Chapter 3
OBJECTIVES, IDENTIFICATION OF POPULATION & CHALLENGES

3.1 Objectives
The aim of the study was to document the efforts now in progress i.e. Open access movement with sharp focus on Institutional repositories, which is one of the important means of achieving open access.

The present study examined institutional repositories developed in India from two perspectives:

3.1.1 IR Development and Management
3.1.2 Users of institutions having IR

3.1.1 IR Development and Management
The main goal was to identify the wide range of practices involved in developing and managing an institutional repository.

There were eight broad objectives, which are as follows:

1. To identify the timeline involved right from planning, pilot testing, to system implementation as well as exploratory activities prior to implementation of an IR system
2. To explore management issues such as staffing, funding, policies
3. To know which software were used as well as which interoperability standards and long-term preservation techniques were applied
4. To estimate the number and the rate of growth of digital documents of IR
5. To know which types of file formats IR supports
6. To identify factors that act as barrier to set up a successful IR
7. To recognise various approaches used to evaluate the success of the IR after implementation
8. To understand the benefits of IR Development & future plans

3.1.2 Users of institutions having IR
This study also investigated knowledge, practice and opinions about IR among the users of the institutions having institutional repositories. This include scientists, faculty members, students, etc. who may or may not be using the IR facility.

In this category there were six broad objectives, which are as follows:

1. To investigate the knowledge about IR initiatives and use or non-use of IR within the users community
2. To explore users attitudes towards copyright
3. To explore reasons for contributing or not contributing of documents to IR
4. To know which type of documents users would like to contribute to IR
5. To identify which kind of access users would like to provide to their documents after contributing to IR
6. To verify which organizational unit, in the user’s opinion, should manage an IR project

3.1.3 Relevance of the study
This exploratory study may serve as preliminary guide for those who are at the initial stages of planning, developing and implementing institutional repositories, for creating more efficient management plans based on the empirical evidence from this study. It may also serve as a baseline study that can be used over time to assess the development, impact, and viability of institutional repositories in later studies.
3.2 Population of the study

The concept of population is fundamental aspect of survey research. According to Busha and Harter (1980), “A Population is any set of persons or objects that possesses at least one characteristic”. The definition is very much applicable to the present study because it requires a set of persons i.e. users for the survey of users of institutions having IR as well as set of institutional repositories i.e. for the survey of IR Development and Management

Population for both the surveys were identified as follows:

3.2.1 IR Development and Management

One of the first steps in the data gathering process was the identification of population i.e. all institutional repositories in India and obtaining an electronic mailing list of web administrators of respective institutional repositories. To compile the list of institutional repositories the researcher used various sources of information as follows:

3.2.1.1 Literature
3.2.1.2 Search by search engines especially Google
3.2.1.3 Directories of archives / repositories
3.2.1.4 Cross Archive Search Services for Indian Repositories (CASSIR)
3.2.1.5 Blogs
3.2.1.6 Open source software websites
3.2.1.7 Education & Research institution websites especially Indian institutions
3.2.1.8 Circulating mails in LIS and other forums / discussion groups

3.2.1.1 Literature

Articles especially written by well known Indian authors for example S. Arunachalam, Satyanarayana and T. Rajashekar etc. about open archive development in India helped the researcher to identify a few institutional repositories. Citations and annexure of a few articles on Institutional repositories also helped to locate institutional repositories as well as directories.
3.2.1.2 Search by search engines especially Google

The researcher conducted simple as well as advanced search using search engines such as Google to identify repositories. Search statements included “Institutional repositories”, “OAI”, “Open Access / Archive Repository”, etc. When viable sites were found they often linked to other relevant resources. These links were followed up in an attempt to identify as many repositories as possible.

Many of the URLs of the institutional repositories contained the name of the software used in developing the respective repository e.g. Delhi University used eprints software so it has URL: http://eprints.du.ac.in/

The researcher applied Domain search, which is an advanced search method to identify institutional repositories. Domain search helps to search only within one specific website by entering the search terms one is looking for, followed by the word "site" and a colon followed by the domain name. Also it was further limited by applying search pages within India.

In this way, the name of the open source software which was commonly found, was typed in the search box to identify the URL of the Institutional repository.

3.2.1.3 Directories of repositories

Similarly, Google search was done for identification of repositories using search statements such as “Open Access / Archives Directory”, “Repository Directory”. When viable sites were found they often linked to other relevant resources. These links were followed up in an attempt to identify as many directories as possible.

