Chapter 5

Resource Sharing and Networking of Hydro Power Sector Libraries in India - A Proposal

Introduction

In the age of knowledge and information explosion, no Library or Information Center can be self-sufficient. Therefore, the cooperation amongst libraries and information centers through resource sharing is necessary, rather than being an option. Resource sharing in libraries is defined as a mode of operation whereby the services/manpower are shared by a number of libraries. It entails reciprocity, employing partnership in which each member has something useful to contribute, ultimately resulting in enhancing the efficiency of library services. In a Library and Information Center, resources amenable to share may include books in the form of monographs, technical reports, conference proceedings, etc.; Periodical publications; Manuscripts/ rare documents; databases on CD Rom’s, DVD Rom’s, etc.

Information Technology has influenced all aspects of activities in resource sharing among the libraries in general and special libraries in particular. In recent years, there has been a tremendous explosion of data and information in the field of power sector due to the increase in the number of research and development institutions at national and international level. Most of these institutions have special libraries and information centers attached to them, but most of them lack cooperation and coordination. As a result, it has become a difficult task on the part of researchers, engineers, information intermediaries and policy makers to meet their day-to-day information needs. As the analysis of the earlier chapters indicate that there is lack of resource sharing amongst the Hydropower Sector Libraries in India and no library and information network for such libraries exists at present, a proposal for their resource sharing and networking is given below.
1: Proposal for networking

Keeping in view the infrastructure available and the information requirements of the users of hydropower sector libraries in India, it is proposed that Power Information and Communication Network (POWERICONET) be established for the hydropower sector libraries in India so that the hydropower personnel can have timely access to their information requirements.

Figure 5.1: Proposed POWERICONET

R=Regional Library
P=Projects Library
NHLIC= National Hydropower Library & Information Centre
MoP= Ministry of Power
1(a) : Objectives of the proposed POWERICONET

The objectives of the proposed POWERICONET would be as follows:

i. To identify the existing information infrastructure of the power sector industry in India.

ii. To identify the areas of specialization of the working Engineers and Technologists.

iii. To determine their information needs;

iv. To identify the modes of assessing the information as preferred by them while seeking the required information.

1(b) : Functions

The functions of the proposed POWERICONET would be as follows:

i. To act as an active network of computer based information database of all power sector information having links with other national and international networks;

ii. Links with power sector’s allied subjects and organizations to collect and generate structured information for the users, such as policy makers, administrators and engineers;

iii. To serve as a repository and to ultimately organize a databank for all power sector information;

iv. To access resources in allied areas like Thermal Power, Nuclear Power, etc. available in other libraries over the Internet;

v. To evolve standards and uniform guidelines in techniques, methods, procedures, and services for adoption by the participating hydropower sector libraries so as to facilitate pooling, sharing and exchanging resources and services;

vi. Reduce unnecessary duplication of the resources and have suitable collection development policy related to the hydropower sector libraries;
vii. To promote sharing of resources and improve mutual cooperation amongst the hydropower sector libraries;
viii. Provide alerting services as well as to compile a national union catalogue of the documents available in the libraries of hydropower institutions and Organizations.

1(c): Organizational structure

It is proposed that the POWERICONET would be a National mission. This network would be developed through a mutual cooperation amongst the Ministry of Power and all the major hydroelectric power sectors institutions in India. National Informatics Center can be requested to maintain the POWERICONET. It will have a policy making Governing Council, Governing Body for executing decisions, Legal Committees such as Technical Advisory Committee and Finance Committee.

The President of the Governing Council would be the Minister of Power and other members would be from the entire hydroelectric power sector and other related departments. The President of the Governing Council will also act as chairman of the Governing Body. The Director of National Informatics Center would act as the Member Secretary of the Governing Council and Governing Body and will be responsible for administration and management of the network. Members of Technical Advisory Committee will include experts from libraries and information centers, Computer engineers as well as Electronics and Communication experts. For the Finance Committee, majority of the members would be from hydropower sector and Ministry of Power. Participation in the network would be voluntary and institutional agreement would be signed between the National Informatics Center and the participating libraries to ensure the adherence of the protocol, payments of fees, adoption of standards, hardware and software maintenance, etc.
The Ministry of Power should appoint a national working group, which would include expert librarians to oversee the networking strategy at all the stages. One of the libraries of the national level hydropower organization would be the national agency to coordinate the networking strategy on a day-to-day basis. A number of selected regional nodes would be responsible for coordinating library networking amongst the local project/unit libraries. The selected regional libraries will interact with each other, with other libraries in their region and with the central node. It will be an integrated library and information system comprising different operational units covering the entire hydroelectric power sector industry in India as shown in the proposed POWERICONET. National Hydroelectric Power Corporation (NHPC) is already well equipped with adequate computer infrastructure, manpower as well as other resources. Hence, it is feasible to consider it as "National Hydropower Library Information Center (NHLIC)" by making a policy to grant it an equal status and rights at par with other national libraries. Required legislation may be passed making it a binding for all publishers to deposit one copy each of their publication on hydropower and allied areas in Indian Territory to the proposed NHLIC, i.e., NHPC.

