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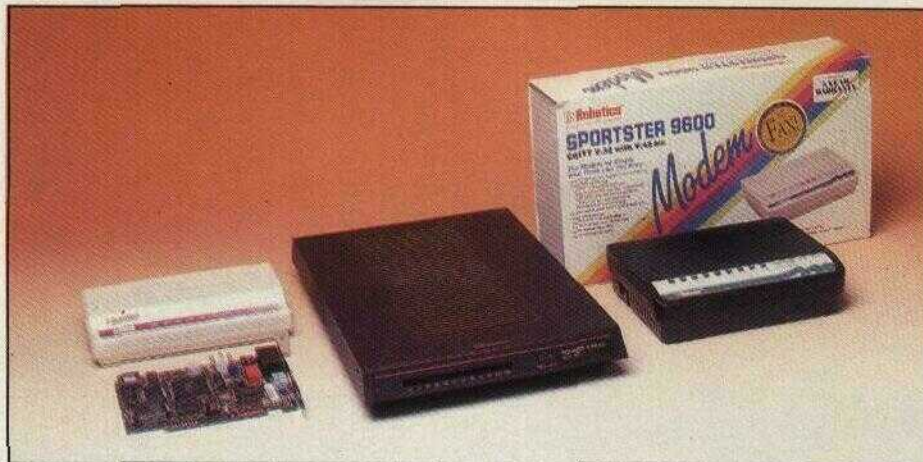
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Communications concerning the Newsletter may be addressed to Dr A. Lahiri, Jt. Adviser (NISSAT), Department of Scientific & Industrial Research, Government of India, Technology Bhawan, New Mehrauli Road, New Delhi-110016. Material published in the Newsletter can be reproduced with due acknowledgment to the source.

Whose Profession Is It Anyway?

While talking about libraries and librarians, we invariably refer to those working in research laboratories, universities and colleges. They are the members and office bearers of several professional bodies. They attend seminars and conferences in large numbers, they present papers, hold animated discussions, make profound statements, write copious recommendations, and resolve to carry them through. Their display of enthusiasm however, should not be misconstrued as an indication of the success at their own work bench (In fact, it may be just the other way round).

Such professionals are usually backed up in their public escapades by academics many of whom neither have practical experience nor research experience, and hordes of retired professionals who continue to live on their past glory (if any), scoff at modern technologies and tend to form groups instead of providing wise guidance to the community *per se*. They sit in various committees and interview boards, and ask searching questions for which they themselves may not have the answers. (They behave in such manner because they do not have to field demonstrate what they teach or breach)

In contrast, there are a few from information units of small and medium enterprises. They prefer to sit at the rear and get entertained by the antics of their (scholarly!!) brethren. Usually these people work on a shoestring budget and tight environmental conditions. They suffer from inferiority complex, yet they deliver the goods for unless they do, they may be shown the door!

There is another set of people who represent cash flushed enterprises. They adorn the front rows while maintaining a cautious distance from those dancing on the dais and also the curious onlookers sitting at the rear. For running the centres, their dependence on outside institutions is minimal. Perhaps they are apprehensive that familiarity with the rest of the population will bring in a deluge of requests for services and make others dependent on them (rich and poor relative syndrome!)

Although the narration may sound apocryphal, it is well to admit that the information scientists community today is fragmented and incoherent. The boost from modern technologies which the profession received, has been frittered away. People with language proficiency and public relations capabilities masquerade as experts. The recent financial crunch has widened the differential between haves and have-nots. Petty mindedness prevails, as everyone tries to guard whatever little one has and reluctant to share with others (dog in the manger policy?).

While people from subject disciplines are trying to find their niche here and young ones from related subjects like computer science have already invaded the field, the brighter lot trained in LIS look for greener pastures elsewhere. Right or wrong, the top spots are also now going to non-LIS professionals, relegating the field professionals to supporting roles.

There is hardly another functional area which is solely guided by decisions taken by elements exogenous to the system.

It is hard to accept the unsavoury fact that the LIS community is now endangered but how long do we continue to behave like the proverbial hare, close eyes and conclude that the danger is not real after all!

— A. Lahiri

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Concepts and Methodologies in Computer Communication Networks — UNESCO-NISSAT Workshop

The workshop was organized during 23-25 March 1994 at Suraj Kund, New Delhi in response to an action plan suggested at the 9th UNESCO/ASTINFO Consultative Meeting held in New Delhi in September 1993 at the same venue. The workshop was supported by UNESCO under Participation Programme.

Telecommunications with the wider opportunities it provides, has a prominent role in the country — especially, with the development of networks such as NICNET, ERNET, INDONET, ICNET and so on. It is time that the library and information professionals also catch up with the technology, find applications and strengthen their capabilities. The workshop was aimed at design and development of a teaching package on the concepts, methodologies and protocols in computer communications and testing of the material in this pilot workshop.

For the purpose, curriculum design, preparation of materials and presentations were handled by a set of resource persons with rich field experience in telecommunications.

The presentation package provided the required background and practical tips, for library and information personnel, to gain a basic knowledge of telecommunications, concepts, media and gadgets to help them participate in network activities and interact with global utilities like INTERNET. During the 3-day instructional programme the following topics were covered:



Prof. Guha welcoming on behalf of the organizers Prof. S.K. Joshi DGSIR and Secretary DSIR in the Valedictory Session

- An overview of Computer Communication Networks
- Basics of Data Communications
- Networking Software/Hardware: An Overview
- Media Considerations
- Wide Area Network (WAN)
- Services and Applications
- Value Added Services
- Local Area Network (LAN)



Dr Mukul Sinha makes a point at the workshop

- Practical Guide to Networking
- Applications & Network Concepts in Library and Information Services
- Review of Computer Networks in India
- Global Internet Services (INTERNET)
- Relative Network Cost/Economic Considerations.

Overview of Telecommunications

In the **first session**, Mr. S. Ramakrishnan (Department of Electronics) said that the basic operation of a computer-communication network is to function as an information flow network. He touched upon several basic terms/concepts and presented on

- Nitty-gritty of computer-communication
- Hardware specifications
- Taxonomy of telecommunication networks and the basic design networks.

He emphasized on the progress towards integrated usage between computer communications and telecommunication technology in the country.

He further dealt with

- Integrated Services Data Network (ISDN)
- OSI model.

and on the INTERNET as an effort towards the development of global information network.

During the feedback, it was pointed out that the Overview Session is to be structured into several layers — starting with library as communication medium and computer as an information resource centre and then begin on various aspects of telecom as an internal communicator, external communicator and a base for generating large scale services. He

also touched upon multimedia communications.

Basics of Networking

In the **second session**, Mr. D.P. Bobde (NIC, New Delhi) touched upon various concepts relevant to data communication and networks like:

- Weiner and Shannon models
- Analog and digital communication
- Concepts like bits, bytes, bands etc.
- Asynchronous and synchronous modes
- Simplex, duplex, half duplex
- Serial and Parallel modes of communication
- Modulation
- Coding, error detection and correction and
- Band width.

In the **next session** Mr Bobde, considered Network hardware and software and explained concepts behind

- Switching — circuit switching, message switching, packet switching
- Network design — backbone and access networking



Prof. S.K. Joshi flanked by Dr. S.S. Murthy (DESIDOC) and Dr. S.M.. Saigar (INFLIBNET)

- Message traffic, nodes and links.

He also touched upon layered approaches to networking, functions and services of different layers and standards such as X. 28 and others.

Mr Bobde helped the participants get familiarized with the following:

- Media considerations
- Taxonomy of communications
- Dial up, leased line, satellite based Networks — VSAT
- Radio, microwaves, Coaxial, Fiber optics
- Relative merits of media
- Modems, Multiplexer, and communication software.

The audience felt that the modules were heavy for lay persons and the examples of application areas should be drawn from LIS environment.

Wide Area Network (WAN)

Dr. S. Ramakrishnan dwelt on the various aspects of Wide Area Networks like the architecture of WAN with analog and digital links. X.25, Inter-networking, ISDN, high speed networking, gateways and network management.

The presentation evoked an interesting discussion of WAN and called for a new way of linking for greater library access, possible network configuration, cost variations and standard messages.

Dr. Ramakrishnan gave a detailed account on E-mail architecture and actual mail process, and also touched on FAX and gateways.

Value Added Services

Dr. Abhijit Lahiri (NISSAT) dwelt on network applications to library services. He touched upon the general services, E-mail, Library networks, online search services, and database gateways such as EASYNET. He further reviewed the technologies of audiotex, teletext and videotex and noted that the emergence of videotex was still awaited. He discussed value added communication, data organization, and access in terms of telephones, TV, interactive, and broadcast and various other means. He felt that Electronic Data Interchange (EDI) could help in library acquisition, interlibrary lending, cataloguing services and similar other activities. He also touched upon information flows through Gateways which may help penetrating the market and increase business. Facilities available with Gateways should encourage lay or occasional users who may also be end-users. Otherwise, this market segment might continue using hard-copies or switch to stand-alone databases on CD-ROM. gateways might help retaining the share of online market — particularly the segment of unskilled users.

Local Area Networks

Dr. Surinder Pal (ERNET, Department of Electronics), handled the following concepts in detail:

- Taxonomy of LAN
- Configuration of LAN
- LAN Topology
- LAN Components
- LAN Applications
- LAN Operating Systems, and
- LAN Standards.

The feedback suggested that a com-

parative analysis of various parameters like LAN media, LAN and Operating Systems, should be prepared so as to help in making choices in different situations.

Practical Guide to Networking

Dr. Ramakrishnan, provided a few practical tips on Networking; how to configure a network to meet a need, components of network, specifications & standards, VSAT and also sharing. This was to be followed up through a case study; however this could not be done due to paucity of time.

INTERNET

Dr. Neerja Atri (ERNET Department of Electronics), touched on the INTERNET Services and the user population of the world around. She said that the INTERNET spread over a large number of sites all over the world, is steadily improving its services. Several information retrieval tools, now available have made navigating through the INTERNET an easy task.

The three basic INTERNET applications of electronic mail, remote login, and file transfer are the building blocks of more sophisticated applications. Services such as mailing lists, directory, enquiry, Usenet news and tools such as Archie, Gopher, WAIS, and Worldwide Net go beyond the three basic INTERNET functions to bring people closer on the INTERNET and make information on the network easier to locate and use. In the feedback, several questions were asked about the availability of the library materials on the INTERNET.

Network Cost and Economic Considerations

Dr. Mukul Sinha (Expert Software Consultants, New Delhi), gave an exposition of

various network systems. He said that in the last few years, many organizations in India have set up data networks either for closed groups of clients, or for general use. The types of network services also vary, Networks such as I-Net, RABMN, and GPSS provide only connectivity (i.e. subscribers can connect themselves through the network); whereas networks like SIRNET, provide only E-mail, and database access services to their subscribers. On the other hand, networks like ERNET, INDONET and NICNET provide connectivity as well as other network services like the E-mail, database access, file transfer facilities, remote logging, etc. In addition, there a few large multi-site organization such as ITC, and the Times of India which have set up data network for their own internal use, using off the shelf hardware and software. He also gave a detailed cost-analysis of various networks.

Valedictory Address

The session was addressed by Prof. S.K. Joshi, Secretary DSIR and Director General CSIR. On behalf of the organizers, Prof. B. Guha (Alliance India, New Delhi) welcomed Prof. Joshi.

In his address Prof. Joshi said that the developments in communications have facilitated rapid transfer of information from place to place. According to him information is real power and information flow is a common thread binding computer specialists, communication specialists and library and information specialists. Book and journal publication patterns were changing and one faces a continuous disharmony between available financial resources and demanded information resources dwelt upon the automation process and felt that lot of work was needed to be done. Even in the common application area like financial accounting a great deal of decision making is required at all the stages and this appears to be an endless

process. It is therefore, difficult to look at library automation project which is a much more complicated. Prof. Joshi called upon the library and information professionals to take advantage of communication networks emerging in India and abroad. while acknowledging that there would be difficulties in adaptation but efforts such as CALIBNET and DELNET definitely hold hope for the future for serious minded readers. He lauded the initiatives of NISSAT in promoting library and information networks.

Panel Discussion

The session was moderated by Mr. Y.S. Rajan (Adviser, Department of Science and Technology and Executive Director TIFAC). The other Panelists included — Dr. S.S. Murthy, Director, DESIDOC, and Prof. T. Viswanathan, Director, INSDOC. The other two panelists namely, Dr. N. Vijayaditya (NIC) and Mr. Md. Yasin (INET) could not be present.

Initiating the deliberations Prof. T. Viswanathan, said that the issue should be looked at from three angles.

1. *Connectivity*: We are fortunate enough to have several communication networks in operation. However, users of one network, cannot get into another network. This leads to a situation wherein a subscriber would need to subscribe to several networks. While specialization in networking is good, there should be a consortium of networks such as the INTERNET so that the end users of a network could connect to their counter-part on another network without difficulty and pay once only.

2. *Reliability*: The services provided by the networks in India today are primitive. For Indian users, even the E-mail Services are rudimentary and it would not take one very far.

What is needed is value added, easy-to-use data communication networks.

3. *Standards*: It is necessary to develop standards in creating databases or adopt the existing ones. Too much variations in network practice will cost more and will not help either the users or the network operators.

