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PEER-REVIEWED JOURNAL ON THE INTERNET

Scientific journal publishing in India: Promoting  
electronic publishing of scholarly journals in India

by Thomas Abraham  
and Suvarsha Minj

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## Abstract

This article provides a report about the Scientific Journal Publishing in India (SJPI) Project which promotes electronic publishing of scholarly journals. It covers briefly the objectives, implementation and outcomes of the Project. Open Journal Systems and Open Archives Harvester were used to achieve the goals of the Project.

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## Introduction

The publication and access of scholarly literature has changed around the world. In this scenario, scholarly literature from developing countries like India has fewer barriers, at least ideologically, to embrace open access. Unlike much of the scholarly journal industry in developed countries, scholarly journals in the developing world are not huge economic enterprises. For scholars and scholarly publishers in the developing world, there are enormous rewards of sheer recognition and access to a broad and diverse audience; these factors overcome economic and financial inhibitions to publish on the Web with open access. It is necessary to recognize that:

1. the world has grown flat and provides immense opportunities through the Web, freely available technologies, and new standards for sharing information.
2. Training is critical to optimally use technologies to publish scholarly literature.

The purpose of the SJPI Project was to work with the journal publishing community in India to make them aware of these factors. The standards of open access publishing and the availability of tools like the Open Journal Systems were used by the Project to meet these goals.

At the time the project began, a large number of journals in India were not published electronically. Although those published were openly accessible, they did not use e-publishing tools or adhere to publishing standards like Open Archives Initiative — Protocol for Metadata Harvesting (OAI-PMH). One of the purposes of the Project was to highlight the need for structured metadata and standards like OAI-PMH among Indian publishers to make scholarly content more visible in electronic media. While educating editors of journals about these, the Project also looked at what features publishers were looking for in a journal management system like Open Journal Systems (OJS). The outcome of the project incorporated a few of

these features into OJS. A Hindi interface for OJS was also developed to support local language content.

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## About the SJPI Project

The SJPI Project was based at National Centre for Science Information at the Indian Institute of Science in Bangalore, India. The Project was sponsored by the Asian Media Information and Communication Center (AMIC) and the Pan Asia ICT Grants Program (based in Singapore) of the International Development Research Centre (IDRC). The Project was carried out from October 2004 to March 2007. The Public Knowledge Project (PKP), headed by John Willinsky, partnered for Project SJPI.

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## Objectives of the SJPI Project

The Project was done in two phases. The primary objective of the first phase of the Project was to set up prototype journal indexing and management systems for a sample of Indian journals. The PKP's OJS was used for setting up prototype journals and the PKP's Harvester was used to harvest metadata from them. These aspects of the Project demonstrated the usefulness of incorporating structured metadata during the workflow process to the journal editors. Making the content of the journals metadata OAI-PMH compliant increased accessibility of content, revealed by indexing and searching across all of the journals.

The specific objectives of first phase were:

- To install a prototype indexing system using a sample of open access journals;
- To install the harvester to index all of the journal prototypes and enable searching across all of them from a single interface;
- To demonstrate and consult with editors of journals on the following issues:
  - How to capture metadata during the submission process;
  - Demonstrate the harvester with the objective of revealing the advantages of publishing with OAI-PMH compliance; and,
  - Obtain their feedback on features of the publishing system;
- To refine the system based on the feedback received; and,
- To organize a workshop at the national level to transfer knowledge and skills gained by the project team to those involved in actual journal publishing.

The specific objectives of the second phase were:

- To help Indian journals to go online;
- To develop a Hindi language interface for OJS;
- To incorporate new features to OJS;
  - LaTeX support for special characters; and,
  - Classification scheme;
- To conduct another national level workshop on journal publishing.

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## Open Journal Systems (OJS)

OJS is a journal management and publishing system that has been developed by the Public Knowledge Project (<http://pkp.sfu.ca/>). It is an open source software for online management and publishing of journals with OAI-PMH compliance. It is made freely available for the purpose of making open access publishing a viable option for more journals.

OJS is Web-based and hence requires a Web server. It uses a database management system like MySQL at the backend and is scripted using PHP. The look and feel of the journal can be changed to a certain extent. Since it is open source, it can be customized to suit the needs of a specific journal.

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## Open Archives Harvester

The Open Archives Harvester is a free metadata indexing system developed by the PKP. The Harvester

creates a searchable index of the metadata from Open Archives Initiative (OAI)-compliant archives.

