

ISSN 0974-8776

Volume 27 (1) 2011

# Indian Journal of Agricultural Library and Information Services

<http://www.ijalands.com>

Journals

e-books

e-learning



Association of Agricultural Librarians and Documentalists of India

# EVOLUTION OF INSTITUTIONAL REPOSITORY AT CMFRI

V. Edwin Joseph\* and Dr. V. Mohan\*\*

## ABSTRACT

*The paper traces the evolution of IR at CMFRI which is an initiative to implement IR at other ICAR Institutes. Discusses the lessons learned and best practices for implementing IRs and will pave way for other ICAR Institutions and State Agricultural Universities in India to examine the feasibility of IRs in the Indian context.*

*CMFRI first introduced the Green Stone Digital Library (GSDL) software for uploading the scanned scientific papers and experienced some Hurdles. Realizing the difficulty in this software, selected Eprints software Version 3.1.3 which is freely available at [www.eprints.org](http://www.eprints.org) developed by University of Southampton, UK. The Eprints software produces the necessary Dublin Core metadata for harvesting by service providers. The repository configures a new archive with a set of metadata fields aims at an archive of research papers. The CMFRI institutional repository is titled as [Eprints@CMFRI](mailto:Eprints@CMFRI). The steps in implementing the IR are summarized and lessons articulated.*

## EVOLUTION OF INSTITUTIONAL REPOSITORY

CMFRI is the oldest Marine Fisheries Research Institute in India. The main outcome of the marine research is to publish scientific papers. These scientific papers published since 1953 are not well documented for wide spread utility of scientific community both inside as well as outside India. The research output must be applied to achieve the broader developmental objectives of the scientific society which may result in public accountability of the research. But the dissemination of research output is a major challenge and until it is known to the world the research has no meaning. In recent years Information, Communication and Technology (ICT) have made significant impact on all spheres of library service viz. Online Public Access Catalogue, WebOPAC, online bibliography, Online Document Delivery Service, Digital Library and Institutional Repository.

## TRADITIONAL WAY OF PUBLISHING BIBLIOGRAPHY

In order to bring the list of research publications in one bunch, the Institute was publishing bibliographies in print form. List of publications by the staff of CMFRI for the period from 1948 to 2006 was published CMFRI Special Publication Nos. 27, 51, 68 and 96 at various intervals. CMFRI Special Publication No. 96 was published during Diamond Jubilee Celebration with its release by Hon'ble Shri Sarad Pawar, Union Minister of Agriculture on 4th January 2008. Though we publish the list of papers in print copies of the bibliographies, the full text of the research paper was not reaching the global audience.

