

# A Model for Scientific & Technical Information Consortium: Case Study of CSIR

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## 1. Introduction:

The Council of Scientific and Industrial Research (CSIR), is a Society registered under the Societies Registration Act XXI of 1860 having its office at Anusandhan Bhawan, Rafi Marg, New Delhi and is the one of the largest government funded R & D organization in India with a chain of 38 laboratories spread across the country (Appendix 1). CSIR has about 5,000 active researchers (3,000 of them are PhDs/MTechs) who are actively supported by 11,000 technical officers and 5,000 administrative and other supporting staff and has been responsible for pioneering research in all aspects of scientific & industrial research covering broadly Chemical, Physical, Biological, Information, Environmental and Engineering Sciences and Technologies. CSIR's research output in terms of publication compares well with the leading scientific institutions such as IISc, Bangalore, TIFR, Mumbai and IITs. Council's innovation and core competency in knowledge development is functionally access dependent to latest development in S & T by its scientists and technical officers.

Most of the laboratories have well established library or documentation centers. Apart from document sources like books, standards, technical reports, conference proceedings and patents, the scholarly journals are a major sources of R & D information. CSIR spends annually about Rs. 25.00 crores for journal subscription alone. Put together, all the 38 labs of CSIR subscribe to as many as 3,356 foreign research and scholarly journal titles annually at a cost of about Rs. 25 crores. As some of the laboratories are inter disciplinary in nature, some of the titles tend to be subscribed by more than one laboratory. However, the unique number of titles being subscribed by these laboratories is around 2500. These print editions collections create an annual depository of 5,000,000 plus printed articles spread across the labs in stand-alone manner. Most of the library and information centers of CSIR are well equipped with good IT infrastructure with network facility and high speed Internet connectivity.

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## **2. E-Journals and Consortia**

Despite its benefits to science and scholarship, the paper journal system has been subject to much criticism due to mainly spiraling costs, lack of selectivity, problems with the peer review process and long publication delays. The developments in computers and communication networks, especially World Wide Web have facilitated creation of alternative electronic forms of the conventional paper journal. The e-publishing has brought a revolution in journals publication, subscription, access and delivery mechanism. Print subscriptions still continue to dominate publishers' revenue. Some of the major e-journal databases are ScienceDirect, EBSCO databases, Kluwer online, Springer LINK, Wiley Interscience, IEEE Xplore, Institute of Physics, MCB Emerald Library, Cambridge Journals Online, OCLC's First Search Service, UMI's Proquest, JSTOR, Project Muse, Journals@ OVID, Gale, etc. Librarians are forced to work together due to economic realities and technological possibilities paving the way for forming subscription clubs for e-journals, not just clubs but strategic alliances with broad based objectives. Many of the electronic journals are being acquired through purchase or lease by consortia on behalf of a group of libraries. The consortia can be defined as a strategic alliance of institutions having common interest. The main aim of a consortium is to achieve what the members of the group cannot achieve individually. The developments in information retrieval system and faster access technologies have enabled the libraries to come together for licensing the information available in digital form. The library consortia, on the basis of sheer strength of numbers of institutions, offers healthy business growth opportunities to the electronic publishers and thus attracts the best possible price and terms of agreement in a win-win situation for both.

## **3. Indian Scenario:**

The major research and development organizations like CSIR, ISRO, DRDO, DAE, ICAR, ICMR, DBT etc spend annually a huge amount around Rs. 150 crores towards library acquisition. In spite of this, they are not in a position to maintain the subscription of core journals. Many libraries especially in developing countries like India are not geared up for accessing e Journals due to various reasons including user ignorance, infrastructure and funds. While there is an urgent need for changing the mindset of librarians, users and the administrators for subscribing to e-journals in India, a satisfying note that few forward looking libraries have made a modest beginning in forming consortia. Some initiatives include – Indian Institute of Management for accessing bibliographic databases, CSIR laboratories for ScienceDirect, FORSA for accessing Astronomy and Astrophysics journals, INFLIBNET initiative for providing access to universities for full text journals of ACS, RSC, IOP and bibliographic databases. Rajiv Gandhi University of Health Sciences for hundreds biomedical journals through