1(d) : Responsibilities of the proposed National Hydropower Library and Information Centre (NHLIC)

Coordinating, evaluating and monitoring of the complete information system as well as making policies on the information flow in hydropower sector would be the main responsibility of the proposed NHLIC. It would compile a national union catalogue of journals available in all hydropower sector libraries. It would act as a platform for the Indian Hydropower library and information service by linking all Regional Information Centres and Projects Information Centres. It would provide a gateway to national and international hydropower associations and institutions (e.g., CIGRE, ASM, RERIC, SEI, IGU, IEA, ICORE, IAEA, etc.) and other such libraries. It would organize training programmes, orientation, workshops, etc. for library professionals.
I(e) : Responsibilities of the proposed Regional Information Centre of Hydropower Organizations (RIC)

The hydropower sector projects in India are spread over the entire Himalayan Region from J&K to Manipur in North-East. Earlier, the accountability of the project was directly with the Corporate Offices of their respective organizations. As a consequence, the work efficiency and processing got delayed resulting in the delay of scheduled completion of the projects as well as in financial loss of the organizations as well as the Government.

In view of the above, the management of various hydropower organizations decided to distribute the projects on regional basis. Hence, Regional Offices were established to look after the work of projects falling under their purview. The main advantage of such work distribution was to complete the work in time because the Regional Head is empowered with enhanced powers due to which most of the decisions are taken on regional basis directly without any interference of the Board of Directors. Hence, the accountability of the projects is now limited to the regional offices and it has resulted in increased efficiency and the work processing has become faster. Moreover, the revenue collection has now become easier as the regional office is responsible to get in touch with the beneficiary state directly.

RICs within the proposed network, i.e., POWERICONET, would also act as the evaluating centres to see that every hydropower personnel should have access to the latest, accurate, and timely information. It would maintain links with all PICs in the region. It would also provide guidelines to PICs for acquiring hardware as well as software for database development. It would act as a referral centre/data center as it would maintain details of various projects alongwith the database of experts. It would also maintain profiles of all the users, i.e. advisors/engineers/officers, etc., serving in the organizations under its purview for SDI purpose.

RICs would procure and maintain the current and missing backs issues of journals as well as CD-Rom databases, online journals or databases in their field
of specialization, which are not subscribed by PICs. The primary duty of such centres would be to formulate the rationalization committee to reduce the redundancy of foreign journals in the region under its purview. It would procure national union catalogue to be developed by NHLIC as well as other union catalogue like NUCSSI (National Union Catalogue of Scientific Serials in India), World list of Periodicals on CD and list of foreign journals subscribed by PICs for resource sharing.

1(f) : Responsibilities of the proposed Project Information Centers of Hydropower organizations (PIC)

PIC’s are located at the site of the projects so as to cater to the needs of the personnel involved in the projects. Such PICs should be linked with NHLIC through RICs for access to national and international information in the field of hydropower. The duty of such a center would be to collect, store, and disseminate the documentary and non-documentary information sources. Procurement of current/missing back issues of printed as well as electronic journals and CD-Rom databases in their field of specialization would also be an important responsibility of such centers.

2 : Development of adequate infrastructure:

Technical specifications of computer and other infrastructure for the proposed networking of National Information Centre, Regional Information Centres, and Project Information Centres must be specified according to their functions and services. The essential hardware required for the purpose is under:

In proposed PICs, RICs and HPLIC, currently the available infrastructure is not sufficient to meet the objectives laid in the proposed design. Hence, it is essential to provide each PIC with atleast three computers (one out of three may be converted as a Server). One laser printer, one scanner, one barcode printer and one barcode scanner, Fax machine, CD-Writer, digital camera and other networking equipment. It is essential to provided each RIC with one high capacity server, six Pentium-IV, 3 laser printers, 2 All in one scanner (Printer, Scanner and Copier), 2
flatbed scanner, 1 digital camera, 3 CD-Writers and other essential network
equipment. HPLIC has to be provided with 2 high capacity servers, 8 pentium-IV
desktops, 5 laser printers, 5 All in one scanner (Printer, Scanner and Copier), 6
flatbed scanners, 1 digital camera and web camera and 5 CD-Writers. The network
equipment server will be on LAN and all PICs should be connected to RICs that
will ultimately be connected to HPLIC with a bandwidth of minimum 512 kbps
from any of the ISP (Internet Service Provider) on leased line.

