses etc. held in the country. It should also build a comprehensive collection of proceedings of international scientific and technical conferences, seminars etc.

A bibliographies division should be organized at the NSL. This division should develop a comprehensive collection of useful bibliographies on various scientific and technical subjects published all over the world. A separate division of official publications containing both Indian and foreign official publications in various areas of science and technology should be maintained. Besides this a separate division of foreign languages literature should also be maintained at NSL.

Development of comprehensive resources of documents at NSL will involve huge finance. Some of the financial burden can be reduced through legislation i.e. NSL should receive a copy of every Indian scientific or technical publication free of cost and well in time. The NSL should also organize publication exchange programme. To facilitate large-scale exchange of publications, various scientific laboratories, universities, learned societies, and academies which bring out scientific journals should send four copies of each issue of their journals to NSL as their contribution to improve its resources, which in turn will serve various scientific and technical institutions in a better way.

7.6.1.1. National Reference Centre. The national reference centre
of NSL should satisfy the users' inquiries, whether received in person or through correspondence or through telephone. To ensure prompt supply of information, the NSL must maintain files of statistical information on science and technology. Majority of the scientists at other places would like to send their inquiries through correspondence. Every care should be taken that such inquiries are promptly responded. The reference centre at NSL should also help in compiling some reference works on Indian science and technology.

7.6.1.2. National Lending Centre. Just locating relevant bibliographic information does not serve users' purpose. Availability of relevant documents is also equally important. Though a number of excellent libraries exist in India, yet their collections are generally not available to the needy users at other places. The National Library, Calcutta, does not provide national-level lending. Its large collection, therefore, is mainly accessible to a small number of users who personally visit it. Under these circumstances, NSL should establish a national-lending centre. This centre may ultimately be developed into an institution like the BLLD.

7.6.1.3. Advisory and Consultancy Services: A few libraries, library and information societies and associations are now providing library consultancy services for organizing new libraries and information centres. However, the NSL, with its expertise and continuous contact with various libraries will be in a better position to provide consultancy services for organizing new libraries and information centres and for starting new services in the existing institutions.

7.6.2. Documentation Centre

Various documentation services presently provided by the INSDOC must be improved and further expanded. This centre should be provided with an inhouse computer to undertake various kinds of documentation work. The documentation centre of the NISTI should build up, maintain and continuously update a bibliographic data base of Indian scientific literature. Such a data base will
be very useful for the documentation centre in performing a variety of functions. Magnetic tapes of BIOSIS, INSPEC, MARC, MEDLAR and other useful data bases should also be procured. With the use of magnetic tapes of comprehensive international data bases central bibliographic data base of Indian scientific and technical literature and in collaboration with national inputing centres, the documentation centre of NISTI can organize an extensive SDI services. The National Documentation Centre should also co-ordinate and collaborate with other documentation and information centres such as DESIDOC, SENDOC, NIHFW, NIC, etc. for implementing some useful programmes.

7.6.3 National Institute of Library and Information Science (NILIS)

Because of rapid developments in the information industry, India needs to properly guide its multi-crore publishing industry, give a new orientation to its library and information services and also help library and information users to make necessary adjustments to new environments. Research and investigations are also essential before taking decisions regarding introduction of new technologies. Therefore, India needs a national-level laboratory to undertake research projects in various areas of library and information science. Such an institution can also undertake manpower development programmes for senior jobs in various library and information centres.

The Training Division of the INSDOC should be further expanded into a national research laboratory and training institute within the framework of NISTI. If the international organizations like UNESCO can provide some funds and expertise then this institute can be developed into a regional centre for Library and Information Science Research and Training.

7.6.3.1 Users' Studies Cell, A number of studies regarding users' citation patterns, information gathering habits, behaviour, problems etc. are being conducted by the library personnel working in various libraries and information centres all over the country. Such studies, however, remain scattered, untapped,
and unco-ordinated, and, as such, they do not help in taking overall decisions regarding policy matters for the improvement of information services. The proposed national institute of library and information science should maintain a 'Users Studies Cell'. Findings of user studies undertaken in different parts of the country can be communicated to this cell. With proper analysis of such findings, the 'Users Studies Cell' can reach certain results and provide suggestions to NISTI and other libraries and information centres in the country.

7.6.4. National and International Liaison.

A liaison office should be established within the framework of NISTI. It will keep in touch with various institutions and maintain a record of their important library and information services including their publications, bulletins etc. Therefore, this office will be able to advise various institutions, keeping in view the overall development of services all over the country.

This office will also study the developments of international information programmes and see how India can derive benefit from them. It will do guard the country's interests in scientific information issues at the international level. Further, it will maintain close relations with libraries and documentation and information centres in other countries. Joint ventures with foreign information institutes, libraries, etc. will also be negotiated for mutual benefit. Being in constant touch with various institutions within the country and abroad, this office will be in a position to advise the government on various policy matters in the field.


