

Information Management and Electronic Library Services in TERI University and International Libraries worldwide

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***Abstract.** University Library is integral to the University's mission by- positioning the Library's information services in an expanding digital world meeting the changing needs and develop rules to foster a culture of collaboration, flexibility and innovation. Technology continues to change services - virtual reality, discovery tools, open content, open source and new social networking tools are some of the most important technological changes affecting university libraries worldwide. The exciting developments are Online library management services and discovery tools, which provide a single interface to multiple resources using a consolidated resource that promises faster and better search results.*

Developed countries' library visits in the US, Canada, UK, Europe, China,UAE have helped to conduct a broad-based audit of the Library's facilities and practices to ensure compliance with the high standards. In almost all libraries globally, more and more repositories are emerging. The initiatives are in progress to make e-resources widely available and accessible to broad scholar communities. As digital collections mature, long-term planning for their preservation is essential. Academic libraries will increasingly focus on distinctive and unique collections in service to regional and national scholarly audiences. Many of these collections, particularly those that include unique content or institution-specific materials such as university theses, records and gray literature, are digitized. Higher education universities are facing challenges due to rise of online instruction programs. Shifts in higher education have an impact on libraries in terms of expectations for development of collections, delivery of collections and services for Online learning environment. Some academic libraries have taken an active role in changing the scholarly communication environment by creating or expanding services. University libraries are providing "The Open Course Library," which makes books freely. Though TERI University Library's information resources remain a developing mix of print and electronic materials, within the next four-to-five years approximately 70% of the Library's resources will be electronic.

Keywords: Information Management, Electronic Library Services, University Libraries, International Libraries, International Linkages

1. Introduction

TERI University is serving society as a seat of advanced learning and promotes learning through teaching, creating and sharing knowledge. The University commits itself to academic excellence in an environment which encourages personal and intellectual growth. It provides world-class training in Energy Studies, Biosciences, Environmental Studies, Public Policy. The academic programmes provide students a holistic perspective of the subject at hand and have a wider approach to encourage interdisciplinary learning. It establishes and participates in collaborative activities with other educational institutions in and outside the country. It also organizes conferences and seminars on subjects of theoretical or practical relevance to the courses of study. Apart from doctoral research, TERI University provides opportunities for M.Sc. degree programmes in various fields and subjects like Environmental Studies, Natural Resources Management, Environmental & Resource Economics, Water Resources Management, Geoinformatics,

Climate Science & Policy and Plant Biotechnology. Also on offer are M.B.A. programmes in Infrastructure and in Business Sustainability and an M.Tech. Programme in Renewable Energy. The University offers an M.A. programme in Public Policy & Sustainable Development and has recently, launched an M.A (Sustainable Development Practice) programme, the TERI University is one of the ten institutions chosen world- wide by the MacArthur Foundation, to run this programme.

Faculty members act as guides to students, engaging them in expanding the boundaries of inquiry through minor projects, summer internships, and a semester-long major project. Guest lectures by experts in various fields are organised throughout the semesters in order to give a wider perspective to the students. The University encourages exchange of ideas, cultural understanding and a wide range of knowledge that would result from international perspectives. To achieve this, the TERI University has academic collaborations with several select foreign universities, which provide for joint curriculum development and exchange of faculty and students. Top performers in the master's programmes get an opportunity to do their major projects at Yale University, USA, or at Freie University of Berlin, which are entirely funded through collaborative tie-ups. The UNESCO has launched the Chair on Climate Science and Policy to TERI University. The Chair provides TERI University an opportunity to establish a leading programme in climate science studies, training, and research catering to needs not only in India, but also globally.

The University uses modern pedagogical tools for teaching which are richly supplemented by field visits, live industry projects and hands-on applications. The University provides the very best in equipment and instruments, including state-of-the art computer hardware and software, well-equipped laboratories, video-conferencing facilities and South Asia's most comprehensive library on energy and environment.