OVID and INDEST for a host of full text sources like ScienceDirect, Springer, Kluwer, ASME, IEL Online and few bibliographic databases like Web of Science, J-Gate, etc for the benefit of IIT's, IISc, IIMs and engineering colleges. Some of the pricing and payment constraints specific to Indian libraries include – inadequate funds, single point payment, rigid administrative policies, financial and auditing rules, problems of defining asset against payment and pay-per-view not yet acceptable. There is need to give access to important primary and secondary sources of major publishers licensing at national level for the benefit of academic and research & development institutions.

## **4. CSIR E-Journals Consortium**

### **4.1 Why CSIR Consortia:**

A number of underlying considerations, which prompted the need for setting up of the consortium. Important ones were as follows:

- The CSIR is a premier scientific agency having one of the largest information resources bases in the country. It must take a lead in evolving the first ever consortium of this size in the country.
- CSIR libraries cumulatively spend about Rs.25-30 crore per year on books and journals.
- Individual laboratories spend between Rs.20 -150 lakh per year on resource building.
- CSIR as a whole gets more than 2500 unique titles of foreign journals.

Even though the magnitude of CSIR budget was already considered quite high, libraries were finding it hard to sustain their resource building activity at, a pre-determined level, and even to add very few new titles. The changing scenario called for reengineering of library services which would entail:

- Consortium building and electronic licensing
- Use of IT as an enabling technology

### **4.2 Earlier Attempts**

The first ever consortia concept in the country was conceived at a meeting of Heads of CSIR Libraries & Information Centres held at NAL, Bangalore during 1993 itself . The purpose was to create exhaustive bibliographic databases covering major five disciplines of S & T using the rich journal resources of all

CSIR-LICs. NAL took the initiative during 1999 itself to form a Consortia 'CoMSAC' (Consortia for Materials Science and Aerospace Collections) for giving access to 14 bibliographical databases of Cambridge Scientific Abstracts (CSA) covering the subjects Aerospace and Material Sciences. This did not sustain for a long time as the consortia concept was new at that time and only 3 institutes paid their share of the total expenditure although 15 institutions agreed in writing to join the consortia.

#### **4.4 LICs Meet at RRL, Thiruvananthapuram**

In order to enhance the accessibility, use and resource base of the world S& T literature, the fifth meeting of Heads of Libraries and Information Centers (HOLIC) which met at RRL, Thiruvananthapuram during February 2001 debated on the theme on 'Sharing in a New Millennium'. About 40 participants from the 38 labs who attended this meeting strongly supported the idea of everyone pooling, sharing and accessing the CSIR resources. In the context of dwindling library budget and the rising journal prices which they felt was the need of the hour. Not only would it help in optimizing every rupee that CSIR spends on libraries and information centres, but would also benefit CSIR as a whole in enlarging its journal base. The participants also deliberated on the emerging trends in electronic publishing and recognized that not only were electronic journals fast becoming as the medium of scholarly communication but also provides ample opportunities for sharing institutional resources in the distributed information environment overcoming the traditional barriers of space and time. It was strongly felt that CSIR must harness this emerging paradigm. In this context the participants overwhelmingly advocated the proposal for evolving a suitable consortium as a framework for providing access to electronic resources and had recommended that a consortium of E Journals be set up. Subsequently, a report of the deliberations of this meeting was submitted to the CSIR for consideration.

At present, there is no set pricing model for consortium access. It differs from publisher to publisher. Based upon the deliberations at Thiruvananthapuram meet it was suggested that CSIR should opt for a pricing model which supports pricing for e-journals access as a proportion, not more than 10% of subscription to print journals.

Consortium programme of big publishers is capital intensive and requires commitment for a period of at least three years. Payment has to be made in advance and from a single source. Although the laboratories were going to be ultimate beneficiaries of the Consortium access, yet it was apprehended that making payment from a single laboratory may not be feasible. Resource mobilization from all the laboratories may not come through on time. Since the success of this multi-laboratory programme depends upon participation on a wider scale, it was felt to initiate the consortium with the support of CSIR headquarter.