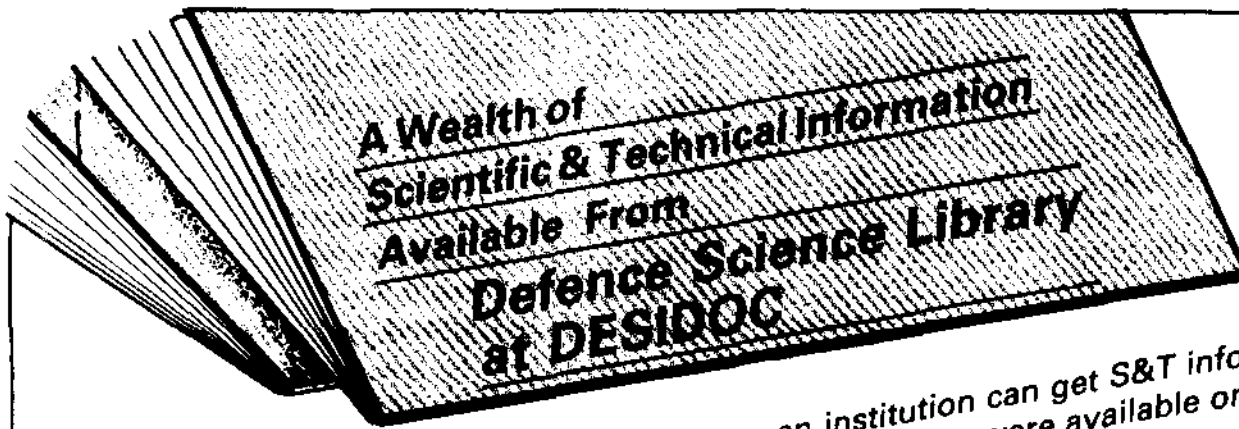
Dr. S.S. Murthy, raised certain issues in Networking from the library angle. He mentioned that the libraries in India in most cases, do not have a telephone or a computer; such basic facilities would have to be put in place if the concept of computer communication and networks is to be seriously pursued.

Summing up, Mr. Rajan said that the course material on networking may be developed preferably on floppies. Teachers of library and information science, may be trained on the concept so that they could teach the subject to the university students. The network use culture may be promoted aggressively among the end users and intermediaries. However, the commercial viability of network technology *vis-a-vis* the basic infrastructural needs of libraries may be studied in depth. Divergence in the use of standards may be controlled.

The Chairperson felt that we should adopt modern technologies, computer communication being one which can help development of the society. He felt that the first workshop had been useful and now the message should be spread wider sections of the population.

On behalf of the participants, Dr. Ashoke Raj (Bioinformatics Centre IARI) complimented the organisers for their efforts. The workshop ended with the vote of thanks by Mr. B.G. Sunder Singh.

— Prof. M.A. Gopinath



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CDS/ISIS : Fifth National Meet, Hyderabad

The Fifth National CDS/ISIS User Group Meet was organized jointly by the National Academy of Agricultural Research Management (NAARM) and National Information System for Science and Technology (NISSAT) at NAARM, Rajendranagar, Hyderabad during February 10-13, 1994. The programme was coordinated by Mr R.B. Gaddagimath, NAARM and Mr B.N. Sarkar, NISSAT.

The major objectives of the Meet were:

- to assess the status of the use of the CDS/ISIS package in India
- to provide solutions to technical problems encountered by the users
- to facilitate exchange of experiences on various applications of the package
- to make recommendations for further improvement/development of the package.

Seventy three delegates participated in the meet. In the inaugural function Mr. R.B. Gaddagimath, Organising Secretary, welcomed the delegates. Mrs. S. Ravindran (NISSAT) spoke



A View of the Audience



Dr James W. Estes, Head of Computer Centre, ICRISAT delivering the Keynote Address

on the recent developments on the CDS/ISIS front and related distribution policy. She also informed participants about the statistical package IDAMS now being distributed by NISSAT. The programme was inaugurated by Dr. N.V. Koteswara Rao, Sr. Technical Director, NIC, Southern Region, Hyderabad. He briefly described the importance of information science and the role that librarians and information scientists are expected to play. He also stressed the need for automating the libraries. Dr. James W. Estes, Head Computer Centre, ICRISAT, Hyderabad delivered the keynote address. He explained the importance of the CDS/ISIS software in information handling and role it has played in developing countries. In his presidential remarks Dr. C. Prasad, Director, NAARM urged the librarians and information scientists to explore the full capabilities of this unique package.

Technical Sessions

The programme consisted of six technical sessions. The first session chaired by Dr. L.J. Haravu reviewed the progress in promotion and application of the package. In his status presentation, Mr B.N. Sarkar, NISSAT *inter alia* reported the following:

- There are over 960 installations (as in December 1993) in India. The off-take has not reduced even after the package was priced in April 1993. Delhi has the maximum number of users (222)

followed by Maharashtra (162), Tamil Nadu (81), Karnataka (74) and Andhra Pradesh (64). The maximum number of users who paid for the package belong to Maharashtra (24).

- In the beginning, educational institutions and non-profit organizations were the main takers. Now private organizations are showing more interest.
- The application is still largely to bibliographic problems, cataloguing being the major area. The slowly Non bibliographic applications are growing.

— The database of 98,500 records at American College, Madurai is the largest database so far developed on the package in India.

Mr Chander Prakash (DST) presented the software package — *SANJAY* developed by DESIDOC in collaboration with NISSAT. It has a module on acquisition system, cataloguing, circulation control and serial control. He said that it will be distributed by NISSAT in the near future at a reasonable cost. Other presentations made in various sessions are given in Table-I.

Table 1

Name/Organisation	Topic/Application area	Remarks
Mr YV Sivaprasad NAARM, Hyderabad	Downloading of Data from CD-ROM to ISIS	FANGORN is used
Mr N. Narayanakutty VSSC, Trivandrum	Library Acquisition Management System using CDS/ISIS	Developed for in-house Library
Mr Mohan Kumar VSSC, Trivandrum	Indexing System using CDS/ISIS	helps in faster data entry, output generation, avoids duplicate checking, etc.
Mr Subrata Datta INSDOC, Calcutta	Implementation of CCF in 'Union Catalogue of S & T Conference Proceedings' Database	
Mr P. Divakar CCMB, Hyderabad	A Textual Database in the area of Productive Physiology using CDS/ISIS	
Mr T. Shanmuganathan NAARM, Hyderabad	Thesaurus Generation and use in CDS/ISIS	Stresses the need of a thesaurus in bibliographic information storage and retrieval system
Mr Debal C Kar TERI, New Delhi	Duplicate Record Checking — A Pascal Program	
Prof. M.M. Kashyap Univ of Delhi	Creation of Integrated Database for Library System	LAN is used
Mr G.K. Manjunath IRM, Anand	Integrated Book Acquisition and Circulation System	INBACSYS is an integrated program for acquisition & circulation system
Ms Mona Dhamankar BAIF, Pune	Regional Language Database using CDS/ISIS	BAIF created a database in Marathi language
Mr C Sugumaran LPSC, Trivandrum	CDS/ISIS Package for Russian Drawing Management	
Mr G.P. Reuben American College, Madurai	Demo of a Database on CDS/ISIS	Contains more than 98000 records
Mr T. Damodaran DOR., Hyderabad	Generation of Permuted Keyword Index to Oilseeds Documentation Bulletin using CDS/ISIS	
Mr S. Puradkar, YUVA, Bombay	Demo of a Database on CDS/ISIS	
Dr. Chandrashekhar Rao Ambedkar Open Univ., Hyderabad	Demo of a Database on CDS/ISIS	

Demonstration

Dr. L.J. Haravu, ICRISAT explained the new features of CDS/ISIS version 3.07. He demonstrated HEURISCO — a user friendly information retrieval interface software, CCF — UNIMARC conversion program, conversion of ASCII file into ISO 2709 format and vice-versa. The CDS/ISIS LAN application was thereafter demonstrated by DELL product of M/s PCL, Hyderabad.

Recommendations

A. Future of CDS/ISIS development in India and suggestions for NISSAT/ UNESCO.

1. *Suggestions to NISSAT*

- NISSAT should immediately complete the bench marking of software packages like SANJAY, TRISHNA, etc. and release them in the market.
- NISSAT should provide standard (uniform) database definition while distributing the CDS/ISIS package.
- NISSAT should take the responsibility of evolving a mechanism for the exchange of application programs developed by different users.

2. *Suggestions to UNESCO*

The following features may be incorporated:

- Facility for database backup in batches.
- Duplicate record creation facility to ease data entry operation.
- Provision of Macro substitution facility in CDS/ISIS.
- Facility to open two more databases simultaneously and to link these.

- Higher PASCAL compiler

B. Training

- Training calendar should be circulated well in advance.
- Only licensed users may be admitted in NISSAT course on payment of reasonable fees.
- NISSAT should develop a mechanism to evaluate course curricula, course materials and the quality of training.

C. Clearinghouse

NISSAT should create a Clearinghouse with the following activities

- Flow of Information on CDS/ISIS through the NISSAT Newsletter
- Compilation of a Catalogue of Applications, using CDS/ISIS
- Setting up an Electronic Bulletin Board

Open House Session

In this session, the problems related to CDS/ISIS and their solutions were discussed. The deliberations were moderated by Ms S. Ravindran and Mr. B.N. Sarkar.

Concluding Session

Mr. R.B. Gaddagimath, Organising Secretary thanked all delegates for their active participation. He emphasized the need for greater cooperation among the users of CDS/ISIS.

Mr. B.N. Sarkar presented the summary of evaluation made by the participants. On the whole, the participants observed that the objectives of the meet had by and large been achieved. The application program developed by Mr. Manjunath, IRM, Anand was considered most outstanding.

The meeting ended with a vote of thanks by Mrs. S. Ravindran particularly to NAARM and the delegates.

— B.N. Sarkar, NISSAT
Y.V. Sivaprasad, NAARM

Government of India, Department of Electronics offers network services to all academic and research institutions in the country through the

Education and Research Network (ERNET)

Department of Electronics (DoE) is proud to have the capacity to link the entire academic and research community in India through ERNET - the Education and Research Network. Project ERNET has been implemented by the Government of India with the assistance of United Nations Development Programme (UNDP) and the initial participation of eight premier institutions - five IITs, IISc Bangalore, NCST Bombay and DoE, Delhi. The major aim of the project was to build capability in the country in the area of computer networking and set-up a country wide computer network for the academic and research community to facilitate informal and frequent interactions, sharing of computing resources, and more co-operation in research activities.

As a result of sustained efforts, ERNET provides the most extensive co-operative computer network for the academic and research community. Over 300 institutions in the country representing a cross-section of universities, government societies, R & D organisations, research laboratories are already using it extensively serving over 20000 users throughout the country. The following services are available on the network :

- **Electronic mail**
- **Remote log-in**
- **Data-base access**
- **File transfer**
- **Mailing lists, news groups and bulletin boards**
- **Information retrieval tools (Gopher, WAIS, WWW)**

and in addition to the above, access to computing resources and users across 120 countries through Global Internet.

In line with similar efforts in advanced countries, ERNET has simultaneously addressed the key R & D issues of networking technology in order to provide benefits of the state-of-the-art technology and cost-effective services to the user community. Some of the future areas of work include test-bed for high speed networking and support of applications like, multi-site video conferencing, and other integrated applications, like multimedia mail and multimedia document retrieval.

ERNET programme has its current focus on expanding its reach to the entire academic and research community in the country. Progressively, the infrastructure, range of services and accessible resources are being upgraded in close co-operation with academic and research community. ERNET community will be happy to extend all possible help and advise you on setting up necessary facilities at your premises.

For further information, please contact :

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Use of Medline CD-ROM Database in Delhi Libraries — NISSAT Study

The study was conducted by the Institute of Social Analysis and Communication under the sponsorship of the Department of Scientific Industrial Research in 1994. A summary of the report is presented here.

The availability of comprehensive bibliographical databases in compact disc form (CD-ROM) and also of CD-ROM drives has brought about considerable changes in information storage and retrieval scenario in the country. To take stock of the present status of the use of CD-ROM databases, the present study was sponsored by the Department of Scientific and Industrial Research under its NISSAT Programme. The study is, however, limited to libraries/institutions located in Delhi and also to the use of mainly one database only, namely, MEDLINE.

Medline Compact DISC Search Facilities in Delhi

The following libraries/institutions in Delhi were acquiring MEDLINE database in CD-ROM discs and had started search services also:

1. Institute of Nuclear Medicine and Allied Sciences (INMAS)
2. National Medical Library (NML)
3. National Documentation Centre, National Institute of Health and Family Welfare (NIHFW)
4. Bioinformatics Centre, Jawaharlal Nehru University (JNU)
5. Indian Medlars Centre, National Informatics Centre (NIC) and,

6. B.B. Dixit Library, All India Institute of Medical Sciences (AIIMS)

Of the above centres, the NIHFW is getting only the POPLINE database, while NIC is getting as many as 17 biomedical databases apart from the MEDLINE. The NIC and AIIMS have been able to instal multi-user, multi-disc, CD-NET environment where users are encouraged to conduct their own search. In other centres, requests for search are accepted in the prescribed form and actual searches are conducted by the staff of the centres.

The Sample and Its Composition

Responses from a sample of 91 users of CD-ROM MEDLINE database were obtained from 4 search centres. The distribution of the sample was as follows: NML-42; JNU-27; NIHFW-8; and INMAS-14. Since the NML is a common facility, more responses were obtained from this centre. In fact the 42 respondents of this centre came from as many as 20 institutions, but 14 of them were from a single institution, namely, AIIMS. Five respondents were from institutions located outside Delhi.

Composition of the sample population according to the level or designation was as follows: Research scholars/fellows-35; Resident doctors-14; Scientists-11; Research Assistants/Associates-7; Professors/Associate Professors/Assistant Professors/Lecturers-13; Others (Research scientists, Medical officer, Pool officer, etc.)-13.

On the basis of the highest qualification the distribution of the sample population was found

to be as follows: MBBS-15; MS/MDS/M.Ch./M.Pharm.-12; M.D.-14; Ph.D.-12; M.Phil-4; M.Sc.-32. Most of the respondents with medical degrees were in the NML sample and most of the respondents with non-medical degrees were in the JNU sample.

Analysis of the sample population on the basis of age revealed that about 65 per cent of the respondents were in the lowest age group of 20-30 years and about 23 per cent in the next higher group of 31-40 years.