Citations and annexure of a few articles on institutional repositories also helped to locate directories. The researcher identified few directories of repositories, which are listed in Table No. 3.1 along with URL and their special features.
### Table No. 3.1: List of directories

<table>
<thead>
<tr>
<th>Name</th>
<th>URL</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registry of Open Access Repositories (ROAR)</td>
<td><a href="http://roar.eprints.org/">http://roar.eprints.org/</a></td>
<td>Allows browsing by country, software type, and content type. Includes a graph showing of OAI records plus a screenshot.</td>
</tr>
<tr>
<td>The Directory of Open Access Repositories - OpenDOAR</td>
<td><a href="http://www.opendoar.org/">http://www.opendoar.org/</a></td>
<td>Allows browsing by country, content type, or subject. Health Sciences is listed and contains 134 repositories. Funding extends to mid 2006</td>
</tr>
<tr>
<td>Open Archives</td>
<td><a href="http://www.openarchives.org/Register/BrowseSites">http://www.openarchives.org/Register/BrowseSites</a></td>
<td>Contains an XML formatted list of all repositories.</td>
</tr>
<tr>
<td>D Space</td>
<td><a href="http://wiki.dspace.org/DSpaceInstances">http://wiki.dspace.org/DSpaceInstances</a></td>
<td>DSpace sites</td>
</tr>
<tr>
<td>Digital Academic Repositories</td>
<td><a href="http://www.darenet.nl/en/page/language.view/repositories">http://www.darenet.nl/en/page/language.view/repositories</a></td>
<td>Lists repositories as well as individual researchers</td>
</tr>
<tr>
<td>Digital Commons</td>
<td><a href="http://www.umi.com/products_umi/digitalcommons/">http://www.umi.com/products_umi/digitalcommons/</a></td>
<td>Digital Commons site</td>
</tr>
<tr>
<td>SPARC</td>
<td><a href="http://www.arl.org/sparc/repos/ir.html">http://www.arl.org/sparc/repos/ir.html</a></td>
<td>Repositories are listed by country of origin.</td>
</tr>
<tr>
<td>OA1ster</td>
<td><a href="http://oa1ster.umich.edu/o/oa1ster/viewcolls.html">http://oa1ster.umich.edu/o/oa1ster/viewcolls.html</a></td>
<td>Also has a search feature that allows the user to search all repositories at once. No way to limit search to just the Health Science field.</td>
</tr>
</tbody>
</table>
3.2.1.4 Cross Archive Search Services for Indian Repositories (CASSIR)
(http://ardb4.ncsi.iisc.ernet.in/oai/)
This service is part of the ongoing project "Development of OAI-Based Institutional Research Repository Services in India", sponsored by Department of Scientific & Industrial Research, Ministry of Science & Technology, Government of India. This project was carried out at National Centre for Science Information (NCSI), Indian Institute of Science (IISc), Bangalore. This service harvests metadata as per the OAI-PMH protocol from the registered OA repositories in India. It also provides web-based search / browse functionality over the harvested metadata.

The harvester had 27377 records from 18 Indian repositories indexed as of February 2009.

3.2.1.5 Blogs
The researcher was constantly monitoring the Open access related blogs for getting latest information regarding institutional repositories. A few Open access initiators or promoters in India such as S. Arunachalam of M S Swaminathan Research Foundation and Sukhdev Singh from Open Med were communicating / writing to such blogs. This helped the researcher to identify the repositories in India. List of blogs are as follows:

- http://www.earlham.edu/%7Epeters/fos/fosblog.html
- http://oalibrarian.blogspot.com/
- http://www.escholarlypub.com/digitalkoans/
- http://www.arl.org/sparc/soa/
- http://openaccess.eprints.org/

3.2.1.6 Open source software websites
The researcher periodically visited Open source software websites including the following:
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- http://www.eprints.org/software/archives/

The IRs developed by various institutions with the help of the above mentioned software (Greenstone and Eprints) are listed in these websites.

Following website was used for identifying the repositories developed using Dspace:

3.2.1.7 Education and Research institution websites especially Indian
The Librarians digital library (LDL) of DRTC (https://drtc.isibang.ac.in/) is hyperlinked to the IRs developed with the help of Dspace. However a few of the hyperlinks were not functioning. A change in the URL was the main reason in such cases.

3.2.1.8 Circulating mails in LIS and other forum/ discussion groups
The researcher wrote to the LIS forum, IATLIS forum and Open access forum, to submit the URL of IRs developed by institutions but the response was not very encouraging.

Thus approximately 25 repositories were identified. This number was again narrowed down on the basis of following points / scope.

1. Repositories developed by single institutions not jointly developed by different institutions.
2. The Institutional repositories which had already been developed and made available on the Internet so that researcher could identify the wide range of practices, policies, and operations in effect in both planned and developed institutional repositories.
3. The Institutional repositories belonging to any parent organization were considered Educational institutions such as Delhi University, IIT Bombay or Government research organisations such as NCL, NIO etc.,
4. Institutional repositories having any type of digital documents such as Doctoral theses, Master’s theses were also considered.