## Project implementation

1. Studying OJS: OJS version 1.18 was installed on the server to create a hypothetical journal. Editors, users and other profiles were created on the system. Sample content for the journal was also added.
  - The purpose of this part of the Project was to analyze OJS' metadata as well as indexing and searching mechanisms. We also studied workflow mechanisms and interfaces as well as additional features supported by OJS (such as uploading of back issues, search engine-friendly URL generation, LOCKSS support, etc.). We also examined the limitations of the software (full-text indexing was not done by OJS, which we considered a serious limitation; in the later versions of OJS, it is possible).
2. Installing and configuring OJS for journal prototypes: Initially we set up the OJS for two journals: *Journal of Indian Institute of Science (JIISc)* and *Sarada Ranganathan Endowment for Library Science Journal of Information Management (SRELS JIM)*.
  - The objective was to determine approximately how much time it took to enter a record into the system. This would help us determine how many man-hours it would require to enter data into the other journal prototype systems. We also looked at how we can change default looks, color schemes, images, etc.
3. Installing and configuring OJS for the 11 Indian Academy of Sciences (IAS) journals: OJS was then setup for all the 11 journals of the IAS (see [Appendix](#) for the complete list of journals). This included setting up the OJS, configuring it to the journal by inserting information like the editor, editorial board members, changing the default images and color schemes of OJS, etc.
4. Customizing the journal *Current Science*: We also customized the *Current Science* prototype installation, so that its online publishing and workflow process were separated. The look and feel of *Current Science* was also modified so that it looked similar to the online journal. This task demonstrated to the editors how the system could be adapted to suit their requirements. A comparison of the *Current Science* live Web site with the SJPI prototype site can be seen in Figures 1 and 2.

The screenshot displays the homepage of the *Current Science* journal website. At the top, there is a navigation bar with links for Home, Contents, Subscribe, Publish, Advertise, and Editorial Board. A 'Refresh' button is visible next to the 'CURRENT SCIENCE Online' logo. On the right side, there is a link for 'Back Issues'.

The main content area is divided into several sections:

- Current Issue:** Vol. 90, No. 3, 10 February 2006.
- Contact Information:**
  - Editor:** P. Balaram
  - Editorial Office:** Current Science, C.V. Raman Avenue, P. B. 8001, Bangalore 560 080, INDIA
  - General Information:** Tel : 91 080 2361 2310, Fax : 91 080 2361 6094
  - E-mail:** [currsci@ias.ernet.in](mailto:currsci@ias.ernet.in)
  - Download Acrobat Reader**
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    - 278 [Bt-cotton: Protein expression in leaves is most critical, T. M. Manjunath. Response: Bt-cotton: High toxin level in fruiting parts is most critical for bollworm control, K. R. Kranthi](#)
  - NEWS**
    - 280 [Workshop on biodiversity informatics and interlinking of databases](#) by S. Sreekumar, P. M. Safeer, C. K. Biju, M. Raveendran and P. N. Krishnan
    - 281 [India's competitiveness and preparedness in Science & Technology for the coming decades](#)

Figure 1: *Current Science* online Web site hosted at the Indian Academy of Sciences.

**CURRENT SCIENCE** Online Home | Current | Archives | About | Notify | Contact | Search | Advertise

This is a prototype developed for the **SJPI project**. The journal is at: <http://www.ias.ac.in/currsci/>

CS Home > Vol. 87, No. 2 (2004) Project SJPI: Scientific Journal Publishing in India

Current Science, founded in 1932 is published by the Current Science Association in collaboration with the Indian Academy of Sciences . The journal is also intended as a medium for communication and discussion of important issues that concern science and scientific activity. All articles published in Current Science, especially editorials, opinions and commentaries, letters and book reviews, are deemed to reflect the individual views of the authors and not the official points of view, either of the Current Science Association or of the Indian Academy of Sciences.

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2. Indian scholars boost S&T research in Taiwan [PDF](#)  
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Figure 2: Current Science prototype installed by the SJPI Project.

5. Uploading content to all journals: Six issues (two issues of three volumes or years) were entered into the journal prototype systems. For all of the journals, except one, we obtained content from their Web sites. The content of *SRELS Journal of Information Management* was delivered on CD by the editors of the journal as it does not have an online version.
6. Installing PKP Harvester: The PKP Harvester was set up at <http://sjpi.ncsi.iisc.ernet.in/harvester/>. Entitled the 'SJPI Cross Journal Search Service', it was configured to harvest data from all of the thirteen prototype journals.

Home > Search Results Powered by PKP Harvester

**Search Results for "pollution"**

Displaying records 1 through 5 of 5.