Areas of Study

The respondents were found engaged in a variety of research areas/topics which were as varied as Cytogenetic damage by radiation; MR spectroscopy; several aspects of biocybernetics; Environmental stress; Molecular genetics; Developmental neurobiology; Cross infection in ICU patients; Computer modelling; Iodine deficiency disorder; Diagnostic and interventional imaging; Disaster management, and so on.

Use of Different Search Centres

Although samples were taken from four centres, an attempt was made to find out as to what extent the respondents were using other centres apart from the one which each of them was found using. It was observed that of the 14 respondents from AIIMS, who were found using the NML facility, at least 3 were using the NIC facility also. Similarly, 17 respondents from the entire sample were using the NIC facility also along with NML. At least four respondents were found using 3 facilities.

Information Use Habit of Respondents

- 14 To get a general picture of the information use habit of the respondents the following aspects were taken note of: It was observed that 56 or 61.5 per cent of them were

continuing with the use of the printed Index Medicus. 28 or 50 per cent of this group were using this only occasionally and 14 or 25 per cent used it regularly. Further, 6 respondents mentioned that they were using IM to locate very recent literature and an equal number of respondents said that they consulted the IM to ensure that no relevant item was missed. Such responses can come from very discerning information users only.

It was also revealed that a slightly higher percentage of respondents (59 or 65.5 per cent) were using other abstracting/indexing periodicals also. This higher percentage resulted mainly from the responses of the JNU sample, where there were less number of users of IM and more users of other abstracting/indexing periodicals. The most prominent of these titles were: Current Contents (23); Biological Abstracts (6); Excerpta Medica (5); and Chemical Abstracts (4).

Preference for Computerised Search

When asked why the respondents preferred computerised search (compact disc) over mutual search through Index Medicus, the responses were as follows: (a) It is quicker (74 or 81.3 per cent); it provides abstracts also (60 or 65.9 per cent); literature search work can be easily delegated to information workers/others (30 or 32.9 per cent); provides better retrieval due to in-depth indexing/free term search facility (40 or 45.3 per cent); and other reasons (10 or 10.9).

Familiarity with MeSH

The MeSH being an important tool for analysis and retrieval in the context of MEDLARS, an attempt was made to find out the extent of familiarity of this tool amongst the users. It was observed that 58 persons (64.4 per cent) were not familiar and only 32 persons (35.5 per cent) indicated some degree of

familiarity. Of them 20 respondents (22.2 per cent) believed that MeSH was helpful in rephrasing one's requirements in a better manner, 16 (17.7 per cent) thought that it leads to a number of related subject headings which one would miss otherwise; 9 respondents were of the opinion that in some cases MeSH did not provide the required subject or concept headings. The non-familiarity of a majority of the respondents with the MeSH was a major revelation.

Awareness About CD-ROM Technology

Since the information users were utilising the product of a new technology it was thought worthwhile to find out the awareness about this by asking whether they knew that MEDLINE database they were using was in compact disc form and whether they had any familiarity with the CD-ROM technology. Responses revealed that 51.6 per cent of the sample population were aware of the fact that they were being served by compact disc MEDLINE but only 36.6 per cent of them had some familiarity with the new technology. Respondents from JNU, however, had better awareness on both counts.

User's View of Retrieval Efficiency

There were as many as 23 cases of non-response to this question. The experience of those who responded revealed that on the average they could retrieve only 47.9 per cent relevant items, 34.3 per cent not so relevant items, 22.4 per cent irrelevant items, and 13.4 per cent uncertain items. However, considerable variations were observed among the four segments of the sample. As for example, in the JNU sample the average relevant items rate was 32 per cent only and irrelevant items rate was 37.3 per cent, while the corresponding rates for the NML were 55.8 per cent and 20.8 per cent respectively.

How Much One is Willing to Pay

As the usefulness of a service is often measured by the price one is willing to pay, the respondents were asked to state what they thought would be a reasonable charge per search. Data revealed that 25.6 per cent of the respondents maintained that the service should be available free of any charge, while 62.1 per cent were willing to pay upto Rs. 50 per search, but some of them specified the proposed fee at Rs. 5, Rs. 10, and Rs. 15 per search. Further, only 5 persons were willing to pay a charge of Rs 51 to Rs. 100. Some respondents also commented on the need to improve the quality of the search service before introducing any charge.

Availability of Relevant Documents

Since location of relevant documents is only one aspect of the information seeking act, a close look was taken at the other aspect also, i.e, getting access to the actual documents or procuring copies of them. It was observed that out of the 68 persons who responded, 64 had mentioned that they were depending on the NML, of course along with their own institutional or other libraries. Dependence on one single source to such an extent is rare in any discipline. The position of INSDOC was found very low in this respect.

On the question of timeliness of the document delivery services the views of the respondents were almost evenly poised — 35 persons thought that copies of documents were available within acceptable time-lag and 33 thought that the service was usually delayed.

Some Relevant Comments From Users

Forty respondents made some general comments on the search services. Analysis

revealed that these mainly related to the need for user education or orientation, greater publicity, sharing of facilities and better accessibility, improving the competence and changing the attitude of staff in the conduct of searches, and retrieval efficiency.

Responses From Search Centres

NML reported that there was a shift from the use of the printed *Index Medicus* to MEDLINE discs search. This trend was visible as both the printed and the disc versions were available there. INMAS also indicated such a trend. When asked to state in what way the availability of the compact discs had helped the search centres in extending their services, the response of the NML was positive and maintained that "it is now in a position to serve more number of users, within a short span of time with the help of CD-ROM diskettes".

As is well known for conducting a successful search in any automated system some consultation or dialogue between the user and provider of information is necessary.

Responses obtained on this aspect clearly indicated that such dialogues were absent in most cases. The request forms used by the search centres also did not suggest the users to consult the MeSH.

Similarly on the question of getting user's response or feedback, most of the centres could not report anything very positive.

Recommendations

On the basis of the findings and trends, ten recommendations have been made for the extension of the search services, including private practitioners, conduct of user education programmes, closer interaction among providers of information, for uniform policy of charging, for networking, etc. Finally, it has been recommended to pass on some of the work to a suitable NGO.

The study team had Prof. B. Guha as the Principal Investigator. Ravi Walla and Rashmi Barka worked as the Investigators.

Automation of Libraries in Higher Education and Research Institutes — First National Convention

The First National Convention (CALIBER-94) on the above topic was held at Ahmedabad during 19-20 February 1994. Organized by INFLIBNET, the Convention discussed at great length issues regarding inability of our libraries to cope with the present situation of information explosion due to severe budgetary constraints and the fast changing economic, social, cultural and scientific scenario and the ways and means to offer better services to the users employing the state-of-the-art information technology. The convention was attended by 172 library professionals from all over the country including 95 persons from various universities and educational institutions. The need for automation of libraries, the methodologies for using computers, adopting uniformity in standards and formats and various other related issues were debated in seven technical sessions spread over two days. The following resolutions were discussed and adopted at the convention.

Resolutions

- (i) Resolved that to enable scholars, researchers, teachers and students, especially those located in far off places, to have access to information and documents available in libraries, INFLIBNET Programme is very essential for R&D institutions and institutions of higher learning.
- (ii) Resolved that INFLIBNET Programme should provide an opportunity to universities and colleges to modernise their library operations, and as such

be given top priority and provided with adequate funds by the UGC and other authorities.

- (iii) Resolved that keeping in view the importance of the Programme, all the libraries of the universities and deemed universities be provided funds for developing infrastructural facilities in the first phase.
- (iv) Resolved that the INFLIBNET should develop universities as nodes for nation-wide information sharing structure in a phased manner so as to cover all the university libraries within 4 to 5 years.
- (v) Resolved that INFLIBNET establish at least five Regional Centres and at least fifty Resource and Document Delivery Centres within next five years.
- (vi) Resolved that INFLIBNET should initiate and encourage development of bibliographic databases on different specialisation at regional and national levels.
- (vii) Resolved that the INFLIBNET should provide guidelines for hardware and software requirements, standards for creation of bibliographic databases, formats for data capturing and protocols for data communication and networking.
- (viii) Resolved that the INFLIBNET should promote development of tools and

techniques for Indian languages for library services and networking.

- (ix) Resolved that INFLIBNET should continue programme for training the library and other professionals in a phased manner.
- (x) Resolved that INFLIBNET should provide user manuals and other educational tools for use of library operational staff. It should also develop user-education programmes and other means of user sensitisation.
- (xi) Resolved that INFLIBNET should specify types of display and output formats for different services that are useful to end users for networking, bulletin boards, etc.
- (xii) Resolved that INFLIBNET should support and establish an R & D unit for improving bibliographic, document and information handling and access techniques. It should also encourage institutions involved in library and information science work in carrying

out research and development activities in the areas of library automation, networking, etc.

- (xiii) Resolved that the INFLIBNET should move with greater momentum to harness human and technology resources to develop an education and research information network in collaboration with other organisations in India and abroad.
- (xiv) It should publish 'Newsletter' to provide upto date status on development.
- (xv) It should periodically assess the services offered by the Programme and discuss issues involved in library automation, networking, user needs, etc. by continuing to hold annual conventions like the present one.
- (xvi) Resolved that the above mentioned recommendations be forwarded to the University Grants Commission, AICTE, C.S.I.R., I.C.A.R., I.C.M.R., D.R.D.O., etc. and other Central Government agencies for necessary action.

Marketing Information : Present Status and Future Prospects

The XIV Annual Convention and Conference of the Society for Information Science will be held at Central Institute of Medicinal and Aromatic Plants, Lucknow during 24-25 January 1995. The Convention will deliberate on the theme "Marketing Information : Present Status and Future Prospects".

For scope and other programme details write to Dr S. Mallick, Secretary SIS, CSIR Complex Building, New Delhi-110 012.

Research & Development in Industry : Highlights 1992-93

Industrial Sector

- Industrial sector accounted for 26.4% of the total national expenditure on R&D activities during the year 1992-93.
- The total R&D investment by industrial sector attained a level of Rs. 1358.48 crores at current prices during 1992-93 and out of this 56.8% was invested by private sector and the rest 43.2% by public sector.
- Industry spent 0.22% of GNP on R&D during 1992-93.
- The industrial units spent about 0.57% of their sales turnover on R&D in 1992-93. For private and public sector separately these figures were 0.64% and 0.51% respectively.
- 18.4% of total industrial sector R&D units which belonged to Defence and Electricals & Electronics groups accounted for 29% of the total industrial sector investment on R&D during 1992-93.
- Per unit R&D expenditure for industrial sector, private sector and public sector industries was Rs. 1.00 crores, Rs. 0.65 crores and Rs. 3.31 crores respectively during 1992-93.
- 41.3% of total industrial sector R&D expenditure was spent on the objective Promotion of Industrial Development during 1992-93.
- As on 1st April, 1992, 64824 personnel were employed in 1305 industrial sector R&D units which was 22.1% of

national total. Out of the total 37182 R&D personnel directly engaged in R&D activities in industry, 62% were employed in private sector and rest 38% were employed in public sector.

- For every 1000 R&D employees in industrial sector, 76 were female R&D employees.
- Of every 100 personnel employed in industrial sector R&D units, 57 were primarily engaged in R&D, 25 extended technical support and 18 provided administrative support.
- By level of qualification of industrial sector R&D personnel, 7.8% were Doctorates, 22.9% Postgraduates, 39.8% Graduates and 29.5% Diploma and other qualifications by taking all disciplines of Science and Technology.

Private Sector

- As on September 1992, 86% of in-house R&D units of private sector came into existence during and subsequent to Fourth Five Year Plan (1969-74).
- Investment on research and development by private sector R&D units attained a level of Rs. 771.77 crores in 1992-93 which was 21.2% more than the investment on R&D of previous year.
- Private sector R&D expenditure constitutes 15% of total investment in R&D at national level and it was 0.13% of GNP during 1992-93.

- Percentage share of R&D expenditure, advertising expenditure and new plant and machinery expenditure in sales turnover was 0.64%, 0.60% and 6.06% respectively in 1992-93 of private sector.
 - The Industry Groups Transportation, Electricals & Electronics, Drugs & Pharmaceuticals, Chemicals (other than Fertilizers), Industrial Machinery and Metallurgical Industries accounted for 65.3% of total private sector R&D expenditure during 1992-93.
 - 43.7% of total R&D expenditure was utilised for the objective promotion of Industrial Development.
 - By field of science, 56.1% of private sector R&D investment was for engineering and technology during 1992-93.
 - 63% of total R&D expenditure was accounted for revenue expenditure and rest 37% was accounted for capital expenditure.
 - 76.6% of total R&D units were located in the States of Maharashtra, Tamil Nadu, Karnataka, Gujarat, West Bengal, and Andhra Pradesh accounting for 83.4% of total R&D expenditure in 1992-93. 34% of the total R&D units were located in the State of Maharashtra alone and these units accounted for 47.2% of total R&D expenditure of private sector.
 - 27.4% of private sector in-house R&D units were of the small scale industries and shared 7.3% of R&D expenditure of private sector in-house R&D units during 1992-93.
 - 86% of total private sector in-house R&D units were each spending less than or equal to Rs. 100 lakhs on R&D during 1992-93. The rest 14% of these private sector in-house R&D units each spending more than one crore on R&D shared 70% of total private sector R&D investment.
 - Per unit R&D expenditure was showing a consistent increase with the increase in the employment size of the companies.
 - As on 1st April, 1992, 42442 personnel were employed in private sector R&D units. Out of these, 54.3% were engaged primarily on R&D activities. The share of private sector R&D personnel in the total R&D personnel at the national level worked out to be about 24%.
 - For every 1000 R&D employees in private sector, 86 were females.
 - About 18% of total personnel engaged primarily in R&D activities in private sector in-house R&D units were from industry group Electricals and Electronics Equipment.
 - Out of 21809 R&D personnel employed in private sector, 9.2% were Ph.Ds, 25.9% were Post Graduates, 38.9% were Graduates and 26% were Diploma or other qualifications.
 - 55% of total R&D personnel had Engineering & Technology as their discipline.
 - 14% of R&D personnel in private sector were in the range of above Rs. 10,00,000 annual gross emoluments during 1992-93.
- Public Sector**
- Public sector R&D expenditure attained a level of Rs. 586.71 crores at current prices in 1992-93 which was 21.1% more than the R&D expenditure of 1991-92.