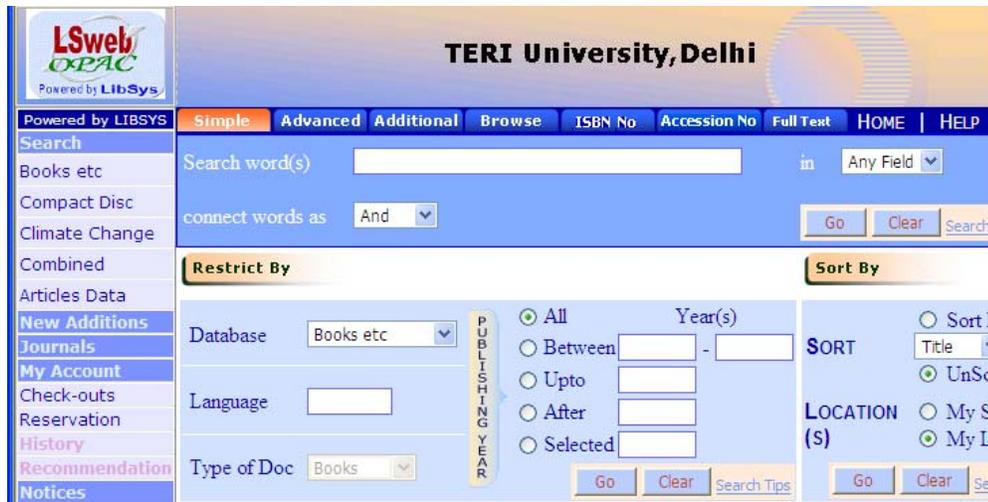
2. The TERI University library

The library supports the university's academic and research programmes by meeting the information requirements of students, Ph.D. scholars, researchers, faculty, scientists, and institutions in India and across the world. The library's services are offered electronically in an IT and wi-fi enabled campus. The gateway to information for users:

The screenshot displays the TERI University Library website. At the top, a red banner reads "Your Gateway to information". Below this, a navigation menu on the left lists various services: "About LIC", "Membership Form", "Services", "Catalogue Search (Search Tips)", "Compact Disc", "Dissertation & Thesis", "E-Journals", and "E-Databases". The main content area is divided into several sections. "Resources by Subject" features a row of book spines with titles such as "Water Resources", "Social Transformation", "Sustainable Development", "Regulatory Studies and Governance", "Resources and Global Security", "Industrial Energy Efficiency", "Environment and Indus Biotechnology", "Decentralized Energy Solutions", "Computer and Info. Technology", "Climate Change", and "Biotechnology & Bioresources". To the right of the book spines, there is a "Latest from LIC" section with a "Latest from LIC" link and a "Weekly Alert" dated "01 April, 2012". Below the book spines, the "News for Use" section includes links to "Teri in the News", "Climate Change News Digest", "Archive", and "Today's Headlines". The "On-line Search" section provides links to "LIC - OPAC", "University OPAC", and "Bangalore OPAC".

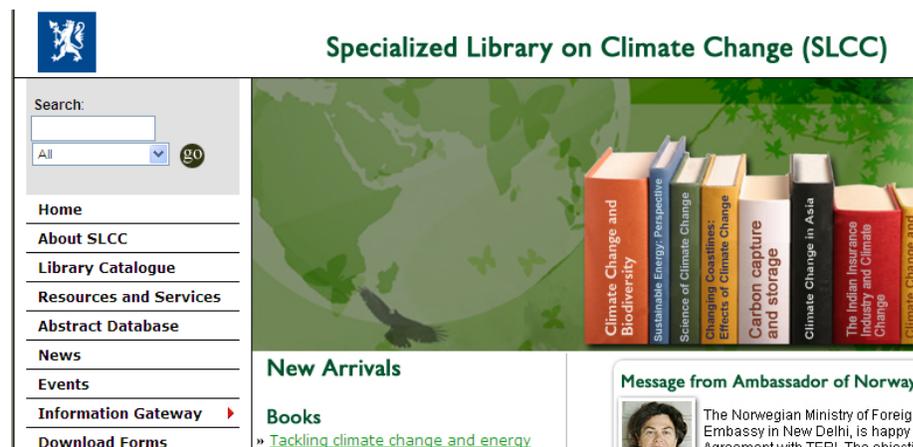
TERI University Library exemplifies modern methods for creating, applying and utilizing digital information. It contributes to students, faculty and society at large by being a repository of raw information capital in areas related to the university's research and teaching. The library has the capacity, infrastructure and promotes management of digital resources, distance online teaching and learning, virtual referencing, user centric digital services and fostering an environment conducive to research, teaching and learning.