Consequently, DG-CSIR set up a study group in April 2001 to collect and compile information on the journals presently subscribed to by the CSIR labs, including CSIR HQs and also to study the feasibility and economic viability of CSIR labs subscribing to identifying journals on-line on a consortium basis and devise a system for the management of the consortium. Recognising the importance of this opportunity and dire need to strengthen information base of labs., CSIR decided to set-up a consortium for electronic access to world S&T journals resource with the major e-publishers.

#### **4.5 Clearance of Proposal**

The Planning commission had constituted a Steering Committee on S & T for the formulation of the Tenth Five Year Plan (TFYP) under the chairmanship of Hon'able President of India Dr. A P J Abdul Kalam, the then Scientific Advisor to Defense Ministry. The Committee had constituted a Working group to formulate the TFYP of CSIR in January 2001. In order to look into the sector specific details and to work out the R&D priorities and programs, Sectoral groups were set up. The Information Dissemination and Products was one of the Sectoral groups, which proposed a networked project on e-Journals consortium. The Budget layout for the period starting from 2002 till the end of 2007 was estimated around 11.79 crores. Major e-journals publishers were targeted for providing access to more than 4500 online journals. It was also decided that initially the Consortium resource may be limited to Elsevier publications. Later the same could be expanded to include e-journals from other major publishers Springer, Wiley, and the learned societies like American Chemical Society, American Society for Microbiology, IEEE, IEE, etc.

#### **4.6 NISCAIR's Role:**

The NISCAIR (National Institute for Science Communication and Information Resources), which was formed by merging erstwhile INSDOC and NISCOM was identified as the CSIR Consortia Coordinator and a Monitoring/Steering Committee was constituted with NISCAIR as the focal point. Further NISCAIR set up a Task Force Team comprising of some Nodal Officers from some of the major laboratories. Although it was felt that CSIR should go for both full text journals of well known commercial and society publishers and select bibliographic databases depending upon the R & D activities of CSIR laboratories, the consortia coordinator NISCAIR initiated efforts to provide access to 4,500 journals of well known publishers in the first stage.

#### **4.7 Implementation:**

For implementation of this proposal CSIR proceeded step-by-step as follows:

- Creation of a CSIR Information Consortium to begin with by signing up with Elsevier.
- Payment of access fee of certain percentage of print value for the year 2000.
- Provision for funds to support the continuation of consortium subscription initially for a period of three years up to the year 2003.
- To reflect the budget for the Consortium as a CSIR programme in the 10<sup>th</sup> Five Year Plan proposal covering major S&T publishers.
- Constitution of a Committee to negotiate with the Elsevier for ScienceDirect.

## **5. The First Step: Access to Elsevier's E Journals:**

As a first step, CSIR has entered into contract with M/s. Elsevier science in June 2002 to enable access to all its laboratories access to 1,200 e journals. M/s Elsevier Sciences is one of the world's leading publishers of STM journals. The largest share of library expenditure on journals in CSIR laboratories as a whole goes to Elsevier. The cumulative expenditure on such journals is around US\$.1.2 million and CSIR labs together subscribe to nearly 600 journal. This number of titles subscribed by CSIR is the largest compared to other publishers. Initially, the accessibility was made available for a period of six months from January 2002 to June 2002 on trial basis. The E journals consortium being the first of its kind, the labs did not have prior experience in accessing and using e journals. Keeping this aspect in view, it was decided to impart training by M/s Elsevier staff at six geographical locations of CSIR laboratories. In all a total of nearly 140 staff members of CSIR L&ICs were trained over a period of 12 man days who in turn have imparted training to the end users in their respective laboratory.

### **5.1 Agreement:**

The agreement signed earlier with Elsevier expires by the end of 2004. By this time both CSIR and Elsevier have sufficient experience from their respective point of view. Possibly fresh agreement will be signed soon with suitable modifications acceptable to both. The salient features of existing agreement are as follows:

- CSIR labs/Institutes/Units/Centres were expected to maintain their print level subscription of M/s Elsevier which they have had in the year 2000 for the duration of the contract i.e. from 2002 to 2004.