There is a lot of duplication of research in India due to lack of information regarding the research projects being pursued at various scientific and technical institutions. In the present day inter-disciplinary nature of research, a research project in a particular area may be undertaken by an unexpected institution. To ensure prompt supply of information regarding research projects,
a computerized data base of on-going research projects should be maintained at NISTI. To bring to the notice of scientists the related research projects being undertaken by various institutions, a publication reporting current research projects should also be issued by NISTI. Instead of publishing annual directories of on-going research projects, it will be better if NISTI issues monthly bulletins giving information regarding new projects along with other details like names of investigators, project period, name(s) of supervisor(s), tentative period, brief summary of the subject under study, etc. These bulletins could be later cumulated. Such bulletins will help scientists in establishing interpersonal links and exchanging information. Publication of these bulletins will help the project planners and project clearing authorities to avoid duplication of research. However, co-operation of national laboratories, universities and other organizations is very essential for comprehensive storage, efficient processing and dissemination of information regarding current research projects. NISTI should also keep in constant touch with such institutions and funding bodies.

7.6.6. Conference Information

7.6.6.1. Forthcoming Conferences. Conferences are a very useful channel for exchange of views especially on some of the latest developments in various fields of research. Conferences, workshops, congresses, symposia and seminars are sponsored by diverse agencies and institutions. Due to lack of timely information, a number of scientists are not able to participate in the conferences pertaining to their areas of interest. Moreover, there may be duplication of themes among various agencies and institutions. To facilitate the timely supply of information and to obviate duplication of themes, NISTI should disseminate information regarding the forthcoming conferences. Besides Indian scientific and technical conferences, information regarding some forthcoming international conferences should be quickly disseminated. NISTI should also disseminate information regarding the availability of conference proceedings.
7.6.6.2. Conference Recommendations. Between 100-150 scientific and technical conferences, seminars and symposia of various levels are held in India every month. It is essential that at least the salient features of their deliberations are brought to the notice of the scientific community and the concerned Government Departments. The same should be published by NISTI as a periodical publication. This publication will help the various sponsoring bodies to co-operate with each other and organize joint programmes.

Innumerable resolutions have been passed, recommendations made and findings reported at various scientific and technical conferences held in the country so far. However, there is no arrangement to study and analyze such resolutions and recommendations thoroughly and timely. Consequently, decisions to initiate proper action are usually delayed considerably. Therefore, a cell dealing with conference resolutions and recommendations should be established at NISTI. The findings, resolutions and recommendations of various conferences, seminars, etc., wherever held in the country, should be communicated to this cell. NISTI should undertake a thorough analysis of these communications and forward necessary information to policy makers so that they may be able to render timely advice to the government to take appropriate decisions.

7.6.7. Information Tools.

The INSDOC is already compiling a number of information tools. Some of the libraries are also bringing out specific information tools. NISTI which will be the most resourceful institute of scientific information in the country will be in a position to do considerable work for the improvement of these tools and fill up the gaps by issuing new ones. NISTI should issue current contents of books received by it, and also publish current contents of dissertations, conference proceedings, reports, etc., separately. Series of bibliographies of certain specialized topics should be issued from NISTI. Besides other tools, NISTI should bring out the following two publications:

7.6.7.1. Forthcoming Contents. Several journals report their
forthcoming contents in advance. With the processing of information available in such journals, NISTI can issue a publication entitled Forthcoming Contents. Using such a publication, scientists/institutions can send requests for reprint copies in advance. Such requests can be sent to journal publishers who can supply copies of reprints on charging some fees. Forthcoming Contents, besides helping in bibliographic control, will also be helpful in curtailing the time for procuring the publications by informing scientists well in advance about the availability of relevant literature. Some journals publish their issues on specific problems. Some of them also report the topics on which the forthcoming issues will be published. In a separate section of the publication Forthcoming Contents, forthcoming topics can also be listed. Using this information scientists will be in a position to contribute their papers for publishing in appropriate issues.

7.6.7.2. Special kinds of Bibliographic Publications. Literature explosion puts tremendous strain on the communication process and often leads to waste of time. After reading a dozen of articles, a handful of reports and reprints and quite a few books related to an area, sometimes one finds that the essence of all of them more or less the same, the same references are given and passages quoted. Scientists should, therefore, be informed that such and such publications include the same or similar information and reading any one of them may serve their purpose. Such an alerting service is possible by issuing special kinds of bibliographic publications. The arrangement of entries in such bibliographic publications should be under subject headings. The first entry under the subject heading will be given as such and the subsequent entries may include a note that it conveys the same information as given in the above reference except the following details. Additional details provided in several articles can be listed in a summary form. Preparation of such specialized bibliographic publications requires a thorough survey of literature and accuracy because any wrong classification or experts' mistakes will
misguide the users who will naturally rely on such publications. This class of publications will bring about bibliographic organization, as well as prevent a lot of waste of time and energy resulting from too much reading of similar material. Publications of this kind will solve to some extent the document procurement problems because one need not go in for procurement of a document if another one which carries similar material is available. In their attempt to increase the number of their publications, some scientists publish their findings and ideas in several of their publications. In such cases, if a scientist is interested in reading the publications of another scientist in a particular area, he can do so in less time because one of the papers can be read, while for others only notes given in the specialized bibliographic publications can be consulted.