Digital resources are centrally organized and available to students, researchers, and faculty via single-window access desktops. It supports generation and use of information for updating knowledge regardless of form or format. The Library is equipped with the latest tools and techniques to collect, store, retrieve and disseminate information. User terminals in the library permit access to the library resources and services. The library uses bar-code technology that enables automated circulation and management of resources.



The web interface provides flexible access to several electronic books, journals, databases, TERI University Ph.D. theses, photographs, newspaper clippings and multimedia resources. It serves as a one-stop shop where users find links to digital services and resources all in one place. It is also a tool for integrating both printed and electronic resources.

Many electronic services such as electronic alerts and selective dissemination of information are provided .



A few value added services of the library for the faculty and students include:

- Subject/Syllabus/Course based customized information
- Upcoming events and opportunities offered by foreign universities
- Access to holdings of national and international university libraries
- Websites and portals of relevance
- Tracking information for latest news, scholarships, placements, call for papers announcements
- Alerts of forthcoming conferences and recent additions
- Bulletin of electronic news and content alert



The library provides a wide array of resources on subjects of relevance from the world's leading academic databases.

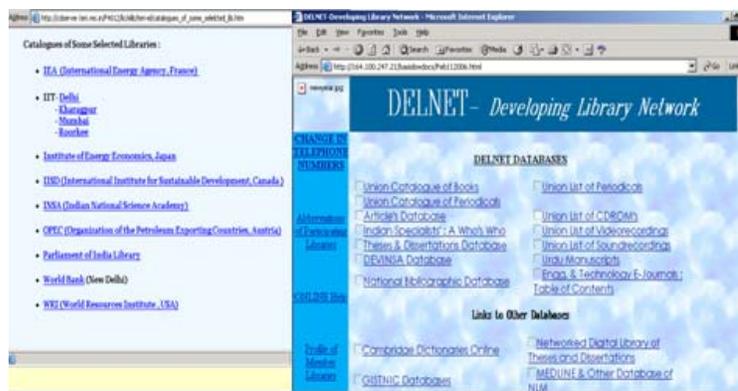
- Access to online catalogues of publishers to inform new releases
- Online databases and archives of academic journals/monographs
- New arrivals, forthcoming events and alert services to attract large number of users.



The library conducts Information exchange programmes with overseas universities; Linkages for resource sharing with university libraries; Subject specific user education sessions; Orientation programmes.

TERI University provides distance learning and e-learning. The digital glass notebook is used for live interaction, High Definition (HD) plasma screens are used for clear picture view. The e-content for university education at the postgraduate level in environmental science courses such as environmental pollution and control, water and wastewater treatment, air quality management, integrated impact assessment, and environmental economics. This project addresses the key objective of the Ministry of Human Resource Development's (MHRD) National Mission by providing accessible, high quality course material at the postgraduate level in all subjects at affordable costs, with technology-enabled access that will not be limited by geographic constraints.

The library uses the web-enabled digital information system as a communication tool for providing the updated information, links to e-resources and news about special programs. Organizes talks of subject specific expert foreign Universities' faculty members which are beneficial to students and faculty. Create awareness and promote library through personal interactions, notice boards, book fairs, exhibitions, subject specific collection promotion events.



TERI University Library responds to the evolving expectations of the 21st century scholar. The Library is working to set a high and consistent standard for service delivery and pursue collection development strategy that strengthens holdings. With explosion of mobile devices, it delivers the services much more quickly and less expensively. We are building a repository of digitized books and journals and harvest the major digital repositories around the world. The university library is able to assist the students and faculty online and has also build a large network of librarians globally We are managing increasingly diverse collections, working to provide access to collections across the Web, managing ever growing electronic collections, manage licenses for electronic materials as well as manage purchasing for multiple formats. The University in-house data and services are economically integrated into the user services. The students and faculty have increased accessibility of collections.

3. International Linkages with Libraries Worldwide

The University has established excellent partnerships and collaborative arrangements with a number of institutions overseas, ranging from Yale University in the US, Deakin University in Australia and Universiti Tenaga Nasional (UNITEN) in Malaysia. A particular unique strength of the TERI University also comes from its association with TERI as a research institute of distinction, because this provides fertile opportunities for faculty from the University to work on a diverse range of meaningful research projects and for the students to gain valuable experience working on these. The new direction for the TERI University Library is the product of deliberate processes, collaborations, by deep analysis and widespread visits and consultation with following libraries and their professionals overseas:

United States of America: New York Public Library, Mid-Manhattan Library, New York, University of California Library, Los Angeles Public Library, Syracuse University Library, San Francisco Public Library, Las Vegas-Clark County Library North Las Vegas, Nevada, Alaska State Library, Juneau Public Library, Buffalo Public Library.