▶ **Comparison of inherent properties of glass fibre filters**  
Varade, Sarika A; Gajbhiye, Aparna; Phadke, K M; Kumar, Animesh;  
January 5, 2005  
Journal of the Indian Institute of Science, Vol. 83, No. 586 (2003)  
[View Record](#) | [View Original](#)

▶ **Porous carbons**  
Manocha, Satish M;  
February 10, 2005  
Sadhana, Vol. 28, No. 182 (2003)  
[View Record](#) | [View Original](#)

▶ **The promise of fuel cell-based automobiles**  
Shukla, A K; Jackson, C L; Scott, K;  
March 9, 2005  
Bulletin of Materials Science, Vol. 26, No. 2 (2003)  
[View Record](#) | [View Original](#)

▶ **Organic Synthesis using Clay Catalysts: Clays for 'Green Chemistry'**  
Nagendrappa, Gopalpur;  
March 14, 2005  
Resonance - journal of science education; Vol. 7, No. 1 (2002)  
[View Record](#) | [View Original](#)

▶ **Lichens: A Valuable Bioresource for Environmental Monitoring and Sustainable Development**  
Negi, Hans Raj;  
June 10, 2005  
Resonance - journal of science education; Vol. 8, No. 1 (2003)  
[View Record](#) | [View Original](#)

**Quick Search**

pollution  
In All  
[Search](#)  
[Advanced Search](#)

A search for keyword 'pollution' yields 5 records from 4 different journals

Figure 3: The SJPI Harvester Web site.

7. Demonstration and feedback: The journal prototypes and Harvester were demonstrated to the editors of the journals and we obtained their feedback on additional features they required.
  - Other than formal communication with editors, we also met with journal staff and helped them with installation and training. One such meeting was with the editors and staff of the *Journal of Tropical Agriculture*.
8. Incorporating a classification scheme into OJS: A classification scheme was incorporated into the OJS (version 2); this scheme can be used by authors to classify their papers during the process of submission.
9. Workshops: Two workshops were organized on 10–11 February 2006 and 14–15 December 2006. About twenty participants involved in journal publishing participated in each workshop. Participants were trained to install and use the OJS software.
10. Feedback on OJS: Feedback obtained from the editors was provided to the Project partners (PKP) on the shortcomings of the OJS version 1.1.8. Some of the suggestions have been incorporated in the next version of OJS.
11. Enabling search engine–friendly URLs: We have also enabled search engine–friendly URLs for the journals. This helps content to be indexed individually in search engines like Google, giving individual papers greater visibility.
12. Hindi version of OJS: Hindi language interface for OJS was developed with the help of tools and files provided in OJS.
13. Project Web site: A Project Web site was created with information about related projects, resources and information for editors to know more about our project and also issues in journal publishing at <http://sipi.ncsi.iisc.ernet.in>.
14. OAJP — Open Access Journal Publishing in India mailing list: A mailing list was established to facilitate discussion of issues relative to open access publishing in India (<http://ncsi.iisc.ernet.in/mailman/listinfo/oajp>).

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## Outcomes

Other than the outcomes given under the heading [Project implementation](#), we also learned a number of issues in journal publishing that we would like to share here:

1. Features suggested by journal editors:

While interacting with editors of journals, they suggested some features to be incorporated into OJS namely:

- a. Classification scheme

**Problem:** Many scholarly journals categorize articles using a classification scheme. This scheme may be based on a standard like IAN followed by the journal *Pramana* or a local scheme like the one used by *Current Science*.

**Solution:** Enabling OJS to incorporate a classification scheme, instead of users just having to type in numbers, could be a useful feature. It could also be used to assign articles to editors or reviewers with specializations in specific areas.

- b. Finding reviewers

**Problem:** *Current Science* (<http://www.ias.ac.in/currsci/>) has about 1,000 reviewers in its database. Each reviewer has a number of parameters assigned to them. For example, areas of specialization, number of papers reviewed in the past, papers currently under review, average time taken to work on a paper, and number of assignments accepted or rejected. Assigning papers for reviewing is a huge task in itself.

**Solution:** A much richer interface for the editors while assigning papers for review. This interface would have greater input functions and as a consequence generate more data for each reviewer; the interface in turn would allow an editors to more easily assign reviewers.

- c. Suggesting potential reviewers by authors

**Problem:** Most scholarly journals deal with different varieties of subjects within their scope. Usually reviewers have expertise in their areas of research only. While assigning reviewers to articles submitted by authors, there can be some confusion on the part of editors.

**Solution:** If there is an option for authors to suggest potential reviewers along with their contact details and area(s) of expertise, this problem can be solved to a great extent.

2. Plagiarism and online journals: One of the journals used for our prototype system is a print–only journal. Hence, the six issues uploaded by our prototype are the only online issues. By virtue of its online access, one of the papers was detected as a plagiarism from a book. The paper was subsequently withdrawn from the journal following complaints by the author of the original as well as the publisher. Thus we can conclude that going online will make authors and publishers more aware

of intellectual property rights and enhance the overall quality of scholarly journals.

3. *Journal of Tropical Agriculture*: One of the most important outcomes of the Project was online availability of the hitherto print-only journal, the *Journal of Tropical Agriculture*. Members of the Project provided training and helped setup the online version of journal using OJS. The journal is available online at <http://www.jtropag.in>.