7.6.8. Publication and Information Directorate (PID)

It has been proposed a number of times that the PID(CSIR) and the INSDOC (CSIR) should be merged to form one body. If possible the PID should be reorganized and constituted as one of the components of NISTI. Government departments responsible for bringing out a number of scientific and technical publications can be merged with the PID. Such a re-organization of the PID under NISTI will help to improve considerably its services, as it can receive and give advice to other divisions of NISTI. The PID, in collaboration with the documentation centre, can publish reviews of progress in important areas of science and compile reference tools which will facilitate convenient access to the desired information. Keeping in constant touch with the Serial Division of the NSL, the PID will be able to advise journal publishers to bring out special issues in specific areas as well as improve its own journal publishing programme.


In a country of India's size with its scientific manpower spread all over the country, exchange of scientific information needs the support from mass media. Newspapers, radio and TV can
play an important role in establishing communication links among scientists.

Several scientific and technical libraries maintain press clippings, which supports the view that the country needs a comprehensive science news service. A number of science newsletters are issued e.g. C.S.I.R. News; I.C.M.R. News, by various councils, associations and institutions, but they report only that news which is related to them. They are not very effective in carrying the important news to the mass of scientists. Even the important newspapers provide only four to six percent coverage to science news.*

Keeping in view the importance of mass media in the dissemination of scientific information, NISTI should organize a division of mass media. This division should publish a daily paper on science news. Besides giving information regarding general scientific and technical developments in the country, this paper will help to improve communication of scientific information. The science programmes to be broadcast and telecast can be reported, the books, reports and dissertations received at NSL can be recorded and book reviews can be published through such a newspaper. The starting of research projects, provision of grants, fellowships and awards and conference information can also be published in this newspaper. Students doing doctorate in science and technology can publish the titles of their research projects along with a brief plan of their study. This newspaper may also include a column of science pen pals' which will help scientists to establish pen friendship. This will encourage communication among scientists having common areas of interest.

NISTI should make arrangements with radio stations and TV centres for dissemination of information through them. A few minutes' programme can be broadcast or telecast, giving briefs regarding names, addresses, areas of specialization of scientists interested in exchanging information with other scientists. This

*To find out this fact an analysis of Science news coverage in the Times of India (Jan 1983 to April 1983) was undertaken by the Investigator.
will facilitate contacts among various scientists working in the same or similar areas of interest. In the Soviet Union considerable importance is given to mass media for dissemination of scientific information. "Krug Chteniya (Reading Circle) is a regular television programme [there]. In this programme, specialists from Lenin State Library are constantly giving the general public information about new books and about the most interesting periodical publications."  

7.6.10. Vital Information.

Vital information regarding Indian science and technology and one which is related to science and technology needing immediate attention of the Government may be communicated to this Centre. Proper channelisation and prompt decisions by appropriate authorities are essential because of the possibility of losses, if such information is neglected. For example, "An Indian named Iqbal Krishna Bharati, developed a process of steel making which promised not only to help this country to overcome the steel shortage but also to produce it for exporting. For twelve years Bharati had been knocking at the doors of the Government but got no positive response, till the process went into the hands of a group of West German firms. The German firms, it is learnt, are now offering the process to India on a turn-key basis".  

7.6.11. Hostel for scholars

The proposed NISTI will be the Mecca for librarians, information specialists and scientists. They may like to visit it for consulting material at NSL or gathering the information they require. NISTI should provide a large hostel with cheap accommodation for, say, 500 visitors at the beginning which could be increased later depending on the number of users. Scientists working in a particular area of specialization may be provided


accommodation in a specific area of the hostel. Such a grouping will facilitate personal contacts and easy exchange of information.

7.6.12. Technological Information Centre.

The Government of India has decided to establish a technological information system under its technology policy. Such an information system could be organized within the framework of NISTI. Information regarding the availability or otherwise of technologies, the latest advances in various technologies etc. should be available with this centre. To strengthen such a technological information centre and to avoid extra expenditure, some existing government institutions engaged in organising technological information services should be integrated and centralized. Specific programmes can also be undertaken in collaboration with the Ministry of Industry and the NIC, New Delhi.

This information centre can answer inquiries from various industries, charging some fee. It will certainly help the project planners to initiate research projects in profitable areas. India being the tenth industrial power in the world requires an early establishment of such a centre.