## ONLINE BIBLIOGRAPHY

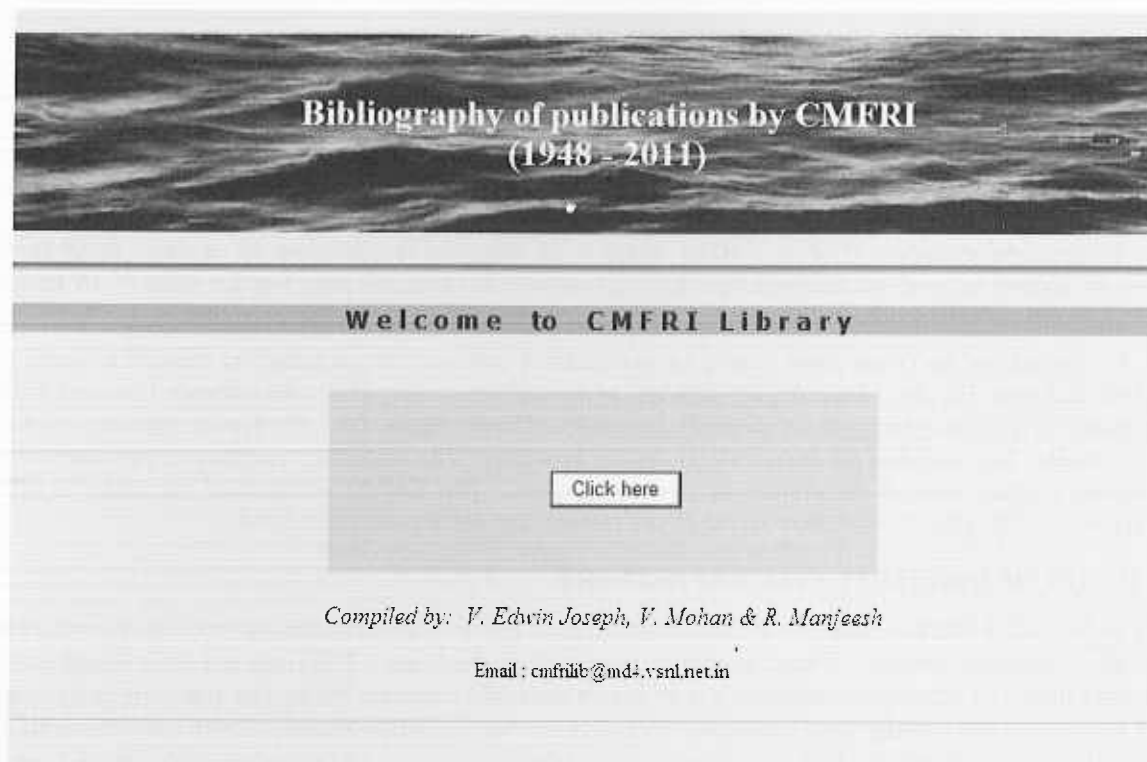
Realizing the need of wide spread publicity to the papers world wide and following the recent trends of facilities available in the internet, CMFRI Library has taken initiation to keep the bibliographical details of the papers published by CMFRI in the internet. The software was developed in MS Access format with keyword search facilities to create a database for CMFRI Bibliography. Online Database for CMFRI Bibliography was created for the period from 1948 – 2008. It was launched online during Diamond Jubilee Celebration on 4th January 2008. This is the first online bibliographical database for the papers published by our scientists. This may be accessed at the CMFRI

Website: [http://www.cmfri.org.in/html/cmfri\\_intraSPS.html](http://www.cmfri.org.in/html/cmfri_intraSPS.html)

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\* Officer-in-charge, Library & Documentation, Central Marine Fisheries Research Institute, Cochin - 682 018

\*\* Technical Officer (Library), Library & Documentation, Central Marine Fisheries Research Institute, Cochin - 682 018



### **Eprints@CMFRI: Institutional Repository (IR) at CMFRI**

The online bibliography compiled by CMFRI Library was useful only for knowing the bibliographical details of the paper published by CMFRI. Though CMFRI has published more than 10000 papers since 1954, the full text of these articles has not reached the global audience. As a result, citation index for these scientific papers are very poor. The value of a scientific paper is rated by the citation index. Realising this CMFRI Leadership strongly felt an institutional repository be established to provide open access to the Institute's scientific publications. CMFRI Library took the lead in implementing the IR for Institute's publications. The aim of the IR at CMFRI is to provide an effective means of ensuring the disclosure of and access to the scholarly work research of this research institute.

### **PRE-IMPLEMENTATION**

Prior to the selection of the software, certain basic items have to be decided. After the lengthy discussion with the CMFRI leadership, the undermentioned issues were finalised.

### **SCANNING OF DOCUMENTS**

- **Document organization:** In this phase, the hardcopy of the documents which are to be scanned are arranged in a pre-defined order to ensure a error-free, effective and swift scanning of the documents
- **Document scanning:** In this phase, the paper documents are scanned using the most modern high-speed scanners. These are Flatbed scanners with Automatic document feeder and it uses the CCD technology. This entire scanning process is supervised by the administrators; clarity and alignment of the images is maintained at the highest accuracy levels possible. We ensure that documents of all sizes are scanned with equal accuracy and if needed, we can also convert them to image only PDF formats
- **Document re-organization:** Once the scanning phase is complete, the scanned documents are now tested thoroughly for the quality of the images from TIFF and OCR to slim PDF. This task is performed by the Administrators and if needed certain documents maybe re-scanned to ensure absolute precision.