- The ratio of R&D expenditure to sales turnover was estimated at 0.51% in 1992-93.
- 28.8% of total public sector R&D units under Defence, Electricals and Electronics Equipment and Metallurgical Industry groups have spent 56.1% of total public R&D expenditure during 1992-93.
- 86.8% of the total public sector R&D expenditure was shared by public sector industries under eight Ministries/ Departments viz., Defence Production and Supplies, Heavy Industry, Petroleum and Natural Gas, Steel, Telecommunications, Chemicals and Petrochemicals, Atomic Energy and Electronics during 1992-93.
- More than two-third (69.5%) of total public sector R&D expenditure was utilised for the objective — Promotion of Industrial Development and Defence during 1992-93.
- 36.8% of total public sector R&D units located in the States of Karnataka, Andhra Pradesh, Uttar Pradesh and Bihar accounted for 72.9% of total public sector R&D expenditure during 1992-93.
- As on 1st April, 1992, 22,382 personnel were employed in Public sector R&D units. Out of this 63% were engaged primarily on R&D, 25% were employed on auxiliary activities and 12% were providing administrative support.
- Out of every 1000 R&D employees in public sector, 59 were female R&D employees.
- 68.5% of total R&D personnel were employed in Electricals and Electronics, Defence, Metallurgical and Telecommunications Industries.
- 5.5% of total R&D personnel employed in public sector had Ph.D qualification, 17.9% were Post Graduates, 41.4% were graduates and 35.3% were having Diploma or Other qualifications.
- 75.8% of the R&D personnel public sector had Engineering & Technology as their field of specialisation.
- .1% of female R&D personnel employed in public sector industries were Ph.D. qualified.
- 72.8% of female R&D personnel employed in public sector industries had Engineering & Technology as their field of specialisation.
- 56.6% of R&D personnel employed in public sector received Rs. 50000 to Rs. 100000 as their annual gross emoluments as on 1.4.1992.

P I S - Personalised Information Services from INSDOC

With more and more internationalisation of business and global competition, there is a sudden increase in the international transborder information flow. Information has become a saleable commodity with high inflationary trends on account of the sudden demand. The present information products and services are expensive to obtain and most often do not meet the specific needs of the end user. There is a need to search for new paradigms for information products and services so that the end users can easily afford them and get 100 per cent satisfaction out of them. In this context, Personalised Information Services (PIS) offer an alternative, viable, cost effective and economic paradigm for future information services.

This article describes three of the Personalised Information Services (PIS) recently introduced by INSDOC :

1. Contents, Abstracts and Photocopies Service (CAPS)
2. Standing Order Abstracts Service (SOAS)
3. Chemical Abstracts Keyword Index Service (CAKIS)

Contents, Abstracts and Photocopies Service (CAPS)

Under CAPS, for an yearly subscription, one can get the contents information of 30 selected journals from about 5000 core Indian and foreign periodicals pertaining to different disciplines. The information is provided on different media such as paper, diskette, email or fax. On browsing through the contents information, one may order for abstracts or photocopies of full text of articles at an extra cost. An institution, corporate entity or individual can take more than one subscription in order to get access to more than 30 journals.

Contents information being the starting point

for any information seeker, individual academicians and scientists will be encouraged to build their own collection or database of references. Hence this service is being offered to individuals at a concessional price.

Subscription Rates :

Medium	Individual	Institutional
Diskette	Rs.600 per year	Rs.1,800 per year
Paper	Rs.400 per year	Rs.1,200 per year
E-mail	Rs.500 per year	Rs.1,500 per year

Information in floppy is supplied in a database form which can be accessed using a retrieval software that runs under MS-DOS. The retrieval software can search the database by keyword, author, name or journal name. The price of the retrieval software is Rs.1,000/-. Information through E-mail is supplied as an ASCII file.

For the purposes of photocopies services, the journals are placed in two categories :

Category A : High value and high frequency or electronic journals.

Category B : Low value and low frequency journals.

For subscribers in Delhi, door delivery is being organised for the supply of photocopies. All photocopy requests will be executed within 48 hours excluding holidays, Saturdays and Sundays.

Charges for door delivery

Category A :

Rs.50/- for first 10 pages or part thereof plus Rs.10/- for every additional five pages or part thereof.

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Rs.40/- for first 10 pages or part thereof plus Rs.10/- for every additional five pages or part thereof.

For subscribers outside Delhi, the photocopies will be despatched within 48 hours of the receipt of the order excluding Saturdays, Sundays and other holidays.

Charges for despatch by ordinary post

Category A :

Rs.40/- for first 10 pages or part thereof plus Rs.10/- for every additional 5 pages or part thereof.

Category B :

Rs.30/- for first 10 pages or part thereof plus Rs.10/- for every additional 5 pages or part thereof.

Photocopies can be sent by speed post or fax on request at extra charges.

For demand based abstracts and article photocopy services, subscribers must open a deposit account with INSDOC with a suitable amount based on their estimated demands subject to a minimum of Rs.500/- as initial deposit. No supply will be effected if adequate fund is not available in the deposit account. Regular statements on deposit accounts will be sent to customers.

Standing Order Abstracts Service (SOAS)

Under Standing Order Abstracts Service an institution or an individual may choose one or more number of journals for which the abstracts of all the articles appearing in the journals for a period of one year will be sent on an yearly subscription basis.

A sample copy of the output of the service can be obtained by writing to Deputy Head, National Science Library, INSDOC. A list of journals covered under this service can also be obtained from the same source.

Subscription rates for Standing Order Abstracts

For Category A - High Value and High Frequency or electronic Journals. - Rs. 1200/- per year

For Category B - Low Value and Low Frequency Journals - Rs. 600/- per year

Some libraries are already subscribing to this service for journals which they have discontinued in their libraries for want of fund. They seem to be placing the standing order abstracts output from INSDOC in the respective journals display position in the library. The feedback indicates that the readers are very happy to browse through these abstracts and get a feeling of having gone through the journal itself.

Chemical Abstracts Keyword Index Service (CAKIS)

Another service in the class of PIS introduced recently is Chemical Abstracts Keyword Index Service (CAKIS). You may be aware that chemical abstracts is an expensive publication with an annual subscription value of about Rs.5.5 lakhs. A large number of libraries have been forced to stop subscription for this publication because of the high cost. You may know that chemical abstracts contains 80 sub-sections. Normally an institution or an individual user does not consult more than a few sub-sections for his/her work. The normal mode of obtaining information from chemical abstracts is to scan through the index and reach the corresponding abstracts. Chemical abstract does not give sub-section wise index. INSDOC is creating its own index sub-section wise and making it available under CAKIS. Keyword index of one or more sub-sections can be obtained for an annual subscription. On going through the keyword index, the user may order for a particular abstract at an extra cost.

Subscription rates for CAKIS

on diskette - Rs.500/- per subsection per annum.
on paper - Rs.300/- per subsection per annum.
on Email - Rs.400/- per subsection per annum.

Photocopies of abstracts are priced Rs.5/- per abstract. A retrieval software package providing different modes of search under MS DOS for searching the data from the diskette is available. 23
The package is priced at Rs.1000/-.

INSDOC is hopeful that the scientists and engineers of this country would benefit significantly from these services.

INSDOC

**Indian Science Abstracts (ISA)
is now available online
through dialup lines or I-net.**

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**Current Contents of Indian Journals
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**All the databases are also available on floppies
searchable through a special INSDOC retrieval software
running under MS-DOS.**

**Some of the above databases are being made available
on CD-ROM shortly.**

*For price and other details
please get in touch with :*

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R&D Statistics 1992-93

— Highlights

- The national investment in R&D activities attained a level of Rs. 5141.64 crores in 1992-93. For the year 1993-94 the figure has been estimated to be Rs. 5733.43 crores.
- 0.83% of Gross National Product was devoted to R&D activities in the country during 1992-93.
- Sectorwise percentage share of national expenditure for 1992-93 was Central Government institutions 64.3%, State Governments 9.3%, public sector industries 11.4%, and private sector industries 15.0%.
- In the Institutional sector, about 21% of the total expenditure was spent on basic research, 39% on applied research, 29% on experimental development and rest 11% on other supporting activities.
- R&D expenditure by institutional sector was 73.6% of the total national R&D expenditure and the rest 26.4% was incurred by industrial sector comprising of both public and private sector industry during 1992-93.
- About 89% of the expenditure incurred from government sources came from Central Government and rest 11% from the State Governments.
- 71.6% of the R&D expenditure incurred by Central Government came from 12 major scientific agencies-DAE, DOS, CSIR, ICAR, DRDO, DBT, DOE, DNES, DOD, DST, ICMR, MOEn and the rest came from other central ministries/departments/public sector industries. Amongst the major scientific agencies, Defence Research and Development Organisation accounted for 28.4% of the expenditure.
- State sector spent Rs. 478.78 crores on R&D activities during 1992-93. About 90.4% of the total investment on R &D activities by States sector was on development of agriculture and allied areas. More than one fourth of total State sector R&D expenditure was incurred by R&D institutions located in the State of Maharashtra and Uttar Pradesh.
- A sum of Rs. 1358.48 crores was spent on R&D by industrial sector in 1992-93. The number of R&D units involved was 1052 in the private sector and 177 in the public/joint sector besides 148 SIRO units. The share of industrial sector R&D in total national R&D was 26.4%.
- Industry spent 0.57% of their sales turnover on R&D in 1992-93. Rs. 182.42 crores of R&D expenditure by industrial sector was in the group of defence industries, followed by electricals and electronics group with Rs. 175.72 crores.
- As on 1st April, 1992, nearly 2.93 lakh personnel were employed in the R&D establishments in the country including in-house R&D units of public and private sector industries. Out of this, 32.5% were performing R&D activities, 33.5% were performing auxiliary activities and the rest 34.0% were providing administrative and other non-

technical support. There were 8490 women directly engaged in R&D activities.

- There were 183 universities/deemed universities, 10 institutions of national importance and 7513 colleges during 1991-92 to impart higher education in the country.
- Pure science doctorates had a share of 64.4% of the total 4579 S&T doctorates produced by the educational system in the country during 1990-91.
- Patents sealed in the year 1991-92 were 1676 out of which 551 were sealed by Indian citizens. This is a mere 32.9% of the total patents sealed in India. Maximum number of applications filed by Indian were from State of Delhi with a percentage share of 30%. United States of America topped the list of applications for patents filed in India by foreign countries with a percentage share of 44.8%.
- In relation to population, the stock of S&T personnel for India is not high as compared to that observed for developed countries. India has only 3.76% scientists, engineers and technicians (SET) per thousand population during 1990, Only 0.22% SET per thousand population were employed in R&D during 1992.
- In the year 1990, developed countries accounted for 96% of the total expenditure for research and development in the world. This figure was 95% in 1985 and 94% in 1980. Most of the developed countries spent 2 to 3 per cent of their GNP on R&D while India has spent 0.83% of its GNP on R&D during 1992-93. India's per capita R&D expenditure was a mere US(\$)^{2.60} whereas this was between US(\$)¹⁰⁰ and US(\$)⁸⁰⁰ for most of the developed countries and more than US(\$)⁵⁰ for a few developing countries.
- Plan allocation for S&T increased from Rs. 142 crores in fourth plan to Rs. 9180 crores during the eighth plan. During the eighth plan, the share of S&T plan outlay in the total public sector plan outlay was 2.1%.
- The extramural R&D support increased from Rs. 99.47 crores in 1990-91 to Rs. 104.51 crores in 1992-93. Department of Biotechnology (DBT) and Department of Science and Technology (DST) were the two agencies playing a major role in extramural R&D funding.
- Academic sector received 56% of the total extramural R&D support during 1992-93.

Information Systems in Japan

Japan Information Centre of Science and Technology (JICST)

Created in 1957, under the authority of the Agency for Science and Technology, the JICST's role is to collect and index the world scientific and technical information.

National Centre for Science Information Systems (NACSIS)

Founded in 1986, and placed under the authority of the Ministry of Education, Science and Culture, NACSIS is at the hub of the Japanese inter-university scientific and technical information system.

The discussions covered the possibility of making NACSIS databases accessible to the French scientific community. The NACSIS databases constitute a tool for identifying not only publications (NACSIS-CAT) but also the major research centers in Japan (NACSIS-IR).

National Diet Library

Established in 1948, the National Diet Library is the national library of Japan. As such, it constitutes a huge national information reservoir. Through its scientific and technical

document division, users of the Library have access to over three million scientific and technical documents.

National Institute of Science and Technology Policy (NISTEP)

Founded in 1988, NISTEP is one of the six institutes under the authority of the Science and Technology Agency (STA). NISTEP analyzes the complex environment of science and technology, and carries out, often with a prospective approach, empirical and theoretical studies on a variety of subjects.

Small and Medium Enterprise Information Research System (SMIRS)

SMIRS is the acronym given to the information system of the Japan Small Business Corporation, created in 1980 to promote, under the Ministry of International Trade and Industry (MITI) authority, the development of small businesses in Japan. SMIRS experience in supplying information to the small business sector (access to databases, document delivery, individual consultancy services, etc) is quite significant.