- The year 2000 was considered as the base year, since it was the year when the negotiations commenced with M/s Elsevier.
- CSIR paid certain percentage of the print products which CSIR labs/institutes/units/centres are already subscribing, the S&T staff of CSIR will have e-access to nearly 1200 journals of M/s Elsevier.
- Additionally Elsevier gave access to 173 titles from Academic Press for first year only.
- For any enhancement of prices, it was agreed that a fixed maximum price increase of journal subscriptions of 6% during contract period, regardless of the actual price increases. If the actual price increases, were lower than 6% price, CSIR Consortium would pay the lower subscriptions price and the appropriate lower content fee for Science Direct.
- Wherever reliable Internet facilities are not available to Scientists/Technical and other staff, it would be possible for these offices to download the content for valid internal use excluding commercial document delivery services.
- The training of the trainers is an integral component in this program.
- Facilities on regular monitoring and use are also integral to the contract and to ensure that CSIR gets the value for money, periodic information i.e monthly statistics as required to be sent to the nodal officer at NISCAIR and also individual laboratories appropriately.

## **5.2 Advantages:**

- CSIR libraries have been subscribing to about 600 journals from Elsevier of which about 450 are unique titles. This implies that by paying certain percentage of print subscription amount extra, the all laboratories get access to another 750 unique titles at a nominal cost, thus resulting in a net gain in terms of information resources for all the CSIR libraries.
- The benefits that would accrue to individual laboratories are enormous. For example, if one laboratory is getting, say 25 journals, it would be entitled access to additional 1175 journals online by Elsevier.
- Secondly, the Consortium approach to meet the information needs will nucleate the culture of electronic access to large number of journals on the

Web. In the long-term perspective such a culture would catalyse the evolution of digital libraries.

### **5.3 Usage of E Journals of Elsevier Science:**

The monitoring and analysis of the usage of the facility is of immense importance not only to evaluate the current usage of Elsevier titles, but also to decide the inclusion of other publishers in the consortium. Usage statistics will also help in monitoring and justifying our spending level for online access in addition to print subscription. A detailed study and analysis of laboratory wise usage helps to understand preferences and reading habits of scientists, suitability and adequacy of infrastructure available for accessing e-journals, to know how effectively the consortia coordinator has implemented the proposal, to examine the effectiveness tools and techniques provided by publishers and role of library professionals in marketing the e-journals concept at institutional level. Also, this facility will provide wider accessibility of world S&T literature to our S&T work force which may catalyze the generation of knowledge assets in CSIR domain. The usage of the e-journals have been steadily increasing, from 5000 downloads in January 2002 to nearly 30,000 downloads by December 2002. It was observed that in the Chemical Sciences discipline, NCL and IICT were the topmost laboratories to make use of this facility while in Engineering Sciences, NAL topped the list with maximum number of downloading articles. The general Overview of the usage pattern of ScienceDirect by NAL is depicted in Appendix – 2.

### **6. Titles of Other Publishers Current Approach of CSIR:**

In a similar manner as with Elsevier Science, the Task Force set up in this direction is negotiating with other major publishers like Springer (400+ titles), Kluwer (500+), IEEE, Cambridge Journals Online, John Wiley, Blackwell, Taylor & Francis, IOP, API, ACS, AMS etc. At a recently held pre bid conference with the publishers, the terms and conditions of the agreement were finalized. However the number of e-journals and publishers being considered depends much on the funds available at this stage (Appendix 3). NISCAIR has worked out details of different procedures concerned to access and payment, models to be adopted, terms and conditions, archival policy, etc to make CSIR Consortia a successful and sustainable proposal.