Other hardware needed for networking include the connection devices and
interface with communication system such as file servers, CD-ROM servers, Juke
boxes, Network cards, Gateways network adapters, Hubs, Switches, Routers
Remote access and printers. These devices would also be provided according to
the functions, services and characteristics of different levels of information centres
with computers and network nodes and required architecture. All information
centres will have to be provided with Internet connection to access online journals/
databases, etc. This would require that all the libraries of hydropower sector must
create home page of their respective libraries and also maintain their bulletin
boards.

2(a): Software

Two types of software are needed for the purpose of networking. Network
operating system namely Novell’s Network, Linux and Microsoft’s Windows NT
environment and most popular Microsoft’s products like Office 07/2000/XP, etc.
The second software is required for library automation. Selection of library
software has to be made from the important library management software products
such as LIBSYS, Auto-Lib, LFU (Library for You), Livelink for libraries
(formerly known as Techlib), Greenstone, Librarian, Koha, DELSIS (DELNET),
and LIBMAN (Data Pro Consultancy Services, Pune), etc. The most significant
factor of software compatibility has to be kept in view for selection of the
software. If needed, the required modification in the software can be made.
LIBSYS can be used as it is already being used by NHPC as well as NTPC. The
library servers must be strongly protected with latest/fool-proof anti-virus software with regular updation.

3: Manpower and Training

In addition, various skills are required to implement the proposed networking of Indian Power Sector Libraries. A vide range of skills will be needed including IT skills to develop or customize the programs, test the system and provide feedback, training skills, and management skills to explain the changes to both the users and the library staff, and promotional skills to produce readable guides on how to use the system.

Managing change is an important element in order to shift from traditional to networked environment, Hence the Chief Librarians at the RICs and PICs must involve the staff at an early stage through a general briefing on the aims and objectives of the plan, find out what is time consuming part of their present job, see if they have ideas as to what they want in future, demonstrate the prototype system and listen to any feedback they provide, and also make the staff to test the system before it is launched. This will depend on the staff, their background and their interest in the project. They may also need to be trained before the system goes operative. Well equipped and trained professional staff will be required to run the Indian Power Information System smoothly and efficiently. The proposed pay structure of the staff will be as under:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Designation</th>
<th>Pay Scales</th>
<th>No. of Posts required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chief Librarian</td>
<td>20000-25700</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Managers (Library)</td>
<td>17500-22300</td>
<td>2</td>
</tr>
<tr>
<td>4.</td>
<td>Library Officers</td>
<td>10750-16750</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>Supervisors (Library)</td>
<td>8600-14600</td>
<td>12</td>
</tr>
<tr>
<td>6.</td>
<td>Library Attendants</td>
<td>6700-11750</td>
<td>6</td>
</tr>
</tbody>
</table>
3(a): Training

The change in technology brought the need for skilled manpower to run the modern day libraries and to transform the existing libraries. The computer awareness amongst all library staff both in stand alone, networked and LAN system as well as knowledge of library management systems, web design, protocol become a necessity for them. The library professionals working for the proposed POWERICONET must have specific knowledge of library software to be used and must be trained to design the databases. Hence, there must be a realistic training plan to ensure that all the staff members of the hydropower sector libraries be trained. For this purpose, NHLIC should organize 2-3 weeks training programmes for the library personnel at regular intervals of time.

4: Financial Aid

Establishing interconnectivity of all libraries to HPLIC is huge job and requires large amount of funds and guidance and cooperation from computer engineers at every step. At the initial stage procurement of hardware, software and framing standards for networking is non-recurring and one time investment. The proposed finance committee would work out the cost of pre-project activities as well as establishment and implementation of POWERICONET in detail. Since all the hydropower sector libraries come under the government based projects, the Ministry of Power and all the CMDs of the hydropower power sectors would be responsible for the funds and financial support for the establishment of the POWERICONET. For establishing HPLIC, it is proposed that Ministry of Power (MoP) should meet the expenditure incurred and for sustainability of services and networks, various hydropower organizations should meet the recurring as well as non-recurring expenditures.

