TRANSFORMING AGRICULTURAL LIBRARIES IN INDIA : A STEP TOWARDS DIGITAL INDIA

Dr. C. Murali Krishna

Professor, University Librarian I/c & Director Distance Education I/c

Potti Sreeramulu Telugu University, Public Gardens, Nampally, Hyderabad-500 004.

INTRODUCTION

Agriculture has always been the back bone of India's livelihood and continues to play a major role in the Indian economy after the green revolution of 1968. While the population of our country is heading towards 1.25 billion, our agricultural scientists are engaged in increasing the food grain production to address the food security challenges.

One of the major constraints faced by the Indian agriculture is dissemination of knowledge generated in the research laboratories to stake-holders, i.e. farmers and field workers. In others words, there is an 'information divide' between the farmers and agricultural scientists and extension agencies which needs to be 'bridged' for effective transfer of technology.

DIGITAL INDIA

The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy.

The journey of e-Governance initiatives in India took a broader dimension in mid 90s for wider sectoral applications with emphasis on citizen-centric services. Later on, many States/UTs started various e-Governance projects. Though these e-Governance projects were citizen-centric, they could make lesser than the desired impact. Government of India launched National e-Governance Plan (NeGP) in 2006. About 31 Mission Mode Projects covering various domains were initiated. Despite the successful implementation of many e-Governance projects across the country, e-Governance as a whole has not been able to make the desired impact and fulfill all its objectives.

In order to transform the entire ecosystem of public services through the use of information technology, the Government of India has launched the **Digital India programme** with the vision to transform India into a digitally empowered society and knowledge economy.

Digital Infrastructure as a Utility to Every Citizen

- Availability of high speed internet as a core utility for delivery of services to citizens
- Cradle to grave digital identity that is unique, lifelong, online and authenticable to every citizen
- Mobile phone & bank account enabling citizen participation in digital & financial space
- Easy access to a Common Service Centre
- Shareable private space on a public cloud
- Safe and secure cyber-space

Governance & Services on Demand

- Seamlessly integrated services across departments or jurisdictions
- Availability of services in real time from online & mobile platforms
- All citizen entitlements to be portable and available on the cloud
- Digitally transformed services for improving ease of doing business
- Making financial transactions electronic & cashless
- Leveraging Geospatial Information Systems (GIS) for decision support systems & development

Digital Empowerment of Citizens

- Universal digital literacy
- Universally accessible digital resources
- Availability of digital resources / services in Indian languages
- Collaborative digital platforms for participative governance
- Citizens not required to physically submit Govt. documents / certificates

AGRICULTURAL INFORMATION SYSTEM IN INDIA

The Indian Council of Agricultural Research (ICAR) is an autonomous organization under the Department of Agricultural Research and Education (DARE), Ministry of Agriculture, Government of India. Formerly known as Imperial Council of Agricultural Research, it was established on 16 July 1929 as a registered society under the Societies Registration Act, 1860 in pursuance of the report of the Royal Commission on Agriculture. The ICAR has its headquarters at New Delhi. The Council is the apex body for co-ordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. With 100 ICAR Institutes and 73 Agricultural Universities spread across the country this is one of the largest national agricultural systems in the world.

Agricultural Libraries have been serving the agricultural education, research and extension across the country to further the agricultural information and development of the country.

AGRICULTURAL LIBRARIES IN INDIA : AN OVERVIEW

A great attention has been given to promote the agricultural library system in India right after the independence in agricultural sector ICAR acts as a repository of information and provides consultancy on agriculture and allied sciences. The objectives of agricultural libraries is to support their user community, such as, students research scholars, faculty and administrative staff, with resources input, demands, operations and programmes output. The libraries continuously operate to fulfill the aims and objective of their parent organizations i.e. agricultural education, research and extension by providing effective information resources and services to the users.

Indian Council of Agricultural Research (ICAR) is playing active role in knowledge sharing among agricultural user community. ICAR is supporting the libraries through its innovative projects like National Agricultural Technology Project (NATP) and National Agricultural Innovative Project (NAIP).

The ICAR under NATP initiated in a planned way, the application of latest ICTs for Agricultural Libraries. NATP is the pioneer in this initiative and significantly contributed in transforming the agricultural libraries from traditional to a web based automated library and information system. With the NATP funds for agricultural libraries, rapid transformations have taken place in different scientific and academic institutions in the country by way of embarking upon the computer and telecommunication based networks and electronic resource management. During the years of the project component, the NATP provided financial support for the various equipment, infrastructure facilities and for improving the information resources and services of the ICAR Institutes and theis SAUs.