7.6.13. Other Information Systems.

Besides the bibliographic systems, India requires a number of other information systems concerning science and technology, e.g. scientific and technical societies and their activities; instrumentation facilities; laboratory animals; chemicals; national and international awards and prizes in science and technology; foreign fellowships and cultural exchange programmes etc. NISTI can organize such information systems in collaboration with the NIC New Delhi.


7.6.14.1. Post Office. Information centres and systems cannot be run effectively without the co-operation of several other agencies and departments. The postal services play an important role in
the delivery of documents. A day and night post office working on all the days of the year may be attached to NISTI. It will speed up the transfer of information from NISTI to the various geographical regions of the country as well as to foreign countries. Requests for document supply should be cleared the same day. In case of the number of requests being large the document supply centre can work day and night and extra staff can be employed.

Attachment of such a post-office to NISTI is essential because timeliness in rendering information services will largely determine the success of this institution. This institution should make it a point to see that all information requested for should be supplied as expeditiously as possible, and continuous efforts should be made to find ways and means for reducing the time in the supply of information.

7.6.14.2. NISTI and NISTADS* NISTI could be helpful to several institutions and Government departments. As publications output and citation data provide useful clues regarding the productivity of scientists and the quality of their research work, this data can be used for 'policy' research. Therefore, NISTADS can make use of the bibliographic data bases of NISTI for the purpose of policy research. NISTADS can also use the data on the nature and type of requests for technological information. It can analyse the contributions of various types of scientific and technical institutions and the nature of Indian contributions in the field of science and technology etc. The bibliographic data regarding doctoral dissertations will indicate the trends of research conducted at the universities and other institutions of higher learning.

7.6.14.3. NISTI and IASLIC. The Indian Association of Special Libraries and Information Centres (IASLIC) has been very active in pursuing its objectives, but it lacks Government support. It is indeed a vibrant association, doing more service than its financial resources permit, mainly on account of the efforts of

*NISTADS = National Institute of Science, Technology and Development Studies, New Delhi.
some dedicated workers. Its development should be ensured by organizing it under NISTI, like the placement of a similar association in Israel under Israel’s National Centre for Scientific Information.

7.7. Staff

Staffing of NISTI is a very important issue and it must get proper attention. The success of its functioning and services will depend on the competence and dedication of the members of its staff. NISTI will require information specialists of various levels.

7.8. NISTI’s Impact on Research.

The impact of NISTI on Indian scientific and technical research will be tremendous. The supply of all available information and needed documents will not only speed up research projects, but also motivate scientists to wholeheartedly devote themselves to R & D work.

7.9. Finance

Finance expert will be in a position to work out the exact monetary outlay necessary for establishing NISTI. Though some institutions already exist and possess the necessary staff and facilities, yet some expenditure will be required for up-grading them. Considerable finances will be involved in expanding the already existing services, improving them, starting new ones and for the application of the latest technologies.

One major criticism against setting up an institution like NISTI may be that it will require huge funds which a developing country like India, which has several high priority areas for its economic and industrial development cannot easily afford. However, since information is a vital factor for development, NISTI should be treated as a high priority project. Some of the financial outlay for the development of NISTI can be shared by associating interested private firms with it in some way.
Science Councils, UGC and some Central Government Ministries should also contribute funds for making NISTI a grand success. Funds and expertise may also be sought from international agencies like UNESCO, UNDP etc. under their assistance programmes for the developing countries. Various scientific societies and learned bodies should also fully co-operate in the development of this project.

NISTI will not wholly be a spending institution. It will also be able to have a sizeable income through levying charges for its services. ISI, USA, a private profit-making scientific information corporation, has proved that scientific information institutions can be well sustained and can even earn profits, if requisite information services are efficiently organized for scientific institutions and the community.

For organizing a central document supply centre, the enormous cost of literature to be procured may be a major hurdle. But according to M.B. Line, "It is in fact cheaper, if all costs are taken into account, than a co-operative system, because the costs of acquisition are cancelled out by operational savings; it is much cheaper for the British Library Lending Division to supply items than for other libraries, and it is cheaper for libraries to use the British Library Lending Division than to use other libraries." 12

NISTI will be an employment generating institution and will absorb hundreds of scientists looking for gainful employment. The publishing industry will also grow. Several inquiries of scientists and librarians, presently sent abroad, can be handled by NISTI. If all such savings are taken into account, NISTI will be an economically viable institution.

The development of NISTI will primarily depend on the Central Government's patronage and interest. The development will, however, be necessarily in stages. As in the case of any big national project, the establishment of NISTI will, among other things, require requisite political will on the part of

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the Government. It is noteworthy that when Eisenhower, a former U.S. President, had a heart attack, the Index Handbook to Cardiovascular Drugs got a boost. 13