Canada: University of Toronto Library, Canada, Toronto Public Library, Canada, Buffalo Public Library, Vancouver Public Library, Greater Victoria Public Library, Victoria, British Columbia, Canada

Europe: Swiss National Library, Berne, Switzerland, The Austrian National Library, Vienna, Public Library Vienna, Austria, National Library of Serbia, Belgrade.

China: Libraries in Beijing- National Library of China, Tsinghua University Library, Beijing University Library, Beijing Capital Library, the National Science and Technology Library, Peking University and Libraries in Shanghai-Shanghai Jiao Tong University, Shanghai Library, Fudan University.

UAE: Abu Dhabi National Library, Abu Dhabi University Library, Zayed Central Library, University of Dubai Library, Fujairah Women's College Library, Sharjah Library, University of Sharjah Library.

National Library, **Singapore**, **Malaysia** National Library, Kuala Lumpur, National Library of **Thailand**, Bangkok, The North Star library, Pattaya, **Nepal** National Library, The National Library of **Bhutan**, Thimphu.

Each library visit included a tour of the library facility and a meeting with the director and/or senior library professional to hear from them on library matters. Met and discussed the issues affecting academic libraries and higher education with Directors, Heads and Deans of University libraries. The leaders in academic librarianship felt that Academic libraries provide value to the academic institution. They directly contribute to student and faculty and to university's effectiveness.

In almost all libraries globally, more and more repositories are emerging. The initiatives are in progress to make e-resources widely available and accessible to broad scholar communities. Many of these collections, particularly those that include unique content or institution-specific materials such as university theses, are digitized.

User-Driven Acquisition of e-books, licensing agreements with e-book vendors enable libraries to purchase books that are in high demand. New publishing models are being explored for journals, scholarly monographs, textbooks, and digital materials. Developments relevant to journals include open access to content. Campus libraries with cafés and 24/7 access to the facilities and resources, are popular with students and faculty. Convenient access to resources, whether human, print, or electronic; scholarly communication, university library information literacy instructions, distance education services; university library collaborations: multi-university collaborations and university library associations are imported. Developed countries' university libraries visits and discussions have afforded me a new opportunity to discuss plans and progress towards the goals.

TERI University Library collection growth is driven by students and faculty members' demands. User preferences for access to text books and reference materials, limited physical space, and the inability to financially sustain collections have led TU library to customize student-faculty driven acquisitions, print-on-demand options and resource sharing systems. The library recognizes the need to collect, preserve and provides access to digital databases and resources. These materials include university archives and the scholarly output of faculty and students. The visual data analysis tools are one of the emerging technologies most likely to enter mainstream use on campus within the next four-to-five years. Additional collection development trends include the effect of Google Books on library collections and a growth in shared collection development. As technological changes continue to impact not only the way TERI University Library is used but also the nature of collections, the library's impact on student learning outcomes, student engagement, student recruitment, grants, fellowships, scholarships, awards, calls for proposals, new funding opportunities and faculty research productivity.

Digital Resources - The PhD theses and project reports often remain an un-tapped and under-utilized asset. TERI University Library facilitates open access to its digital theses to the academic community worldwide.

TERI University Library has formed innovative partnerships globally that will result in a pooling of resources and broad integration of e-resource management, collaborative collection development and digital preservation. Collaborations will continue to help maximize the efficient use of resources. We are already making use of Google Docs, Wikis, and other tools that facilitate collaboration regardless of physical proximity.

Our Library continues to develop scholarly communication through proactive efforts to educate faculty and students. We provide user education on latest discovery tools, open content, multiple resources. The library provides access to a more resources than ever before. It is expected that the online trend will continue and accelerate into the future. The complementary nature of the physical and online services to support the teaching in TERI University Campus will continue. Though TERI University Library's information resources remain a developing mix of print and electronic materials, within the next four-to-five years approximately 70% of the Library's resources will be electronic. It is imperative to provide inviting learning spaces backed by a range of educational reference services, along with access to key information resources required for education and research programs, to meet the changing needs of our users.