Source: *La Lettre de L' INIST* N°1 Jan. 1994

CALIBNET Training Course

- Course Topic** : Library Automation : Microcomputer for Library and Information Systems
- Duration** : 19 to 30 September 1994
(Two weeks, Monday to Friday, 10.00 am to 5.15 pm)
- Participation Fee** : Rs. 1000
- No. of Seats** : 15
- Target Group** : Practising librarians, information personnel, managers of library and information systems
- Objectives** : Exposure to modern information technology (IT) options, equipping for library automation (LA) Planning, hands-on experience on IT applications
- Course Content** : Overview of LA. Computer Hardware. Computer Software. Operating Systems. Library & Information Application Software and Special Purpose packages. Library House-Keeping : Functional Modules. Information Storage & Retrieval. Communication Technology. Networking. Guidelines for Selection of Computer Hardware and Software. Essentials of Planning and Design Considerations for LA.
- Course Methodology** : Lecture, demonstration, tutorial, and comprehensive hands-on training.

Applications for admission to the training course are invited on plain paper with complete bio-data so as to reach the address noted below on or before 31.8.94, along with Demand Draft of Rs. 1100/- drawn in favour of Director, CALIBNET, Network Services Centre, Regional Computer Centre Building, Jadavpur University Campus, Calcutta - 700 032.

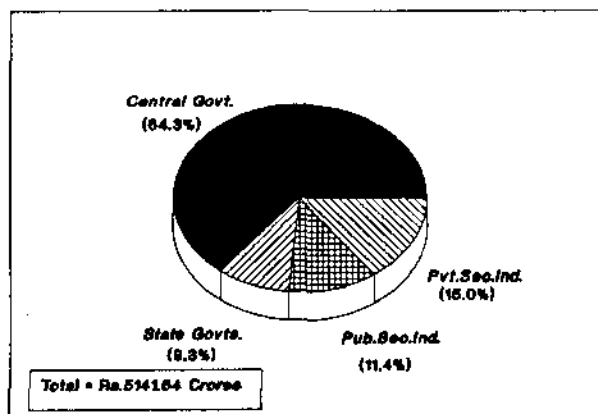
New Arrivals from NSTMIS Division of Department of Science & Technology, Government of India

The Department of Science and Technology, since 1973-74, is undertaking National Survey to collect information on resources devoted to scientific and technological activities. Based on the data thus collected, a number of analytical reports are being published by the Department. The National Science and Technology Management Information System (NSTMIS) division of DST has brought out the main report titled "Research and Development Statistics 1992-93" in April 1994 and a sectoral report on "Research and Development in Industry 1992-93" in June, 1994.

R & D Statistics 1992-93

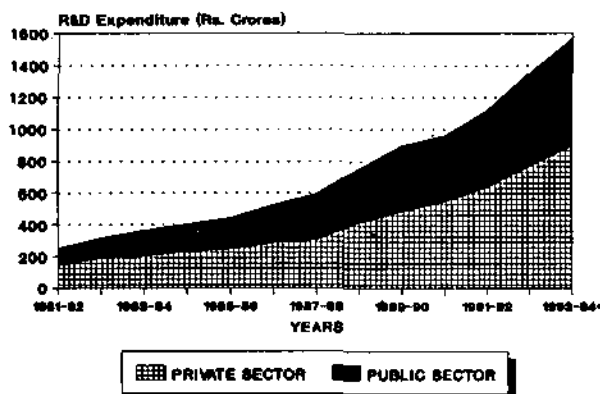
- * Total national R & D expenditure was Rs.5141.64 crores (0.83%) of GNP.
- * Sectorwise percentage share of National Expenditure was for Central Government institutions 64.3%, State Governments 9.3%, Public Sector Industries 11.4% and Private Sector Industries 15%.
- * Major share of R&D expenditure was met from government sources including public sector industrial inhouse R&D units (85%) and rest was met from private industry (15%).
- * Twelve major scientific agencies - DAE, DOS, CSIR, ICAR, DRDO, DBT, DOE, DNES, DOD, DST, ICMR, MOE etc. accounted for 54.2% of national R&D expenditure.
- * Plan allocation for S&T increased from Rs.142 crores in fourth plan to Rs.9180 crores in eighth plan.
- * As on 1st April, 1992, 2,93,348 personnel were employed in R&D establishments out of which 95,486 were directly engaged in R&D activities.
- * India has only 3.76% scientists, engineers and technicians (SET) per thousand population as compared to 112.77 in Japan. Only 0.22% SET per thousand population were employed in R&D activities in India as compared to 6.01 in Japan.
- * Patents sealed in the year 1991-92 was 1676 and out of this 551 (32.9%) were sealed by Indian citizens. # Price : Rs. 79

NATIONAL R&D EXPENDITURE BY SECTOR, 1992-93



R & D in Industry 1992-93

TREND OF INDUSTRIAL R&D EXPENDITURE



- * The industrial sector accounted for 26.4% of the total national expenditure on R&D activities during 1992-93. In absolute terms it amounted to Rs.1358.48 crores at current prices and out of which 56.8% was invested by private sector industry and the rest 43.2% by public sector industry.
- * The industry spent 0.22% of GNP on R&D.
- * As on 1st April, 1992, 64824 personnel were employed in 1305 industrial sector R&D units which was 22.1% of national total.
- * For every 1000 R&D employees in industrial sector, 76 were female R&D employees.
- * By level of qualification of industrial sector R&D personnel, 7.8% were Doctorates, 22.9% Post Graduates, 39.8% Graduates and 29.5% Diploma and Other Qualifications by taking all disciplines of Science and Technology.

Price : Rs. 70

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News and Events

Bibliographic Database: Workshop on Production and Development, Mysore

Sponsored by NISSAT (DSIR), the workshop is being organized by the University of Mysore from July 25 to Aug 6, 1994 at the Deptt of Library and Information Science.

Objective — Promoting knowledge and skills needed for database development.

The workshop is designed:

- to sensitise and familiarise the information professionals with the principles and technology of database development.
- to enable the participants to be conversant with the CDS-ISIS Micro version software package and its application in the creation and development of bibliographic databases.
- to introduce the participants to the CCF Format, its structure and its use in the development of databases.
- to provide training to the participants in the creation, development and searching of databases using the CDS-ISIS package and CCF format.
- to provide take home projects/exercises to reinforce the knowledge and skills learned during the workshop.

Course Content:

- Application of Information technology to information services: an overview.
- Introduction to computerised databases: Fields, records, files and databases.
- Databases and their types. Bibliographic databases, their peculiarities, unique features and requirements.
- File Organisation: Methods and techniques; Sequential files; Indexed sequential files; Relative files; and Inverted file structure.
- Retrieval techniques; Boolean retrieval. Use of logical operators.
- Bibliographic description. Developments in bibliographic description, Rationale of standard formats; cataloguing codes; ISBD; UNIMARC; ISO-2709; CCF.

- Introduction to CDS-ISIS: Creation of databases; Data entry; updation; indexing and creation of inverted files.
- Introduction to CCF: Rationale and structure; Data elements and their use; Codes used in the data elements.

Registration fee is Rs. 1000. This includes course material, computer time and also lunch and refreshments during the workshop.

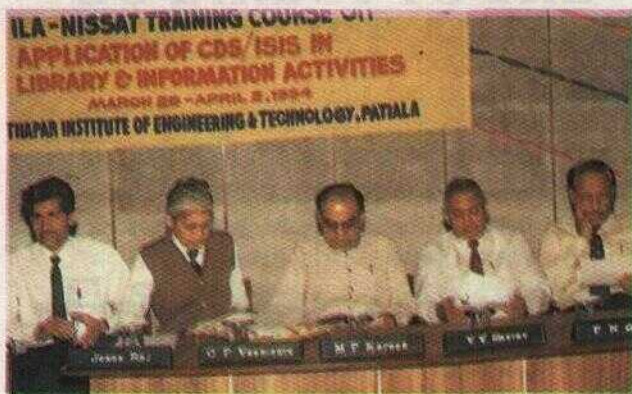
For further communication write to Dr Shalini R. Urs, Workshop Director, Deptt of Library and Information Science, University of Mysore, Mysore 570 006.

ILA—NISSAT Course on CDS/ISIS at TIET

A five day training course on application of CDS/ISIS (a library package of UNESCO) in library and information activities sponsored by the Department of Scientific and Industrial Research (NISSAT) organised by the Indian Library Association in collaboration with the Thapar Institute of Engg. & Technology, Patiala was inaugurated by Dr. M.P. Kapoor, Director, TIET. Professor C.P. Vashishth, President, Indian Library Association presided over the function on March 29, 1994.

Dr. Kapoor in his inaugural address said that computerised operations and networking of the libraries is the order of the day. In this information age when the cost of books and journals is increasing at a phenomenal rate and with the quantum of money shrinking at all levels, it had become absolutely imperative to automate and network our libraries so that the users can scan and monitor the information they require without loss of time.

Professor Vashishth said that the Indian Library Association which attaches great importance to library automation has already organised 16 Workshops of one or two weeks duration in different parts of India. He talked about several library networks, namely, CALIBNET, DELNET, BONET, MALIBNET, PUNET and INFLIBNET of the UGC coming up. In order to take advantage of them the participating libraries will have to convert their card catalogue into machine readable form. It is imperative that all libraries adhere to a common code of cataloguing.



Application of CDS/ISIS in Library and Information Activities ILA — NISSAT Course in Progress at TIET

Dr. Janak Raj, Librarian, TIET, the Course Director said that the flood of information can be controlled only with the help of computers for quick retrieval and proper utilization. Skilled personnel for making the computers work, is a very essential component which all library authorities must take care of.

Professor V.V. Sastry, Deputy Director, TIET welcomed the guests and Shri P.N. Sharma, Head, Library & Information Division, TCRDC thanked the guests. Smt. Rama Verma, Joint Coordinator compared the programme of the function.

Twenty two participants from various libraries, namely, TTTI, Chandigarh, MD University, Rohtak, Kurukshetra University, G.N.D. University, Amritsar, N.I.S., Punjabi University, Khalsa College, and TIET, Patiala attended the training course.

Shri S.N. Sur, was the main faculty member. He was assisted in Practical Classes by Shri Himanshu Aggarwal and Ajay Gupta from TIET.

Dr. M.P. Kapoor, Director gave the certificates to the participants at the Valedictory function held on April 2, 1994. Dr. B.M. Nayar, Dean Student Affairs proposed a vote of thanks.

IASLIC Award for S.K. Musib

32 The Indian Association of Special Libraries and Information Centres (IASLIC), Calcutta, has honoured Mr. S.K. Musib, Librarian, Nistarini College, Purulia as the author of the Best article for 1991 for his article "Information Seeking Pattern in Rural Areas of West Bengal; a survey report on Cottage Industries" published in IASLIC Bulletin 36(4) 1991. The award consisting of a medal and a certificate was presented to him recently at the 19th Annual conference of IASLIC held at Birla Institute of Technology, Mesra, Ranchi.

International Conference on Computer Systems and Education

The Indian Institute of Science Bangalore is hosting a Conference on International Computer Systems and Education during June 22-25, 1994. Being held in honour of Prof. V. Rajaraman, the Conference is sponsored by IEEE (Bangalore Chapter), CSI (Bangalore Chapter), Control Data Corp. USA, and IBM, USA.

Theme: High performance parallel and distributed computing, knowledge based systems, Information systems, computer aided design for VLSI, supercomputing and scientific Visualisation and computer science education.

Felicitations: An important event of the conference is the felicitation of Prof. V. Rajaraman. The felicitation address will be delivered by Prof. S. Sampath, Sri Sathya Sai Baba University.

Following the technical programme (June 22-24) there will be four Post-Conference Tutorials on topics such as Distributed computing, Distributed information retrieval system, Image processing architectures and Software engineering trends. The Registration fee is Rs. 1000 (Regular) and Rs. 500 for students. Registration deadline: 7 June 1994.

For further details contact ICCSE '94, Supercomputer Education Research Centre, Indian Institute of Science, Bangalore 500 012, India.

Marketing of Information Services and Products— Workshops

Two workshops on the above subject were organized recently to underline the importance of the vital issues involved. The first one was a two-week workshop sponsored under the NISSAT Manpower Development Programme held at Calcutta and organized by IASLIC from 28 February to 11 March 1994. Twelve participants joined the workshop which was inaugurated by Mr. G.C. Talukdar, Chief Commercial Manager, Hindustan Cables Ltd., Calcutta.

The participants were given an extensive exposure in the theoretical and practical aspects of marketing of information. The contents included:

1. *Marketing* — an essential tool for information resource management, Marketing programme & components, Marketing research, Marketing mix, Pricing of library & information service, Application of marketing in academic/Special & public library system, Marketing audit, Marketing of national level services & products, and Marketing & information industry.



Prof. T. Viswanathan spoke on the present status of Information Services and Products available in India

The valedictory session was attended by about 70 eminent librarians. Mr. D J Sloan, 1st Secretary, Cultural Affairs, British Deputy High Commission, Calcutta delivered the address. A lively address was delivered by Prof T. Viswanathan, Director, INSDOC, New Delhi. Prof. Viswanathan spoke on the present status of information services and products available in India and importance of its marketing. He also emphasized the need of training opportunities for library professionals to acquire the skill of marketing. Dr P K Ray, Director, Bose Institute, Calcutta and President, IASLIC urged in his presidential address development of information products according to the needs of the users. Dr Ray also distributed certificates. The session ended with a vote of thanks by Mr J N Satpathi, Secretary, IASLIC.

IIM-IDRC

The second workshop on the subject was jointly organized by Indian Institute of Management, Ahmedabad, and International Development Research Centre, Ottawa, from February 14 to 17, 1994, at IIMA.

Several projects supported by IDRC have a component of marketing of information products and services, but only a few deal with the issue of marketing systematically. It was, therefore, felt necessary to provide guidance to information personnel for developing marketing and promotion strategies.

In this context, IDRC decided to bring together project leaders of IDRC supported projects which have a component

of marketing, to: 1) Identify the key issues of marketing strategies 2) Identify the problems faced by projects in dealing with these issues 3) Identify solutions or potential solutions 4) Produce a manual or guideline for the information staff. In addition to the leaders of IDRC supported projects, institutions in India which have done significant work in this area were invited.