#### **6.1 Broad Based Model:**

The R & D activities of CSIR are broad based and interdisciplinary in nature. CSIR need to go for a good number both commercial and society publishers. As it stands there is no universally accepted pricing, licensing and access models. In view of this following options are being considered:



- All the Journals to all the labs;
- All the Journals to select labs;
- Select journals to all the labs and
- Select Journals to Select labs

## **6.2 Access:**

- The access to e-journals in the laboratories shall be Internet Protocol (IP) enabled. However where such facility do not exist the publisher/licensor and/or provider shall provide access through login and password.
- Facilities to search, browse, view and download the articles of interest and their distribution among CSIR labs/institutes/centres/units etc., shall be allowed.
- Publisher/licensor and/or providers shall make available laboratory-wise and journal-wise usage data reports to CSIR and/or its designated labs/institutes on monthly basis.
- The access, view, search, browse, download, print and users shall be unlimited.

## **6.3 Payment**

- CSIR understands that different publishers/licensors and/or providers have different pricing models. So, the fees for the access of e-journals shall be arrived differently depending on pricing model through mutually negotiated agreement.
- Multiple year agreements will be invoiced annually. Advance payment normally shall not be released until there are exceptional circumstances, in that event advance payment towards the subscription of e-journals shall be released only against the irrevocable stand by Letter of Credit (LC)/Bank Guarantee in favor of CSIR.

## **6.4 Tenure**

- CSIR chose a multiple year terms for 2004 to 2006 period. This will include price increase/decrease projections for the entire term or as decided by CSIR.
- The agreement shall commence on the date of providing access and continue until 31<sup>st</sup> December, 2006 OR the period as decided by CSIR.
- Multiple-year agreements will automatically be renewed for successive one year term unless either party gives minimum notice of one month latest by the 1<sup>st</sup> December to the other in writing.
- During contract tenure and thereafter too publisher/licensor and/or provider shall be liable for any kind of loss, claim etc., caused by any third party.

## **6.5 Rights to Back Issues**

- Irrespective of the month during the agreement between the publisher/licensor and/or provider and CSIR is signed, the concerned shall provide access from the start of the year, i.e., 1<sup>st</sup> January to the relevant contents.
- Access to minimum five years base (current year plus 4 or more previous years in case applicable) of full text of all the titles shall be made accessible.
- The titles added during the contract period shall be provided at no additional charge.

## **6.6 Archival Policy**

- In the case of termination of the agreement or on the expiry of the agreement, the publisher/licensor and/or provider shall provide the full text of the e-journals entered into agreement and for the period of agreement on the prevalent formats on CD-ROM, DVD, etc with the retrieval software for network access. However we need to see if this condition will be acceptable to all publishers. Usually they agree to give the content for the period of subscription, but not the earlier issues and also the retrieval engine.
- In case of change in archival technology, the state-of-art archival technology shall be made available by publisher/licensor and/or provider to CSIR at no

extra cost for archival of full text data of e-journals to higher version of technology as and when it arrives.

## **6.7 Training**

- The publisher/licensor and/or provider will conduct 'Train-the-Trainer' sessions for library and information science professionals of the CSIR" laboratories at mutually agreed locations for mutually agreed duration at no extra charge. Five print copies of course ware + one soft copy for each location shall be provided.
- The CSIR shall not pay any charge for Train-the-Trainer programme towards travel, stay etc., however, at the request of the publisher guest house facility subject to availability shall be made available. Course duration at each location shall be minimum of two days.

## **6.8 General Terms and Conditions**

- The CSIR shall be regarded as subscriber and publisher/licensor and/or provider as licensor for e-journals access.
- In the event that access to E-journals is stopped from the publisher/licensor and/or provider's/licensor's end due to any problem in between, CSIR labs/institutes/centres/units etc. shall be allowed access for the same period/time as the breakdown, after the term of the contract or CSIR shall deduct the proportionate amount from the fees payable to the publisher/licensor and/or provider.
- If the publisher/licensor and/or provider sells or otherwise transfers ownership of e-journals to another publisher/licensor and/or provider it will provide non-exclusive copy along with of volumes published and make it available through the publisher/licensor and/or provider's site to CSIR.
- CSIR as subscriber recognizes that following are obligations on its part:
  - maintaining the integrity of the licensed products; and
  - ensuring access to and use of licensed products is limited to authorized users;
- The CSIR shall not be responsible for any sales tax, VAT or other taxes or any other license fees except the agreed invoiced amount.