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## Future work

The workshops and meetings, other than the training in the use of the software, also provided a platform to bring together a group of people who dealt with journal publishing. It brought to our attention the problems faced by journal publishers in general and those specifically in India. Based on the feedback given, the following work could be taken up in the future:

1. With the Hindi version of OJS, customization of OJS to Indian languages should be easy.
2. Add the new features identified and developed by the OJS team into the official OJS software release.
3. Enhance OJS to support special characters.
4. A centralized organization or regional support system for creating online journals in India.
5. More intensive training for the editors of journals to use the system.
6. Handhold a few journals which are interested in publishing online to setup their site.

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## Conclusion

Making a scholarly journal openly available increases visibility both in terms of numbers and range. In addition, more paper submissions are generated from a geographically wider audience. These advantages need to be brought to the attention of variety of Indian journal publishers. 

## About the authors

**Thomas Abraham** is a member of the staff of the SJPI Project, which is carried out at National Centre for Science Information of the Indian Institute of Science in Bangalore. **Suvarsha Minj**, now working at Yahoo! India R&D, was a team member of the Project.

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## Appendix: List of journals used in the Project

OJS was used to create journal prototypes for the journals in this table. This list includes a link to the original Web site of each journal as well as Web sites of prototypes.

Table 1: Journals included in the Scientific Journal Publishing in India (SJPI) Project.			
SI No.	Journal title	URL of prototype	Original URL



1	<i>SRELS Journal of Information Management</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/sjim">http://sjpi.ncsi.iisc.ernet.in/sjim</a>	not published online
2	<i>Journal of the Indian Institute of Science</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/jiisc">http://sjpi.ncsi.iisc.ernet.in/jiisc</a>	<a href="http://journal.library.iisc.ernet.in">http://journal.library.iisc.ernet.in</a>
3	<i>Current Science</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/cs">http://sjpi.ncsi.iisc.ernet.in/ias/cs</a>	<a href="http://www.ias.ac.in/currsci/index.html">http://www.ias.ac.in/currsci/index.html</a>
4	<i>Pramana</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/pramana">http://sjpi.ncsi.iisc.ernet.in/ias/pramana</a>	<a href="http://www.ias.ac.in/pramana/index.htm">http://www.ias.ac.in/pramana/index.htm</a>
5	<i>Journal of Chemical Sciences</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/jcs">http://sjpi.ncsi.iisc.ernet.in/ias/jcs</a>	<a href="http://www.ias.ac.in/chemsci/index.html">http://www.ias.ac.in/chemsci/index.html</a>
6	<i>Proceedings — Mathematical Sciences</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/pms">http://sjpi.ncsi.iisc.ernet.in/ias/pms</a>	<a href="http://www.ias.ac.in/chemsci/index.html">http://www.ias.ac.in/chemsci/index.html</a>
7	<i>Proceedings — Earth and Planetary Sciences (title changed to Journal of Earth System Sciences)</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/peps">http://sjpi.ncsi.iisc.ernet.in/ias/peps</a>	<a href="http://www.ias.ac.in/jessci/index_body.html">http://www.ias.ac.in/jessci/index_body.html</a>
8	<i>Sadhana</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/sadhana">http://sjpi.ncsi.iisc.ernet.in/ias/sadhana</a>	<a href="http://www.ias.ac.in/sadhana/index.html">http://www.ias.ac.in/sadhana/index.html</a>
9	<i>Journal of Biosciences</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/jbs">http://sjpi.ncsi.iisc.ernet.in/ias/jbs</a>	<a href="http://www.ias.ac.in/jbiosci/index.html">http://www.ias.ac.in/jbiosci/index.html</a>
10	<i>Bulletin of Material Sciences</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/bms">http://sjpi.ncsi.iisc.ernet.in/ias/bms</a>	<a href="http://www.ias.ac.in/matersci/index.html">http://www.ias.ac.in/matersci/index.html</a>
11	<i>Journal of Astrophysics &amp; Astronomy</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/jaa">http://sjpi.ncsi.iisc.ernet.in/ias/jaa</a>	<a href="http://www.ias.ac.in/jaa/index.html">http://www.ias.ac.in/jaa/index.html</a>
12	<i>Journal of Genetics</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/jgen">http://sjpi.ncsi.iisc.ernet.in/ias/jgen</a>	<a href="http://www.ias.ac.in/jgenet/index.html">http://www.ias.ac.in/jgenet/index.html</a>
13	<i>Resonance</i>	<a href="http://sjpi.ncsi.iisc.ernet.in/ias/resonance">http://sjpi.ncsi.iisc.ernet.in/ias/resonance</a>	<a href="http://www.ias.ac.in/resonance/index.htm">http://www.ias.ac.in/resonance/index.htm</a>

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<http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/1954/1831>