SWOT Analysis of Agricultural Libraries in India

The issues in current environment of agricultural libraries can be summarized in a SWOT Analysis:

Strengths

- Users actually need and want agricultural libraries and they value the expertise and support of the LIS professional.
- Library as a term universal awareness and the strength of the brand has developed over centuries.
- Library are not simply about the materials and technology; they help to satisfy the need of agricultural scientists, students etc.
- Agricultural libraries ensure access to books, resources and technology for everyone promoting equality of opportunity.

Weaknesses

- Management and funding decisions are often by those who are not library professional and users.
- Agricultural Library as a term can be seen as old fashioned and outdated, while the information service is not well understood.

Opportunities

- We are living in an increasing information rich, knowledge based society.
- Modern ICTs will help in improving access to information
- E-books and e-resources provide an exciting new format.

- ➢ Growth in agricultural education through on-line courses can only increase demand for library services
- ➢ Agricultural libraries have a greater role in content creation and can be help to disseminate nascent information.
- ➢ In agricultural libraries, there is an increased role for informational professionals in agricultural research.
- ➢ Agricultural information professionals are well positioned to counteract scientist's information overload.

Threats

- ➢ Free, cheap, ubiquitous online content competes with free library content.
- ➢ Shrinking budgets and higher costs make it hard to satisfy growing demand

NATIONAL KNOWLEDGE COMMISSION (NKC) AND AGRICULTURAL LIBRARIES

The National Knowledge Commission (NKC) was constituted on 13th June 2005 with a time-frame of three years, from 2nd October 2005 to 2nd October 2008. As a high-level advisory body to the Prime Minister of India, the National Knowledge Commission has been given a mandate to guide policy and direct reforms, focusing on certain key areas such as education, science and technology, agriculture, industry, e-governance etc. Easy access to knowledge, creation and preservation of knowledge systems, dissemination of knowledge and better knowledge services are core concerns of the commission.

Terms of Reference

As per Government Notification of 13th June 2005, the following are the Terms of Reference of the National Knowledge Commission (NKC).

- ➢ Build excellence in the educational system to meet the knowledge challenges of the 21st century and increase India's competitive advantage in fields of knowledge.
- ➢ Promote creation of knowledge in S&T laboratories.
- ➢ Improve the management of institutions engaged in intellectual property rights.
- ➢ Promote knowledge applications in agriculture and industry.
- ➢ Promote the use of knowledge capabilities in making government an effective, transparent and accountable service provider to the citizen and promote widespread sharing of knowledge to maximize public benefit.

In view of the above, the NKC seeks to develop appropriate institutional frameworks to:

- ➢ Strengthen the education system, promote domestic research and innovation, and facilitate knowledge application in sectors like health, agriculture, and industry.
- ➢ Leverage information and communication technologies to enhance governance and improve connectivity.
- ➢ Devise mechanisms for exchange and interaction between knowledge systems in the global arena.

DIGITAL AND INNOVATIVE TECHNOLOGY TRENDS IN AGRICULTURAL LIBRARIES IN INDIA

The past two decades have seen a great deal of change in agricultural libraries due to digital and innovative technology trends in the resources and services. The following are the digital and innovative technology trends in Agricultural Libraries.

- Automation
- Digitization
- Consortia
- E-Resources
- RFID Technology
- Web Designing for Libraries
- Creation of Institutional Repositories
- Open source softwares
- Learning Resources
- Web 2.0 and Lib 2.0
- Mobile Technology
- Cloud Computing

DIGITAL AND INNOVATIVE SERVICES IN AGRICULTURAL LIBRARIES IN INDIA

Over past few years with the impact of ICT based technologies, there are tremendous changes in library collections, services and demands of users, many digital and innovative services are being introduced by libraries to cope up with the changes. Some of the digital and innovative library services introduced by agricultural libraries in India are as follows.

- Digital Library Services.
- Institutional Repositories.
- Consortium
- Online Public Access Catalogue (OPAC), Web OPAC and Union Catalogues.
- Automated issues and returns through library software, RFID etc.
- Online access facilities for digital resources i.e. databases, books, journals etc.
- Web based services.
- Remote Login (EzProxy).
- Federated Search (A single search interface for all resources of the library).
- Document Delivery Services through e-mail etc.
- Agricultural Information Services through Mobile Technology.

INITIATIONS OF AGRICULTURAL LIBRARIES TOWARDS DIGITAL INDIA

The following are some of the initiations taken by agricultural libraries towards Digital India.

KrishiKosh : An Institutional Repository of Indian National Agricultural Research System

Under NAIP Project the institutional repository of NARS Libraries has been created and named as KrishiKosh. It covers 59 NARS Libraries and about 2.5 crores pages have been digitized and uploaded.

KrishiPrabha : Indian Agricultural Doctoral Dissertations Repository

Under the NAIP Indian Agricultural Doctoral Dissertations Repository called KrishiPrabha has been created. It covered Doctoral Dissertations produced by the 45 SAUs and Deemed Universities from 2000 to 2006.