- The agreed terms and conditions can't be altered without mutual consent of both parties.
- The publisher/licensor and/or provider shall be abided by all the clarifications given to CSIR-NISCAIR through minutes of the meetings/correspondences/negotiations from time to time.
- The publisher/licensor and/or provider will have to indemnify the CSIR for losses/claims/compensation caused/raised by third party with regard to the contract.
- The licensor/publisher, licensor and/or providers liability to CSIR (subscriber) shall be to a sum equal to the fee paid if things go wrong on the part of licensor/publisher/licensor and/or provider.
- CSIR/subscriber shall not be liable for breach of any of the terms of the agreement by any authorized user provided that CSIR/subscriber did not intentionally assist in or encourage such act.
- Any kind of breach of agreement as a result of conditions beyond control such as a war, strikes, fires, flood, governmental restrictions, power failures, damage or destruction, act of God shall not be deemed as a breach of the contract agreement.

## **7. Suggestions to CSIR: NAL's Innovative Ideas**

CSIR undertakes R and D work in most of the basic and applied sciences. The budget sanctioned for CSIR Consortia may not be enough to cover all the publishers listed by NISCAIR. Following are some of the suggestions (possibilities and broad based priorities) so that CSIR Laboratories can best out of available budget.

### **POSSIBILITY 1:**

#### **First Priority**

1. Full text journals by the publishers covering multi disciplinary subjects like Springer, Kluwer, Blackwell, John Willey, Francis & Taylor, Nature Publishing, etc.

2. Multi disciplinary bibliographic databases like Web of Science.

3. A customized gateway service like, JCCC of Informatics (India) which would enable to build bibliographic database covering holdings of CSIR LICs, with links to the full texts wherever access is there and more importantly the facility to know the availability (source LICs) at article level and automatic generation of ILL requests through e-mail. This product will boost the utilization of journals already being subscribed by all CSIR labs for each others benefit. CSIR will own this database and can be hosted on two or three mirror sites within CSIR system.

### **Second Priority**

1. Full text journals of one or two important publishers in each of the major disciplines of CSIR like Chemical, Physical, Engineering, Biological and Information Sciences.

2. One major bibliographic database for each of the discipline mentioned above.

The above suggestions could be flexible depending upon the budget available. These sources can be made available only to the concerned discipline laboratories, so that CSIR pays less to the concerned publishers. (Why NAL should have access to Biology Journals?)

### **POSSIBILITY 2:**

All journals of each of the publishers need not to be made available to all labs. NISCAIR can negotiate with publishers in such a way that select list of journals from each of the publishers could be made available to selective laboratories depending upon the disciplines. It should not be a problem to make a thorough analysis of the journals already subscribed by each of the lab and also based on the opinion received from the participating laboratories to arrive at select list of journals to be made available to laboratories discipline-wise, resulting in making available the sources to other discipline oriented publishers like ACS and RAC for Chemical Science Laboratories, IOP and APS for Physical Science Laboratories and so on. This economic consortia model may facilitate CSIR to get maximum number of relevant e-sources for each of the CSIR laboratories.

## 8. Conclusion:

In a developing country like ours where  $\frac{3}{4}$  of education and research are funded by the Government, national consortium is the most practical solution. It would be highly appropriate if different consortia come together so that they are passed on to more number of members of consortium in the larger national interest. A national consortium would greatly reduce duplication of efforts and provide greater purchasing power. Providing access to e-resources to the researchers is not a purpose in itself. It is only a means to trigger a stronger research and academic culture in the institutions. The consortium efforts should, therefore, lead to increase in productivity of scientific and research output both in quality and quantity. Ensuring optimal use of electronic resources is one of the biggest concern for consortium that receives central funding from the Government. Libraries and information professionals are required to play a proactive role in promoting usage of resources amongst faculty and researchers.

CSIR consortia is no doubt has started on a flying note by providing access to M/s Elsevier's journals, but it has still miles to go. It has to provide access not only to full texts of e-journals but also to databases, patents and other important documents with major commercial and society publishers. Its activities should not be restricted to buying access to electronic resources only. It should get actively involved in content creation activity including acquisition of digital contents on CD, electronic submission of theses and dissertations, scanning of printed documents, cataloguing Internet resources and integrated interface for searching all digital resources.