Once the scanning process is complete the output files can be retrieved from our Library server through open source software. All the documents which may be more than 4 lakh pages have been scanned at the Institute premises include

- CMFRI Publications
- Bulletins
- Special Publications
- Books
- Marine Fisheries Information Service
- News Letters
- CMFRI Proceedings
- Thesis and Dissertations
- Technical Instruction manuals, Lecture Notes, Reports etc.
- Articles published from various journals/books/proceedings

## **CMFRI COPYRIGHT POLICY**

### **Authors's Copyright**

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### **The right to self-archive**

The right to self-archive the refereed postprint is a legal matter because the copyright transfer agreement pertains to that text. But the pre-refereed preprint is self-archived at a time when no copyright transfer agreement exists and so the author holds exclusive and full copyright. In general, when you publish in a journal you transfer the copyright to the publisher. Most journals permit self-archiving, but it depends on the publisher's copyright policy. Authors can also deposit the postprint inside the archive with restricted access. Authors may request that the publisher give back certain rights, e.g. the right to deposit the postprint in an open access archive, or to put it on your own homepage. Some publishers have stated that they grant these rights as a standard procedure. Copyright law gives the creator of copyrighted work exclusive rights, which may be both segmented and transferred to others. Managing copyright wisely can significantly enhance the values of the educational system.

## **SELECTION AND IMPLEMENTATION OF EPRINTS SOFTWARE**

The important decision to be taken while implementing the IR is the selection of an Open Source Software. CMFRI had first introduced the Green Stone Software and uploaded more than 1000 scientific publication by the staff. We experienced that the uploading process was slow and the generating of the metadata in the software took longer time. Realising the difficulty in this software, uploading was suspended. An enquiry was floated with all marine science librarians' of the world having the IR in their Institutes. Most of the Librarians and IR administrators recommended Eprints software developed by University of Southampton, UK; Dspace software developed by MIT of USA and Federa developed by Virginia and Cornell Universities. As such, CMFRI selected the Eprints software Version 3.1.1. which is freely available at [www.eprints.org](http://www.eprints.org). The software is Open Archive Initiative (OAI) compliant. Since OAI is based on the exchange of metadata,

getting the metadata right is fundamentally important for the repository. The Eprints software will produce the necessary Dublin Core metadata for harvesting by service providers. Eprints configures a new archive with a set of metadata fields aims at an archive of research papers.

The Eprints software enables the administrators to describe their own subject hierarchy and load it into the database fairly easily. However it is more complex to alter this once you have started to upload the documents. So it is important to get this right before uploading too many papers.

Eprints software was downloaded from website and installed in the library server by creating a web interface for the repository and the institutional repository was named as Eprints@CMFRI. Eprints software provides a well interface for managing, submitting, searching/browsing and downloading documents. It has taken one day to customise the web interface for the IR.

## TECHNICAL REQUIREMENTS

The hardware and software requirements for Eprints Version 3.1.1. are as follows:

- A good server capable of running Linux
- Linux Operating System. The latest version is freely available at [www.linux.org](http://www.linux.org).
- The Apache server ([www.apache.org/httpd.html](http://www.apache.org/httpd.html)) another professional quality free software product, offers included with Linux distributors, such as that produced by Red Hat ([www.redhat.org](http://www.redhat.org)).
- Perl programming language ([www.perl.com](http://www.perl.com)) also included with Linux
- My SQL database ([www.mysql.com](http://www.mysql.com)) a free database system

**CMFRI DIGITAL REPOSITORY**

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Welcome to Eprints@CMFRI

Eprints@CMFRI is the Open Access research outputs repository of Central Marine Fisheries Research Institute. Research outputs of CMFRI - journal papers, conference papers, reports, theses, patents etc. - are uploaded/self-archived by CMFRI scientists who do research on fisheries and related areas. Interested users can freely download and use documents as most of them are directly accessible and full-text downloadable. 'Request Copy' forms can be used for documents to which direct full-text download is restricted due to publisher embargo. See repository policies here. Thanks for using the repository!