4(a) : Expenditure allocations to proposed PICs, RICs, HPLICs

The proposed expenditure for PICs, RICs & HPLICs is as follows:
Table 5.2: Proposed Expenditure

<table>
<thead>
<tr>
<th>Expenditure Heads</th>
<th>PIC</th>
<th>RIC</th>
<th>HPLIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware</td>
<td>12 lakhs</td>
<td>20 lakhs</td>
<td>30 lakhs</td>
</tr>
<tr>
<td>Software</td>
<td>10 lakhs</td>
<td>15 lakhs</td>
<td>20 lakhs</td>
</tr>
<tr>
<td>Database development</td>
<td>12 lakhs</td>
<td>15 lakhs</td>
<td>20 lakhs</td>
</tr>
<tr>
<td>Furniture</td>
<td>10 lakhs</td>
<td>12 lakhs</td>
<td>15 lakhs</td>
</tr>
<tr>
<td>Printed/CD-ROM databases</td>
<td>15 lakhs</td>
<td>20 lakhs</td>
<td>25 lakhs</td>
</tr>
<tr>
<td>Online databases / services</td>
<td>15 lakhs</td>
<td>20 lakhs</td>
<td>25 lakhs</td>
</tr>
<tr>
<td>Network connectivity</td>
<td>15 lakhs</td>
<td>20 lakhs</td>
<td>25 lakhs</td>
</tr>
</tbody>
</table>

5: Implementation

Considering the existing infrastructural facilities, financial resources, manpower and technological aspects, implementation of the proposed POWERICONET would be carried out in three phases. Before starting the first phase, pre project work should be carried out, which covers the following activities:

i. Constitution of the Governing Council, Governing Body, drafting the rules and regulations for the proposed network, inviting the director of the National Informatics Centre to become the Member Secretary of the Governing Body.

ii. Appointing Task Group to take the decisions on the technical aspects in the areas of developing online version of union catalogues, hardware, software, data transmission facilities and training programs for the proposed POWERICONET. The Task groups would work out the technical details including main directions for implementation of the proposed network.

The phase wise implementation tasks to be undertaken would be as follows:

Phase-I

i. Automation of the libraries and information centers at PICs and RICs (NHPC, the proposed NHLIC already is computerized).
ii. Setting up of communication infrastructure.
iii. Creation of machine-readable catalogue.
iv. Providing training to the existing staff working at PICs and RICs.

**Phase-II**

i. Setting up of the network.

ii. Linking of the participating libraries and information centres at all levels.

iii. Introduction of various user services through network, e.g., Union catalogue, document delivery services, information bulletin boards, etc.

**Phase-III**

i. Bringing all the power sectors organizations, associations and research organizations under the proposed POWERICONET through Wide Area Network.

ii. Join hands with other local, regional, national and international networks.

### 6: Issues before the proposed POWERICONET

While having a fresh look at the various issues involved in the context of networking and resource sharing among the libraries of hydropower sector organization under the proposed network, following issues have been identified that may have to be resolved before POWERICONET is launched. The listing is only indicative and there might emerge many more issues to be resolved on its actual implementation.

a. **Infrastructure:** In order to effectively participate in the proposed POWERICONET, it is a precondition that all the libraries of the participating organizations must have minimum infrastructure including computers, laser printers, Internet connectivity, e-mail facility, etc. As the Hydropower sector organizations are located at
different geographical locations, a network of distributed nature like WAN is required for the proposed POWERICONET.

b. **Library Automation**: A catalogue of library collections in machine-readable form is essential for easy access and retrieval of information. This would also facilitate sharing and exchange of information among the participating institutions within the proposed network.

c. **Professional manpower**: As the library is an important unit of its parent institution for collection, collation and dissemination of information resources, the concerned authorities must appoint professional librarians to manage their respective libraries so as to be active participants in the proposed network.

d. **Development of Websites of the participating libraries**: Institutional/Organizational web site with sufficient links to their libraries will facilitate online access to the available information to their network partners.

e. **Development of information resource base**: It is also necessary to gradually develop state-of-the-art network communication for transferring documents in virtual, digital and analogue formats.

f. **Network services**: All the participating organizations within the network may interact with each other directly for exchange/sharing of information. Hence, Union Catalogues, ILL, Information Bulletin Boards and Document delivery services, etc. may be provided on demand through e-mail, electronic file transfers, hard copy, etc.

g. **Network Finance**: Financial requirements for hardware and software augmentation and databases development at the respective organizations may have be met from within the resources of the organization or as one time grant from the Ministry of Power or the World Bank for the effective working of the proposed network.
h. Utilization of POWERICONET: An exclusive web site for POWERICONET with sufficient hyperlinks may be developed for web publishing and for more visibility and accessibility. User-orientation programmes may be organized regularly to orientate them for effective utilization of the POWERICONET information services.

A well-designed network of organizations assumes importance in the context of the development of a country. Establishment of organic linkage of organizations with projects is found to be essential through networking for proper transfer of information. In this connection, the efforts under the proposed POWERICONET through a variety of projects like building up of library database, web page development, web enabling of information are all to be pursued vigorously. The proposed network in the hydropower sector, i.e., POWERICONET, will overcome the geographical barriers and will help in furthering knowledge in the area of power/energy as well as helping the MoP to achieve its target.