Shared subscription or consortia-based subscription to electronic resources through consortia of libraries, on the one hand permits successful deployment and desktop access to electronic resources at a highly discounted rates, on the other hand, it meets with the increasing pressures of diminishing budget, increased user's demand and rising cost of journals. Incidentally, the technology change meets with the expectations of researchers, their patience, and their willingness to accept services that are available on demand. The web-based electronic resource is an apt answer to the expectations of researchers.

### **Tail Piece:**

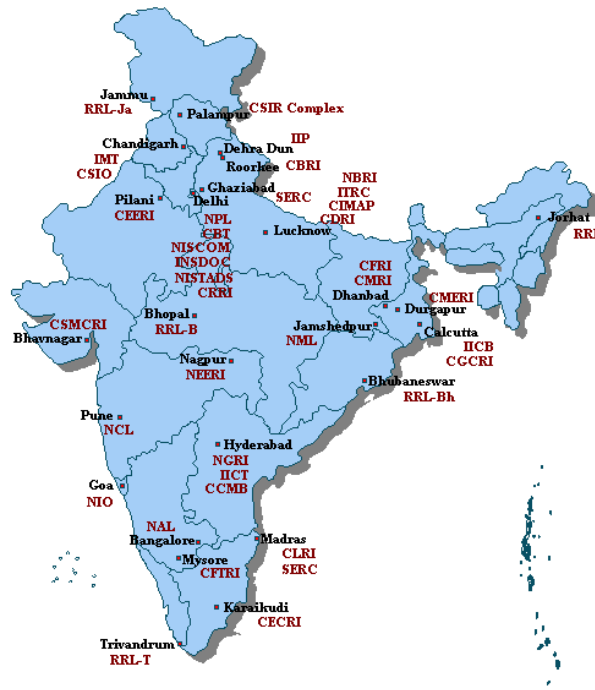
*Man can live individually, but can survive only collectively. Hence, our challenge is to form a progressive community by balancing the interests of the individual and that of the society. To meet this we need to develop a value system where people accept modest sacrifices for the common good"*