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A screen shot of eprints@cmfri

The scanned 8000 scientific papers have been uploaded in the IR. Now all the publications published by CMFRI right from the year 1953 may be downloaded at the Website: <http://eprints.cmfri.org.in/>

Interested users can freely download and use documents as most of them are directly accessible and full-text downloadable. 'Request copy' forms can be used for documents to which direct full-text download is restricted due to publisher embargo.

### **REGISTERING THE CMFRI INSTITUTIONAL REPOSITORY**

Research publications in Eprints@CMFRI can immediately be found in global indexing and search services as it is being immediately harvested by the international search engines. The repository is registered with the following search engines like:

- Google
- Google Scholar
- Oaister
- Base
- Scientific Commons and
- Scirus

In order to compete with the international open access repositories and Ranking Web of World Repositories (RWWR), our Eprints@CMFRI is also registered with the under mentioned global open access directories.

- ✓ ROAR - Registry of Open Access Repository of the world  
<http://roar.eprints.org/>
- ✓ DOAR - Directory of Open Access Repository, UK  
<http://www.opendoar.org/>
- ✓ AVANO – a Marine and Aquatic Science Open Access Repositories, USA  
<http://www.ifremer.fr/avano/>

### **BENEFITS OF EPRINTS@CMFRI REPOSITORY**

- Prestige of the Institute will be raised when a staff paper is included in Eprints@CMFRI
- Enhances the professional visibility of scientists of the institute
- Serves to demonstrate the breadth and depth of research output of CMFRI
- Open Access Repositories like Eprints@CMFRI offer the widest possible dissemination of scientific findings
- Research has demonstrated that open access online articles have appreciably higher citation rates than traditionally published articles
- Serves to establish priority of ideas and intellectual property, i.e. registering the work with a date stamp and identifier
- The centralized system of documenting the papers manages and presents the research output of the Institute in an organized fashion
- Students/Scientists can easily access faculty papers via Eprints@CMFRI. This provides easier access to the entire publications of CMFRI
- Preserves and provides long-term access to the scholars' research output
- All institutes' papers in one roof will facilitate the policy makers to select the non priority areas in Marine Fisheries
- Scientific output of institute is reaching the global audience immediately

CMFRI Open Access Institutional Digital Repository places "CMFRI" as the first ICAR Institute to reach this stage. CMFRI also ranks first at national level and fifth at global level among the open access repositories on marine sciences. Among all IR (including all disciplines), CMFRI ranks in 499<sup>th</sup> place in ranking web of world repositories (<http://repositories.webometrics.info/toprep.asp>) and 112<sup>th</sup> place in Google scholar.

Our experience at CMFRI has shown that there are three key elements for the development and launch of successful IR.

- The support endorsement and more critically, the content produced by our researchers
- The resources (Staff, equipment, expertise) to ensure that it is developed, marketed and launched properly
- Joint work between the CMFRI Library and the ARIS Cell. The service is hosted as a computing server and was installed by ARIS Cell Staff. CMFRI Library has been responsible for its "look and feel" administration and promotion

### **ACKNOWLEDGEMENT**

Authors are thankful to Dr. G. Syda Rao, Director for his untired support for successful implementation of IR at CMFRI, without his guidance this IR would not have come up. We would like to thank to Dr. J. Jayasankar, Scientist-in-charge, ARIS Cell and Mr. Madhan, Librarian, ICRISAT, Hyderabad for their invaluable technical support for the installation of software.

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