The presentations could be grouped in the following categories:

- a) Principles and practical steps in marketing of information products and services
- b) Case histories
- c) Network technology for information services

Opening the discussion on the subject, Dr. Arthur H Vespy, IDRC Consultant highlighted the need for understanding of marketing and its significance and relevance for information products and services. Mr. Chin Saik Yoon, IDRC Consultant, and a publisher, spoke about development of marketing strategies from a practitioner's perspective. He discussed the studies on project planning undertaken by him with the support of the IDRC. Dr. A Lahiri, Joint Adviser, NISSAT, New Delhi, emphasized the need for libraries to adopt the marketing approach. A case of industrial information and information for industries was presented by Mr. Dominique Beaulieu, CRIQ, Quebec, Canada. His presentation focussed on marketing strategies adopted by CRIQ and CARIRI and the measurement of impact. Mr. Paul McConnel, IDRC, Canada, spoke about the impact of information services on different stakeholders.

The case of Development Information Network for South Asia was presented by Dr. N.K. Gopalakrishnan of MARGA Institute, Colombo. A private entrepreneur's experience in information repackaging was presented by Mr. Ashok Vijayavergiya, INFUSE Inc., New Delhi. Mr. L.J. Haravu, Manager TI, ICRISAI, Hyderabad, discussed the overall marketing approach adopted by the Library and Documentation Scientists Division at ICRISAT. Ms. Mona Whyte, Project Coordinator, CEIS, Jamaica, reviewed various forms of need assessments undertaken at the Caribbean Energy Information System and how the assessments have been translated into the marketing of information products.

Prof. T.P. Rama Rao described the results of research study on "Utilization of Management Information in India" conducted at the IIMA and the planning of research on product design and test marketing.

Prof. T. Viswanathan, Director, INSDOC, New Delhi, explained the service entitled CAPS (Contents, Abstracts, and

Photocopy Service) and the innovations introduced at INSDOC for generating resources.

Supply of information and exchange of information through networks was discussed by Dr. Ramakrishnan, Department of Electronics. He spoke about the services that are available on educational research network (ERNET).

The participants discussed a design for guide/manual on marketing for information personnel and came up with a tentative checklist of topics to be included in it. IIMA was offered the assignment of preparing the guide/manual.

Environmental Information System (ENVIS)

The ENVIS Network with the Focal Point in the Ministry of Environment and Forests and 17 Subject Specific ENVIS centres located in different parts of the country continued its activities in information collection, storage, retrieval and dissemination. The focal point and their ENVIS centres continued to pay special attention to developing the information base by creating the relevant databases in their concerned subject areas. The highlights of the activities of the ENVIS Focal Point and its various centres during the year 1993-94 are given below:

Focal Point

- The focal point of ENVIS located in the Ministry continued to strengthen its information base through the acquisition of relevant publications, reports, bibliographies, journals, monographs, state-of-art reports etc. on various aspects of environment. The information base was also enriched by the documentation support provided by the Network Partners in the subject areas allotted to them.
- The Library of the Ministry which functions under ENVIS, acts as a potential documentary repository of information in the field of environment, forest, wildlife and other related areas. During the year, the Library enriched its collection through the procurement of substantive information resources in the relevant fields. Presently, it has a collection of over 19,000 books, scientific and technical reports, and receives over 200 national/international scientific journals. The Library thus provides back up support to the ENVIS in providing exhaustive information to its clients. Personalised information/reference service is also provided to the users/scholars visiting the Library.
- As the National Focal Point (NFP) and Regional Service Centre (RSC) of the UNEP's INFOTERRA, ENVIS responded to several queries from the users of INFOTERRA from different countries especially from countries of the South-Asian Sub-Region.
- The Focal Point continued its publication of the quarterly abstracting journal 'Paryavaran Abstracts' containing information about environmental research in the Indian context. About 600 environment related journals are referred to in the compilation of the various abstracts for inclusion in the publication and these abstracts are arranged under 12 major categories.
- The Focal Point continued its activities relating to setting up of new ENVIS Centres on subject areas not covered so far in order to make the ENVIS network comprehensive. A few such subject areas and potential institutes for setting up ENVIS Centres have been identified during the year and other details are being worked out.
- With a view to enhancing the scope of ENVIS by accessing the information available at various scientific and research institution, CSIR laboratories, educational and other academic institutions of the country and abroad, and to link up all the ENVIS Centres with the focal point and with each other, a computer network interconnecting all these institutions is being developed.
- ENVIS also continued its close liaison with various other National Information Systems like National Information System for Science and Technology (NISSAT), Bio-Technological Information System (BTIS), National Oceanographic Information System (NOIS) for exchange of environmental information and to avoid duplication of efforts in the concerned fields.
- ENVIS has also been designated as the focal point for the global Sustainable Development Network (SDN) Project of UNDP, in India.. A task force of local as well as UNDP experts and the Ministry's official etc. has since been constituted by the Ministry to prepare a feasibility report for establishing SDN in India.
- Information on more than 250 Indian sources engaged in the environmental activities was updated by ENVIS for inclusion in the International INFOTERRA Directory of environmental sources published by UNEP.

Activities of ENVIS Centres—All the ENVIS Centres continued their activities in information collection, collation, retrieval, storage and dissemination in the subject areas allotted to them during the year. Apart from strengthening the information base and responding to various national and international queries in their respective subject areas, the ENVIS Centres undertook various activities aimed at providing information to a wide range of users. Highlights of the activities of some of the ENVIS Centres are given below:

- The ENVIS Centre at Development Alternatives has been instrumental in collecting and disseminating information related to Environmentally Sound Appropriate Technology and Environmental Management and continued to offer several information services such as reference, referral, reprographic query/response, literature search, current awareness, press clipping, scientific and technical data search etc. to a wide range of users. It continued to publish the Development alternatives Newsletter.
- A computerised database on the books, reports, monographs and thesis available in the field of 'Bio-degradation of Wastes' and 'Environmental Impact Assessment' has been created by the ENVIS Centre at Anna University, Madras and is updated regularly. It includes a listing of over 3400 papers under the two subject areas mentioned above.
- The Centre continued to publish the ENVIS Newsletters, a listing of current literature, journal abstracts and thesis abstracts in the two subject areas allotted to it.

The ENVIS Centre at the G.B. Pant Institute for Himalayan Ecology and Development, which has started functioning from 1993-94, is in the process of setting up an information archival and retrieval system employing optical disc based storage. During the year, the Centre brought out 2 issues of an ENVIS Bulletin on Himalayan Ecology and Development. The Centre is also in the process of building up a database of work completed by the scientists of the Institute and 600 maps, continued to cater to the information requirements of a large number of students, research workers, teachers etc. during the year. The centre has also acquired a computer exclusively for the use of the ENVIS Centre.

- Besides publishing the ENVIS Newsletter, the ENVIS Centre at the Centre of Advanced Study in Marine Biology, Annamalai University, published a monograph on "Marine Animals for Culture" during the year. The Centre has collected about 10,000

titles of information on estuaries, mangroves, coral reefs and lagoons and is also preparing a faunal list of various groups of marine and estuarine animals. This centre also participated in an exhibition on "Shrimp Farming" at Madras which highlighted the environmental aspects of Coastal Aquaculture.

The ENVIS Centre at the Central Pollution Control Board (CPCB) continued to publish its *ENVIS Newsletter*, the CPCB Newsletter and the CPCB Annual Report. Besides participating in exhibitions, the Centre also extended help to Schools and NGOs in organising lectures, audio visual programmes, exhibitions etc. during the year.

- Since inception, the ENVIS Centre at CEE, Ahmedabad, has been collecting Environmental Education (EE) material from around the world and the same has been computerised. Nodes of the EE bank are proposed to be set up in various places of the country to make them accessible to a large number of users.
- The ENVIS Centre on Environmental Problems in Mining set up at the Centre for Mining Environment brought out its *first newsletter* on the subject and circulated it to various organisations, institutions and individuals throughout the country.

SENDOC Course on Abstracting and Indexing

An intensive short term training programme on abstracting & Indexing is being organised by the Small Enterprises National Documentation Centre (SENDOC) located at NISIET in Hyderabad, from July 18-29, 1994.

Objectives

- The Course covers information processing, retrieval and dissemination techniques such as Abstracting & Indexing, thesaurus, current awareness services etc.
- Provides hands-on experience in creating databases using latest information retrieval software packages.
- Prepares participants for effective use of existing information technologies to enable them to provide speedy access to information.

Participants should be graduates/post-graduates working in information centres and libraries.

The Course fee is Rs. 6000 per participant. For further information contact Ms K. Subhashini Programme Director (A & I), National Institute of Small Industry Extension Training, Yousufguda, Hyderabad 500 045.

NISSAT-UPLA-IASLIC Training Course on CDS/ISIS

The U.P. Library Association organised a two week Training Course on CDS/ISIS during November 30 to December 10, 1993 at the Indian Institute of Management, Lucknow. The training course was co-sponsored by the Indian Institute of Management, Lucknow, Indian Association of Special Libraries & Information Centres, Calcutta and National Botanical Research Institute, Lucknow and was financially supported by the NISSAT/DSIR, Govt. of India.

The course was inaugurated by Prof. J.L. Batra, Director, IIM, Lucknow and the resource persons included Mr. S.N. Sur, ex-Scientist, INSDOC, New Delhi, Prof. Sushil Kumar of Computer Centre, IIM, Lucknow, Mr. Roshan Raina, Librarian, IIM Lucknow, Mr. Deepak Wahal, Scientist, and Sri Yogendra Misra of NBRI, Lucknow.

The feedback results indicated that the Course was very well received and all the participants said they have really picked up sufficient knowledge and they will start using the package after their return to their respective institutions.

In the concluding session on 10 December 1993 certificates were distributed to the participants by Prof. J.L. Batra, Director, IIM, Lucknow. Prof. Batra suggested that regular feedback be obtained from the participants about the actual utilisation of the training received by the participants.

Shri S.N. Agarwal, General Secretary of the U.P. Library Association while acknowledging the support extended by the above institutions, assured that the Course will be repeated after some time keeping in view the suggestions given by the participants and also mentioned that "CDS/ISIS user's meet will also be arranged at the state level.

Dr. S.R. Ranganathan Birth Centenary Travel Fellowship

The Dr. S.R. Ranganathan Birth Centenary Celebration Committee Bombay has recently concluded it's year long activities wherein as many as 16 programmes were arranged.

After meeting all expenses required for the above programmes the Committee is left with a small surplus. In the final meeting of the Celebration Committee held on 29 April 94 at Asiatic Society it was decided to donate this amount to the Organising Committee of the XVI National IASLIC Seminar to be held in December 1994 at IIT Bombay with a view to utilizing it as "Dr. S.R. Ranganathan Birth Centenary Travel Fellowship" to be given to retired as well as young librarians and the students of Library Science as travel grant to attend the seminar.

The fellowship includes second class railway fare (to and

fro) by the shortest way from any place to Bombay for attending the Seminar plus some allowance.

Retired librarians, young librarians and library science students contributing papers in the seminar, who are not getting any financial assistance from anywhere and wish to attend the seminar are entitled to get this travel grant. The fellowship would be granted on first come first served basis. Other seminar expenses have to be born by the recipient of the travel fellowship.

Interested persons may apply to the General Secretary on the following address: Dr. S.R. Ganpule, Gen. Secretary, Local Organising Committee, XVI National IASLIC Seminar, C/o Central Library, I.I.T., Powai,, Bombay 400 076.

Applications received by 31st August 1994 would be considered. The recipient will be informed by 15 September 1994. Working librarians, professionals and the students have to forward their applications duly certified by their Principals/ Heads of departments respectively.

Electronic Dewey System on CD-ROM

This database contains Dewey Decimal Classification 20th edition (DDC 20) Schedules, tables, index and manual as well as the updates and corrections from the first three numbers of DC with frequently used LC subject headings associated with a class number and a sample cataloguing record for most frequently occurring subject headings on one CD-ROM. The purchase price of Electronic Dewey is US \$ 400 plus US \$ 50 for shipping and handling.

Petroleum Abstracts Available on CD-ROM

DIALOG has announced the addition of Petroleum Abstracts, a key resource for information on all aspects of the petroleum industry to its range of CD-ROM databases.

Dialog OnDisc Petroleum Abstracts, produced by the University of Tulsa, is a complete research tool for information on petroleum exploration, production, and development, plus related environmental, health, safety, and transportation subjects. The database provides comprehensive coverage of the world's significant literature from papers, books, journal articles, government reports, conference proceedings, and patent filings.

Petroleum Abstracts is a valuable resource for technical professionals and managers in the petroleum industry, including geologists, geophysicists and petroleum engineers. Dialog OnDisc Petroleum Abstracts also has applications in universities, government agencies, and research facilities. Contact Navneeth, Dialog OnDisc Division, for further details.

Ideal CD-ROM Workstation

The following is the ideal configuration for a PC based CD-ROM Workstation.

A. MICROCOMPUTER-PC486/SX or/DX with IBM Compatible PC

Memory : 4 MB RAM
Hard Disk : 300 MB HDD
Monitor : SVGA Colour Monitor
Speed : 33 MHz clock speed
Floppy Drive : 1.2 & 1.44 FDD

B. CD-ROM DRIVE

ISO 9660 OR 680 MB Compatible DOUBLE SPEED CD-ROM DRIVE.

For better performance, look for a CD-ROM Drive with an average access time of 300 milliseconds or less and buffer memory of 256KB and data-transfer rate of 300 KB/Sec or higher with SCSI Interface.