5. The Institutional repositories that provide full text access as well as limited access to certain digital documents had also been considered. Some repositories restricted their access to institutional members. For example IIT Bombay has Electronic Thesis and Dissertation repository (ETD) gives full text access to the members of the institution only.

List of 16 Institutional repositories considered for the survey of IR Development and Management is presented in Table No. 3.2.

**Table No. 3.2: List of institutional repositories considered for the study**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Name of the IR</th>
<th>URL of the IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Delhi University, New Delhi</td>
<td><a href="http://eprints.du.ac.in/">http://eprints.du.ac.in/</a></td>
</tr>
<tr>
<td>3</td>
<td>IIT Bombay (GR), Mumbai</td>
<td><a href="http://dspace.library.iitb.ac.in/dspace/">http://dspace.library.iitb.ac.in/dspace/</a></td>
</tr>
<tr>
<td>4</td>
<td>IIT Bombay (ETD), Mumbai</td>
<td><a href="http://www.library.iitb.ac.in/~mnj/gsdl/cgi-bin/library">http://www.library.iitb.ac.in/~mnj/gsdl/cgi-bin/library</a></td>
</tr>
<tr>
<td>5</td>
<td>Indian Institute of Astrophysics, Bangalore</td>
<td><a href="http://prints.iiap.res.in/">http://prints.iiap.res.in/</a></td>
</tr>
<tr>
<td>6</td>
<td>Indian Institute of Management, Kozhikode</td>
<td><a href="http://dspace.iimk.ac.in/">http://dspace.iimk.ac.in/</a></td>
</tr>
<tr>
<td>7</td>
<td>Indian Institute of Science (GR), Bangalore</td>
<td><a href="http://eprints.iisc.ernet.in/index.html">http://eprints.iisc.ernet.in/index.html</a></td>
</tr>
<tr>
<td>8</td>
<td>Indian Institute of Science (ETD), Bangalore</td>
<td><a href="http://etd.ncsi.iisc.ernet.in/">http://etd.ncsi.iisc.ernet.in/</a></td>
</tr>
<tr>
<td>9</td>
<td>IIT Delhi, New Delhi</td>
<td><a href="http://eprint.iitd.ac.in/dspace/">http://eprint.iitd.ac.in/dspace/</a></td>
</tr>
<tr>
<td>10</td>
<td>Indian Statistical Institute, Bangalore</td>
<td><a href="http://library.isibang.ac.in:8080/dspace/">http://library.isibang.ac.in:8080/dspace/</a></td>
</tr>
<tr>
<td>12</td>
<td>National Aerospace Laboratories, Bangalore</td>
<td><a href="http://nal-ir.nal.res.in/">http://nal-ir.nal.res.in/</a></td>
</tr>
<tr>
<td>13</td>
<td>National Chemical laboratory, Pune</td>
<td><a href="http://dspace.ncl.res.in/dspace/index.jsp">http://dspace.ncl.res.in/dspace/index.jsp</a></td>
</tr>
<tr>
<td>14</td>
<td>National Institute Of Oceanography, Goa</td>
<td><a href="http://drs.nio.org/drs/index.jsp">http://drs.nio.org/drs/index.jsp</a></td>
</tr>
<tr>
<td>15</td>
<td>National Institute of Technology, Rourkela</td>
<td><a href="http://dspace.nitrkl.ac.in/dspace">http://dspace.nitrkl.ac.in/dspace</a></td>
</tr>
<tr>
<td>16</td>
<td>Raman Research Institute, Bangalore</td>
<td><a href="http://dspace.rri.res.in/">http://dspace.rri.res.in/</a></td>
</tr>
</tbody>
</table>
Following Institutional Repositories were not considered for the study:

1. Institutional repositories which were in the planning as well as testing phase were excluded from the study, for example Indian Institute of Information Technology, Allahabad which was in testing phase during the period of data collection.

2. The Cross institutional archives such as DSpace @ INFLIBNET by INFLIBNET were not considered for the study. Also Subject archives such as Librarians digital library (LDL) developed by DRTC Bangalore which is exclusively meant for Library and Information Science and OpenMED@NIC which is exclusively meant for Medical and Allied Sciences were not considered for the study. This is because the digital documents of the archive were not belonging to the one institution but to many institutions. They were wrongly listed as Institutional Repositories in a few articles.

3. Institutional repositories which were not in working phase / condition although the researcher communicated with respective persons (web administrator / library staff) through their e mail Ids, as well as telephonic inquiry but did not get any response from them. The names of such repositories are presented in Table No. 3.3.