*From Vedas*

**References:**

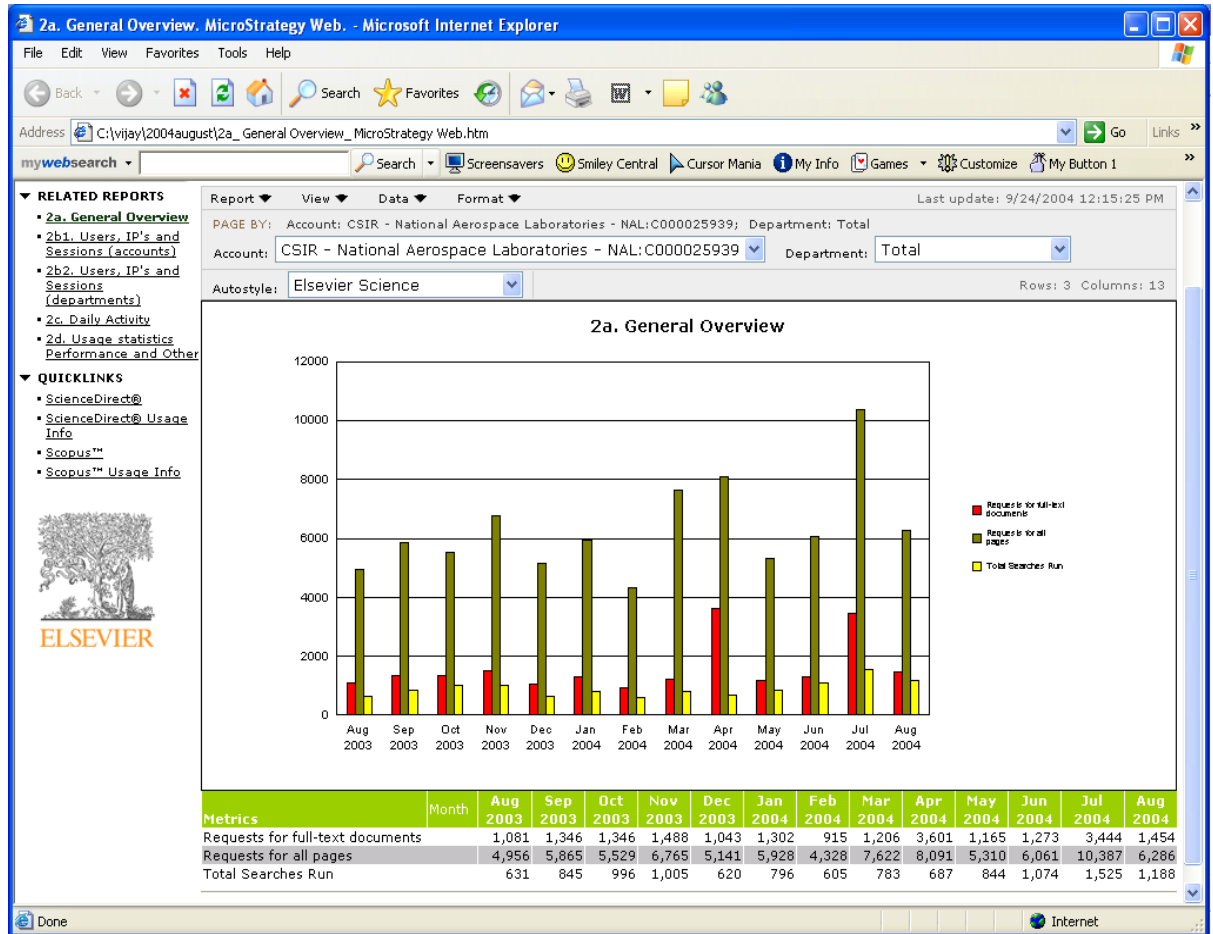
1. Report of the Study Group on CSIR Consortium for Electronic Access to Journals, October 2001.
2. Various E-mails and other Correspondence between NAL, NISCAIR and other CSIR Laboratories.
3. Copy of the Agreement on E-Journal Access between CSIR and Elsevier Science, NISCAIR, June 2002.
4. A Report on the Usage Statistics of Elsevier Science Journals, NISCAIR, 2003

## Appendix 1





## Appendix 2



**Appendix 3**  
**List of Publishers Under CSIR Consideration**

**Commercial**

1. BlackWell
2. Cambridge University Press
3. Kluwer
4. Marcel Dekker
5. MCB University Press
6. MIT Press
7. Nature Publishing Group
8. Oxford University Press
9. Research Information Ltd
10. Springer
11. Taylor & Francis
12. Wiley Interscience
13. World Scientific Publishing

**Societies**

- |  |  |
|--|--|
| 1.American Ceramic Society                 | 16.CRC Press                               |
| 2.American Foundrymen Society              | 17.Electrochemical Society                 |
| 3.American Geophysical Union               | 18.Geological Society of America           |
| 4.American Chemical Society                | 19.IEEE/IEE Electronic Library             |
| 5.American Institute of Chemical Engineers | 20.Institute of Physics                    |
| 6.American Institute of Physics            | 21.Institution of Mining and Metallurgy UK |
| 7.ASTM USA                                 | 22.National Geological Society             |
| 8.American Oil Chemist Society             | 23.Optical Society of America              |
| 9.American Physical Society                | 24.Royal Chemical Society                  |
| 10.American Phytopathological Society      | 25.Royal Society of London                 |
| 11.American Society of Civil Engineers     | 26.Scientific American                     |
| 12.American Soc. of Mechanical Engineers   | 27.Seismological Society of America        |
| 13.American Society of Microbiology        | 28.Soc. for Indust. and Appl. Mathematics  |
| 14.American Welding Society                | 29.Society of Chemical Industry UK         |
| 15.Canadian Institute of Mining            | 30.Society of Glass Technology             |