B1. INTERFACE CARD

— Adaptec 1542B 16-bit SCSI Interface

C. OPERATING SYSTEM

— MSDOS/PC DOS Version 5.0 or higher
— Microsoft Windows Version 3.1 or higher

D. PRINTER

— 132 Column, 24 pin, 240/300 CPS Dot Matrix Printer
— Hewlett Packard Laser Printer with 'J' Laser Card

E. Others

— 16 Bit MPC Sound Card and Speakers
— Microsoft Mouse

European Space Agency—Information Retrieval Service (ESA-IRS)

The European Space Agency (ESA) runs an online information retrieval service with more than 200 databanks or files in a broad range of subjects and a powerful search facility.

The databases encompass a wide variety of technology

areas like aerospace, agriculture, aquatic sciences, biotechnology, telecommunications, electrical and electronics engineering, environmental sciences, materials and packaging. Global databases such as CHEMABS, INSPEC, PASCAL, COMPENDEX, METADEX, etc. and also trade, business and finance related databases e.g. FT PROFILE, PREDICASTS' PROMPT, MINTEL Market Research Reports etc. can be accessed online from ESA-IRS.

The search process is extremely user-friendly with simple syntax and commands. The tariffs for using ESA-IRS databases are highly competitive. Most significantly, ESA-IRS does not generally charge for connect-time. This facilitates a not-so-experienced user in carrying out a long search without stress; the user is charged only when he/she decides to display or download the search results. Online connectivity can be established by dialup to VSNL PAD or I-Net.

TIFAC has now established the National Point of Contact (NPOC) and CMC Ltd. is functioning as the Executing agency for ESA-IRS in India. The formal agreement for NPOC was signed by the three component organisations in August, 1993. After the initial formalities and documentation needs, marketing drive has already yielded encouraging results and twenty users have signed the contract for online access from their premises.

For queries on ESA-IRS databases, their information contents, modalities of online access, charging pattern, assignment of password for online searches etc., please get in touch with: Executive Director, TIFAC, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi 110 016, India.

The International Society of Scientometrics and Informetrics

The International Society of Scientometrics and Informetrics has sponsored the Fifth International Conference on Scientometrics and Informetrics to be held at Rosary College, River Frost, Illinois 60305, U.S.A (Suburban Chicago) during June 7-10, 1995.

This is the fifth in a series of increasingly successful biennial conferences. The previous conferences were held at Limburgs Universitair Centrum, Diepenbeek, Belgium, at the University of Western Ontario, Canada; at the Indian Statistical Institute, Bangalore, India; and at the Association for Science Studies, Berlin, Germany.

Scope — The scope can be broadly defined as those topics which treat in quantitative fashion the creation, flow, dissemination, and use of scholarly or substantive information.

Representative, but by no means inclusive, topics are: informetric "laws" and distributions; mathematical models of communication; citation analyses; theory of document, text, and information retrieval; information and productivity; the quantitative sociology and psychology of science and of other substantive information based activities; application of informetrics—file design, data compression, etc., informetric applications to policy analysis, R & D management, etc.

Please direct intentions to submit a paper or requests for further information to the conference organizer:

Michael Koenig, Dean, Graduate School of Library and Information Science, Rosary College, River Forest, Illinois 60305, USA.

Timeline:

Title and Substantive abstract: 31 July 1994
Complete Paper: 25 Nov. 1994

Note: The Abstracts and two copies of the papers may be directly sent to:

Dr. I. K. Ravichandra Rao, Chairman, Committee for Australasia Region, Informetrics-95 (ISIS' 95) and Documentation Research and Training Centre, Indian Statistical Institute, 8th Mile, Mysore Road, R.V. College Post, Bangalore 560 059.

MALA 1993-94

The Madras Library Association organized a number of interesting programmes in the field of library and information science during the year 1993-94, maintaining a high profile in its professional activities. The programmes included lectures by well-known professionals, participation in the WORLDNET Dialogue on the change and challenge in library science education and release of *Hindu Index*, the first computerised printed index in India. In carrying out these activities MALA closely collaborated with a number of organizations such as INSDOC, ISIS, British Council Division, the Communication Division of UNESCO etc. Noteworthy among the programmes was a panel discussion on MARC and Networking organized in collaboration with the USIS (Dr Rosalind Miller, Professor of Library Media Education at the Georgia State University, Atlanta, USA). The Madras Panelists were Dr. K. S. Raghavan, Dr. S. Amba and Ms T. Jaisree.

38 A half-a-day seminar on Necessity of Information Technology Standards—implementation, maintenance and coordination was organized by USIS, Madras in collaboration with MALA.

In fact the MALA calendar during the year was pretty full

with about 20 events billed during the year. The MALA Newsletter which reflected the Association's activities provided an effective link with the membership.

The opportunities for greater interaction with information professionals from other parts of the world, which the international conferences recently held in India provided, also stressed the need for a centre to keep pace with the rapid growth of information technology to create better awareness of these, co-ordinate the use of information resources and channelise expertise where necessary. The Ranganathan Centre for Information Studies was therefore set up in July 1993 to fulfill this need. The first annual lecture by the centre on 20 July 1994. The topic: Harnessing information for Human Settlements Development. The speaker: Dr A. Ramachandran, former Executive Director, UN Centre for Human Settlements (Habitat).

Ranganathan Research Circle

The monthly meetings of Ranganathan Research Circle (RRC) will be held on second Saturday of every month, at Gandhi Peace Foundation Library, 221-223, Dindyalal Upadhyay Marg, I.T.O. New Delhi 110 002, from 10.00 a.m to 1.00 p.m. According to Mr. R.C. Gaur, Convenor, from July 1994 RRC will meet regularly at the above premises.

For further details contact:

Mr. R.C. Gaur (Telephone 4617403)

Chemical Abstracts Services

CAS is organizing present workshops in India designed to provide librarians and scientists with the know-how for searching online databases produced by CAS, using STN International.

Course: Introduction to Online Searching for Chemists (Scientists)

Format: One-day lecture with practice or demonstration

Location: Bombay (weeks of July 18 and 25)
Ahmedabad (week of August 8)
Hyderabad (week of August 8)

Time: 10.00 am to 5.00 pm

Fee: Rs.1000 (includes workshop materials and lunch)

To register: Dr. S. Krishan or V. Deodhar, NICHEM National Chemical Laboratory, Pune 411 008 (India).

Public Library Development in U.P. — Problems and Prospects

A State level seminar on "Public Library Development in U.P. — Problems & Prospects" was organised by the U.P. Library Association during June 11-12, 1994 at the National Botanical Research Institute, Lucknow. The seminar was inaugurated by Sri Shardanand Anchal, State Minister of Higher Secondary and Basic Education, Prof. P.N. Kaula presented the keynote address.

While inaugurating the seminar, the Minister assured that he will do his best to remove the problems of Libraries and Librarians as the libraries are social institutions which provide reading and learning facilities and should be allowed to flourish. He also mentioned that he was not aware of the demand for enactment of library legislation in the State but assured the librarians that he will look into important issue also.

Shri Hirdaya Narain, M.L.A. while presiding over the inaugural function expressed concern as to how this important social legislation has not been enacted so far. He assured the audience that he will see that this important legislation was soon brought to the statue book of U.P.

Prof. P.N. Kaula in his keynote address traced the history of the efforts made in U.P. for the enactment of library legislation and strongly appealed to the Minister and the ruling party M.L.A, to get the library law passed soon. Prof. Kaula also informed the Minister that already ten States in the Country had passed this law and the Goa was the tenth State to have Public Library Law recently.

About 100 delegates mostly drawn from district libraries participated in the seminar. Fifteen papers including theme paper were presented.

Shri Ashok Bajpai former Education Minister and a Samajwadi Party M.L.A. was the Chief Guest in the Valedictory Session of the seminar. Shri Bajpai said that libraries are very important social institutions of learning and Govt. should extend all support to open libraries and information Centres in smallest rural areas of the State to spread literacy and provide reading facilities to rural masses. He assured the UP Library Association that he will influence the U.P. Govt. and the Chief Minister to pass the Public Library Law in the State soon.

The Seminar made 12 recommendations regarding creation of a Directorate of Public Libraries to replace the existing Library Cell, Upgrading of District Libraries, Scales of pay, staffing etc.

Sri S.N. Agarwal, General Secretary of the U.P. Library Association and President of the Lucknow Branch was also felicitated for having been adjudged "Librarian of the year 1992" by IASLIC, for his contributions in the field of library services. On this occasion the Association presented to him a memento, and a 'Maan Patra' listing his contributions in the field of library services.

Refresher Course in Library and Information Science: 1994-95

The University Grants Commission has again selected Aligarh Muslim University to conduct Subject-Oriented Refresher Courses which will be organised by the Department of Library & Information Science under the auspices of Academic Staff College during the session 1994-95. The courses as detailed below will be conducted.

Course I: 12.09.94 to 08.10.94 Information Technology and Management

Course II: 02.01.95 to 31.01.95 Academic libraries Management and Operations

The closing date for Course I is 15.07.1994 and for Course II 15.11.94.

Lectures in Library Science and the Librarians/Asstt. Librarians, etc. in the pay-scale of Rs. 2200-4000 working in University and College Libraries with a minimum of 5 years experience are eligible to participate in the Refresher Course. 85-90% of the seats are reserved for the catchment area and 10-15% of the seats will be filled in on all India basis.

The Application form obtainable either from the Director, ASC Or the Chairman, Department of Library & Information Science, may be sent duly completed to the Director, Academic Staff College, Aligarh Muslim University, Aligarh 202 002 by the closing date of the concerned course."

Medical Informatics: Special Interest Group Set up by CSI

The Computer Society of India has decided to set up a Special Interest Group for Medical Informatics. This Special Interest Group (SIG) would be a part of the existing Division III of the Society which deals with Scientific Applications.

The Special Interest Group on Medical Informatics would initially be responsible for the following functions:

- a) Identification of members who are interested in the activities of this SIG.

- b) Publication of papers in the CSI Journal pertaining to new advances connected with the subject of Medical Informatics.
- c) Organisation of a Workshop Conference, as and when necessary, to discuss various issues connected with the subject of Medical Informatics.

Dr. A Indrayan, Professor of Biostatistics, University College of Medical Sciences, Dilshad Garden, Delhi has been appointed as Convenor of the Group on Medical Informatics (SIGMI).

Dr. Indrayan invites all those interested in any aspect of medical informatics health information system, hospital information system, databases on medical measurements and health indicators, literature bases, biostatistical computation, expert systems networking for consultation, computerized equipments etc—and willing to contribute to the activities of the Group to join the Group.

For this purpose they are requested to write a brief on their past and current medical informatics activities and future plans and mail to the Convenor SIGMI (Dr. A. Indrayan), University College of Medical Sciences, Dilshad Garden, Delhi 110 095.

IATLIS National Seminar

The 11th National Seminar and Convention of the Indian Association of Teachers in Library and Information Science will be held at the College of Library and Information Science, Sanjaya Memorial Institute of Technology Ankushpur, Orissa during 3-6 June 1994. The theme of the Seminar is *Research in Library and Information Science in India*. Professor P.S. Panda, Principal of the College is the local Organizing Secretary.

IASLIC Seminar 1994

The Indian Institute of Technology (IIT) Bombay, will be hosting the XVI National Seminar of Indian Association of Special Libraries and Information Centres (IASLIC) to be held during 19-22 December 1994.

The topic of this year's seminar is "Networking of Libraries: Problems and Prospects". Several supporting activities are also planned along with the main seminar. These include: Exhibition of Library Software, Computer Products and related Hardware, CD-ROM products, Xerox and Fax machines, Poster session by Research students of IIT, Guest lectures, and Panel discussion on the experiences of existing networks, Publication of Souvenir.

For further details contact Dr. S.R. Ganpule, General Secretary, of the local organising committee at the following address.

Central Library
Indian Institute of Technology
Powai, Bombay 400 076.

Honda Informatics Centre

This Centre at MS Swaminathan Research Foundation, in Taramani, Madras is an electronic library complementing the conventional library of over 4000 holdings, covering reference material ranging from books and journals to 35 mm transparencies. The electronic library has a collection of CDs published by the Commonwealth Agricultural Bureau International (CABI) U.K. which are the most well known and widely used CDs containing over 3 million records covering all fields relating to agriculture, plant and animal sciences. The centre also provides access to the DIALOG database, SIRNET, ERNET and MCI. An unique information service developed by the centre is the Mangrove Ecosystem Information Service (MEIS) designed to serve researchers, experts and policy makers concerned with the conservation and sustainable utilisation of Mangrove forests.

International Legumes Database and Information Service—NBRI Workshop

A seven-day work shop on design and establishment of a computerized database of legumes of South Asia under the aegis of International Legumes Database and Information Service (ILDIS) was organized at National Botanical Research Institute, Lucknow during 7-13 March 1994.

Sponsored by CSIR, Commonwealth Science Council (CSC) (UK), UNESCO Botany 2000 Asia, British Council, DBT, and DST, the workshop was attended by delegates from South Asian countries, viz. Pakistan, Sri Lanka, Nepal, Bangladesh together with scientists from various parts of India.

Dr P.V. Sane while emphasizing the information of the workshop said that it would help in procuring and storing the fragmentary technical botanical information covering all wild and cultivated plant resources in the plant family *Leguminosae*, and making available data through computer network on plants useful to researchers, pharmaceuticals, industry, etc. As a Regional Centre, NBRI is providing access to similar data from China, Europe, Africa, North and South America and erstwhile Soviet Union.

Professor H.Y. Mohan Ram, Department of Botany,

University of Delhi, was the Chief Guest at the meeting. He emphasized the importance of legumes as a potential source of human survival, and supported the database development on south Asian Legumes. Dr F.A. Bisby, ILDIS Coordinator, University of Southampton, UK, delivered an elaborate lecture on the Global Species Diversity Information System for Legumes.