### Table No. 3.3: List of institutional repositories not considered for the study

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the IR</th>
<th>URL of the IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GB Pant University of Agriculture &amp; Technology, Pant Nagar</td>
<td><a href="http://202.141.116.205/dspace/">http://202.141.116.205/dspace/</a></td>
</tr>
<tr>
<td>2</td>
<td>IIT, Kharagpur</td>
<td><a href="http://10.17.32.208/dspace">http://10.17.32.208/dspace</a></td>
</tr>
<tr>
<td>3</td>
<td>Indian National Science Academy, New Delhi</td>
<td><a href="http://drtc.isibang.ac.in/insa">http://drtc.isibang.ac.in/insa</a></td>
</tr>
<tr>
<td>4</td>
<td>National Centre for Radio Astrophysics, Pune</td>
<td><a href="http://ncralib.ncra.tifr.res.in/dspace">http://ncralib.ncra.tifr.res.in/dspace</a></td>
</tr>
<tr>
<td>5</td>
<td>Sri Venkateswara University, Tirupati</td>
<td><a href="http://202.41.85.207:8080/dspace">http://202.41.85.207:8080/dspace</a></td>
</tr>
<tr>
<td>6</td>
<td>University of Hyderabad, Hyderabad</td>
<td><a href="http://202.41.85.207:8080/dspace">http://202.41.85.207:8080/dspace</a></td>
</tr>
<tr>
<td>7</td>
<td>Cochin university, Cochin</td>
<td><a href="http://dspace.cusat.ac.in:8080/dspace">http://dspace.cusat.ac.in:8080/dspace</a></td>
</tr>
<tr>
<td>8</td>
<td>Central Plantation Crops Research Institute, Kasaragod</td>
<td><a href="http://210.212.229.11:8080/dspace/">http://210.212.229.11:8080/dspace/</a></td>
</tr>
</tbody>
</table>
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After identifying the institutional repositories the next task of the researcher was to obtain an electronic mailing list of web administrators of respective institutional repositories. Researcher collected electronic mailing list of web administrators by visiting institutional repository websites. In cases of few Institutional Repositories, e-mail address of web administrators given on web sites was not working. Delivery of E-mails failed even with repeated efforts. In such cases researcher collected e-mail list of librarians by visiting home pages of libraries of respective institutions and contacted to them.

Thus after identification of 16 institutional repositories and e-mail addresses of web administrators of these repositories, researcher sent e-mails containing URL of the web questionnaire no. 1 (Appendix III) and requested to fill the required data in the questionnaire.

3.2.2 Users of institutions having IR

Obtaining electronic mailing list of users of institutions having institutional repositories: Users included researchers, faculty members, students, etc. who may or may not be using the IR facility. To compile the list the users took the help of various websites as follows

A. Institution web sites
B. Departmental web sites
C. Users own websites

All the 16 selected institutions had listed the researcher / scientist / students e-mail ids on their websites. Researcher visited websites of all the institutions, departmental websites IISc, ISI etc. as well as own websites of users wherever mentioned on institutions websites. In this way list of users was compiled.

Thus 35 users were selected from each institution making total of 490 users. They were sent e-mails containing URL of the web questionnaire and requested to fill data in the web questionnaire no. 2 (Appendix IV).
3.3 Challenges of the study

3.3.1 IR Development and Management

In case of few Institutional Repositories, e-mail addresses of web administrators given in their web sites were not functional. E-mail delivery was failing. In such cases researcher collected e-mail list of librarians by visiting home pages of libraries of respective institutions and contacted the web administrators through these addresses. This was highly time consuming activity.

A significant problem, however related to the Institutional repositories, which were implemented, but not were in working phase. The researcher tried to communicate with the web administrators of such institutional repositories, which were not in working condition. However no response was received from them. One reason for no response may be the URL might have changed.

With IGIDR institutional repository, its old non-working URL was listed in one of the directories. Researcher identified e-mail address of Chief librarian of IGIDR with the help of LIS Forum and contacted to get the new URL.

Researcher constantly monitored one IR which was in testing phase for more than six months. Since it did not complete the testing phase it could not be consider for the study.

Subject coverage of the institutional repositories studied by researcher was dominated by the fields of pure sciences, applied sciences and business management. Also there was only one institutional repository developed by a university, the rest were R&D government / non government institutions.

3.3.2 Users of institutions having IR:

All the surveyed institution had listed the e-mail ids of researchers and scientists. Student e-mail ids were listed by all institutions except NIO, NCL and IIAP.
In such cases researcher had sent e-mails to the web administrator to get the e mail ids of the students. However the researcher did not receive any response from them. Researcher had visited personal web pages / departmental websites of faculty members or scientists and collected PhD students e-mails ids. In many of such cases these e-mail ids were not functional, messages such as delivery failed was received. Then the researcher had to send e-mail to the next student on the list of the institution. This survey did not consider PhD students who had completed their work and had moved onto other institutions.

In spite of all these challenges, researcher collected data applying survey research method and questionnaire as a tool for data collection that has been discussed in detail in next chapter.
REFERENCES