The participants were given training on the methods and parameters of data collection, and procedures for co-ordination of data exchange. A detailed demonstration of ALICE software, which is used to generate world ILDIS database, was arranged with a view to explaining the mechanism of database organization, and individual's responsibilities/ contributions to the development of regional database. ILDIS world database was loaded on the computer at NBRI, for the use of scientists of South Asia. Specialists from Pakistan, Bangladesh, Nepal and Sri Lanka worked with Indian (NBRI) specialists to create a computerized database that catalogues all legumes in the region.

The availability of this database has helped in bringing out a separate data file on legume species for South Asian region, popularly called a 'South Asian Slice'. The meeting led to achieving an agreed and effective work plan for implementation of a regional project to develop a database on leguminous plants which include 18,000 plant species and form 1/12th of all vascular plant species diversity on this planet.

The workshop also helped in finalization of the format of the score sheet for exchange of data edits, and an agreement among the ILDIS co-ordinators on the introduction of two common names (one each in Hindi and English) for each legume species of the region in the world database. The codes for differentiating the common names in as many as 40 regional languages were finalized. It also helped in loading of the world database on about 16,000 species of world legumes and beginning of an online enquiry service at international level, from NBRI.

A preliminary South Asian legumes' database was generated with world database as baseline information, which would be expanded in future. Country-wise checklists of Nepal, Bangladesh, Sri Lanka, Pakistan and India were distributed to the participants.

The training imparted on the methods of survey, collection and documentation of legume species during the workshop would help in the study of population dynamics and conservation status of endangered legumes.

DRTC Annual Seminar 1994 Teaching and Research in Classification and Indexing Languages

The Documentation Research and Training Centre, Indian Statistical Institute, Bangalore, is organizing its Annual Seminar for 1994 during 9th to 11th August 1994, at the Indian Statistical Institute, 8th Mile, Mysore Road, Bangalore.

The DRTC invites the participants to present papers and participate in the discussion on this topic as delineated in the issues.

The papers written in English should not exceed 6000 words. They should present new approaches to teaching and research in classification and indexing languages. Last date for registration is Aug. 1, 1994.

Theses on Computer Diskette: M K U's Bibliography

Dr. T.P.M Library, M.K. University has compiled all the Ph.D. Theses of the University in the form of a bibliography in Computer diskette. It is now released for sale. It works on Microsoft Disk Operating System and it is available both in the conventional 5.25" Floppy Diskette and in mini diskette of 3.5" size. For further information contact the Librarian, Madurai Kamaraj University, Madurai 625 021.

IFLA Scholarships for AIT Course

Scholarships are available under the IFLA/ALP (Advancement of Librarianship in the Third World) Programme for citizens in Asia and Oceania to participate in the New Information Technologies and Computerized Library Services course at AIT (Asian Institute of Technology, in Bangkok). Candidates should have worked for at least three years in a library or information centre, have at least an undergraduate degree, be computer literate, be able to understand English, and be under 45 years old.

Contact: Ms. Pensri Guaysuwan, Regional Manager, IFLA Regional Office for Asia and Oceania, c/o Thammasat University Libraries, Thanon 16th August, Bangkok 10200, Thailand. Tel: +66-2-222 9639. Fax: +66-2-224 8108.

The ALP Programme also provide four-week training attachments.

Contact: Ms. A.K. Anand, IFLA/ALP Attachments Programme Coordinator, Chief Librarian, The Tribune, Sector 29, Chandigarh 160 020.

Cunningham Memorial International Fellowship

Fellowships for foreign health science librarians to work in US or Canadian libraries for four months are being offered by the Medical Library Association in the US. The annual Cunningham Memorial International fellowship includes a stipend of USD 3,000 for living expenses and USD 1,000 for approved travel within the US and Canada. Applicants must have a Master's degree or its equivalent and be working in a medical library in their country of origin.

Contact: The Professional Development Dept. Medical Library Association, Suite 300, 6 North Michigan Avenue, Chicago IL 60602-4805, USA. Ref. No. 136.

Commonwealth Awards

The Association of Commonwealth Universities administers a number of awards which are open to academic staff, librarians and others for academic study and training in various fields. They include: Commonwealth Scholarships and Commonwealth Academic Staff Scholarships; Development Fellowships (incorporating the Travelling Fellowships programme); the ODA (Overseas Development Administration) Shared Scholarships Scheme; Third World Academic Exchange Fellowships; and the Times Higher Education Supplement Third World Fellowship.

Contact: Deputy Secretary General, Association of Commonwealth Universities, John Foster House, 36 Gordon Square, London WC1 0PF, U.K.

Workshop on Bibliographic Communication Formats

The Bombay Science Librarians' Association (BOSLA) organised a one day Workshop on Bibliographic Communication Formats in Collaboration with Haffkine Institute, Bombay, on 9 March 1994 at Haffkine Institute of Training, Research and Testing, Bombay. The objective of the workshop was to acquaint librarians with the bibliographic communication formats for database creation. As many as 32 librarians, library professionals and library software manufacturers from Bombay and Pune attended the workshop.

The Workshop was formally inaugurated by Dr. V.L. Yemul, Director of Haffkine Institute. He stressed the need for close interface between the users of information and the librarians.

The workshop was conducted by Ms Harsha Parekh, Head, SHPT School of Library Science, SNDT Women's University. The participants were acquainted with details of MARC and CCF formats. A comparative analysis was presented along with one worked example. In the later half they were trained in preparing worksheets in both the formats followed by detailed discussions.

The workshop concluded with a valedictory function which was chaired by Dr. Yemul. Dr. S.R. Ganpule gave a valedictory address and Shri D.N. Phadke proposed a vote of thanks.

Punjab Library Association

The General Body Meeting of Punjab Library Association elected the following office-bearers at their meeting held in the Senate Hall of Punjabi University for the period June 1994 to December 1995: *President*, Shri S.P. Narang; *General Secretary* Dr Jagtar Singh; *Treasurer*, Shri N.C. Vama.

TIFAC-CSIO Directory of Scientific Instruments & Components — New Edition Released

The Directory earlier brought out by CSIO in 1985 has been updated and is being released for sale. The contents of the new Directory are:

An overview of the instrument industry in India.

A classified list of instruments and components with SITC and CCCN numbers.

Detailed information about instrument and component manufacturers with alphabetical index of manufacturing firms, Chief Executives, Agents, etc.

The Directory is priced at Rs. 200/- only within India and is available against advance payment through DD/MO payable to Director CSIO, Sector 30, Chandigarh 160020.

With the development of IT, many prophets of doom proclaim that libraries are no longer needed. But well-equipped libraries with trained and information personnel will continue to be ideal centres for ensuring for the population at large, access to different forms and range of information they need.

Calender of Events for the F.Y.1994 - 1995 (as on July, 94)

**Regional Computer Centre
Jadavpur University Campus
Calcutta-700032**

**Attn : Dr. Purnendu Das
Phone : 033-4733549, 4725682, 4731081**

* IDAMS Calcutta 07-11-94 to 19-11-94
* - do - - do - Feb/Mar, 95

**CALIBNET
Regional Computer Centre Building
Jadavpur University
Calcutta - 700032**

**Attn : The Course Coordinator
Phone : 033-4735064
Fax : 033-4720905**

* Library Automation : Micro-computer for Library Information System CALIBNET, Calcutta 14-11-94 to 25-11-94
* Advanced Application of Micro CDS/ISIS - do - 12-12-94 to 23-12-94
* Bibliographic databases, CD-ROM & Online Services + CD-ROM - do - 13-02-95 to 24-02-95
Databases : Technology, Products & Usage
* UNIX in Information Processing - do - 06-03-95 to 17-03-95

**DRTC
Indian Statistical Institute
8th Mile, Mysore Road, RV College PO
Bangalore-560059**

**Attn : Prof. MA Gopinath
Phone : 080-604648, 604485**

* Computer Application in Library & Information Science DRTC, Bangalore 07-11-94 to 23-12-94
* - do - - do - Jan/Feb, 95

**Academy of Information Science
C/o CFTRI Library
Mysore - 570013**

Attn : Mr. SV Sangameswaran

* Visual Communication Technology Mysore 2 Weeks (Oct/Nov, 94)
* CDS/ISIS - do - 2 Weeks (Feb/Mar, 95)

**University of Mysore
Deptt of Studies in Lib & Info Science
Manasagangotri
Mysore - 570006**

**Attn : Dr. Shalini R Urs
Phone : 0821-22525**

* Bibliographic Database Production & Development Univ. of Mysore 11-07-94 to 23-07-94

**UP Library Association
Post Box No. 446
Lucknow-226001**

Attn ; Mr. SN Agarwal

* Marketing of Information Services & Products Nainital 07-11-94 to 18-11-94
* CDS/ISIS Application in Library Automation Lucknow 08-01-95 to 19-01-95

(contd.)

Pune University Attn : Dr. MB Konnur
C/o Jaykar Library Phone : 0212-336061
Deptt of Library & Information Science Fax : 0212-333899
Pune-411007

<i>Topic</i>	<i>Venue</i>	<i>Date</i>
* AACR - II & CCF	Pune Univ., Pune	29-08-94 to 03-09-94
* Computer Applications in Libraries & Information Centres	- do -	08-11-94 to 21-11-94
* Management techniques as applied to Libraries & Information Centres	- do -	09-01-94 to 14-01-94

IASLIC Attn : Mr. JN Satpathi
P-291, CIT Scheme No. 6M
Kankurgachi
Calcutta - 700054

* Computer Aided Library & Information System and Use of CDS/ISIS	Annamalai Univ.	2 Weeks (Oct, 94)
* - do -	TTTI, Calcutta	2 Weeks (Dec, 94)
* - do -	Vidyasagar Univ., Midnapore	2 Weeks (Feb, 95)
* UDC	Jadavpur Univ. Calcutta	2 Weeks (Sep, 94)
* AACR - II & CCF-ISBD	IASLIC, Calcutta	2 Weeks (Sep, 94)
* Computer Aided Library & Information System and Use of CDS/ISIS	IIAS, Shimla	2 Weeks (Mar, 95)

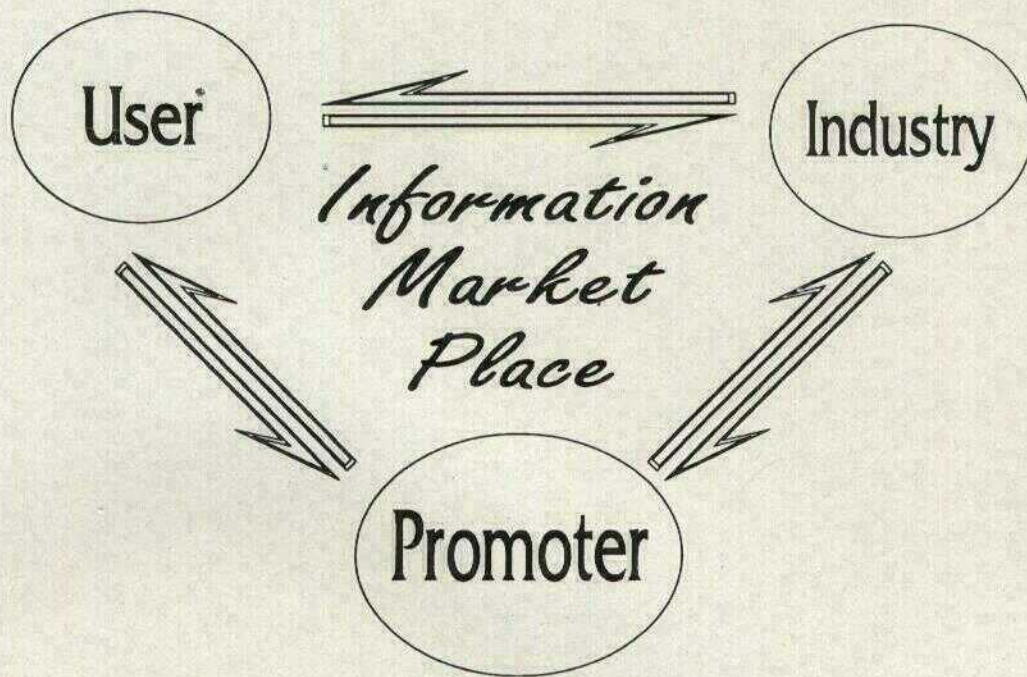
Bengal Library Association Attn : Mr. SN Ganguly
P-134, CIT Scheme 52
Calcutta-700014

* Application of Computers in Library Services		18-05-94 to 02-06-94
* - do -		14-06-94 to 29-06-94

Indian Library Association Attn : The General Secretary
A/40-41, Flat No. 20 Phone : 011-7117743 Res. 011-6493138
Ansal Building, Mukherjee Nagar
Delhi-110009

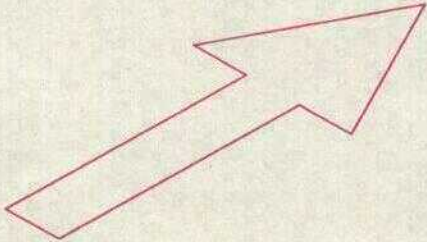
* Application of CDS/ISIS in Library & Information Activities	Patiala	28-03-94 to 12-04-94
* - do -	Gwalior	04-04-94 to 08-04-94
* - do -	Trichi	18-04-94 to 25-04-94
* - do -	Akola	26-04-94 to 30-04-94
* - do -	Anantpur	17-05-94 to 26-05-94
* - do -	Bhopal	10-05-94 to 14-05-94
* - do -	Rewa	06-06-94 to 10-06-94
* - do -	Orissa	05-06-94 to 09-06-94
* - do -	Guwahati	20-06-94 to 24-06-94
* - do -	Delhi	04-07-94 to 15-07-94

First Interaction Meet



Rescheduled

**For your convenience
During IT Asia '94
December 7-8, 1994**



*NISSAT / DSIR
Technology Bhawan
New Mehrauli Road
New Delhi - 110 016*

**Tel : +91-11-666078 667405
Fax : +91-11-664567, 661682
email : vkv@nissatd.ernet.in**