Consortium of e-Resources in Agriculture (CeRA)

At present the Consortium is providing access to about 3719 Full-Text journals to all the libraries of NARS.

AgriCat-II/IDEAL : Union Catalogue of Agriculture Libraries of NARS

Union Catalogue of Agricultural Libraries – AgriCat-II/IDEAL were developed under e-Granth project with about 40 libraries.

Automation of NARS Libraries with KOHA LMS (Open Source Software)

About 38 SAU/ICAR Institute Libraries were automated using Koha LMS under e-Granth Project.

Implementation of RFID System in NARS Libraries

Some of the SAU/ICAR Institutes were implemented RFID System and Library Security System through various projects of ICAR.

ROLE OF AGRICULTURAL LIBRARIANS IN THE REALIZATION of DIGITAL INDIA

Agricultural libraries and librarians have a greater role to play in managing the available agricultural knowledge to make India self-sufficient in food production. The Agricultural Librarians should perform the following responsibilities to achieve Digital India.

- Maintaining and developing digital repositories.
- Archiving or preserving the digital information.
- Offering virtual reference services.
- Creating metadata elements.
- Digital Information literacy programmes.

TASK AHEAD TO ACHIEVE DIGITAL INDIA THROUGH AGRICULTURAL LIBRARIES

The following tasks are ahead for agricultural librarian to achieve digital India through agricultural libraries

KrishiKosh : An Institutional Repository of Indian National Agricultural Research System

Krishikosh covers 59 NARS Libraries and about 2.5 crores pages have been digitized and uploaded. The remaining institutions may also be covered for effective resource sharing of digital information among NARS Libraries.

Consortium of e-Resources in Agriculture (CeRA)

Some of the important journals are not covered under CeRA due to financial limitations. The consortium may be strengthened by subscribing the missing journals in agriculture and allied disciplines for the benefit of users.

AgriCat II/IDEAL : Union Catalogue of Agriculture Libraries of NARS

At present AgriCat-II/IDEAL is covered 40 libraries. The remaining libraries shall be included to strengthen the AgriCat/IDEAL and to share the resource among the NARS libraries.

KrishiPrabha : Indian Agricultural Doctoral Dissertations Repository

At present KrishiPrabha covers Doctoral Dissertations produced by the 45 SAUs and Deemed Universities from 2000 to 2006. The remaining Doctoral Dissertations produced before 2000 and after 2006 and P.G. Dissertations may be covered for exhaustive database, to avoid duplication and to produce quality dissertations.

Automation of NARS Libraries with KOHA LMS (Open Source Software)

About 38 SAU/ICAR Institute Libraries were automated using Koha LMS under e-Granth Project. The remaining libraries shall be covered to implement Koha as a common and uniform platform for all the NARS libraries to create group catalogue.

Implementation of RFID System in NARS Libraries

Since manpower is limited in most of the NARS libraries, implementation of RFID will help these institutions to manage libraries with the available human resources. To ensure modern library system in NARS, major NARS libraries may be given funding support for implementing RFID system and Library Security System.

Modernization of NARS Libraries

NARS libraries may be given funding to support for the strengthening and implementation of modern technologies:

➢ Remote Login (EzProxy)
➢ Federated Search (A single search interface for all resources of the library *Viz.,* OPAC, e-Journals, e-theses, e-databases, etc.)
➢ Mobile Apps to access Library resources, etc.
➢ CCTV Electronic surveillance systems
➢ Biometric Access Control

Virtual Learning Platform

Virtual learning platform should created in all SAUs and ICAR institutions to access globally the agricultural allied sciences conferences, workshops, trainings, discussions and expert lectures etc. It helps to update the knowledge and skills of scientist, teachers, extension specialists, students etc.

Model Information Centre

Identify and nurture a model information centre for agriculture information for India which will act as a National referral centre with linkages with all the Universities, SAUs, etc. and also develop standards and Best Practices in library management and services.

Skill Development Centre of Library Professionals

The library and information science professionals of NARS system should be trained to keep pace with the technological advancements in Automation, Open Source Software, Management of e-Resources

etc. Skill development programmes shall be conducted to train the LIS professional of SAUs & ICAR Institutes to implement the new technologies effectively.

Skill Development Centre for may be established in any SAU/ICAR like INFLIBNET Centre for traditional Universities to provide continuous trainings for Agricultural LIS professionals to keep pace with advanced technologies

International Training Programmes

Provision shall be given for International Training Programmes for Agricultural Library Professionals working in NARS Libraries to strengthen the capacity building to create awareness about advanced technologies used in the developed countries.

NARS Library professionals may be encouraged to participate in International Conferences to gain knowledge of latest developments.

BARRIERS IN THE REALIZATION OF DIGITAL INDIA WITH REFERENCE TO AGRICULTURAL LIBRARIES

Agricultural librarians are facing the following barriers to achieve digital India in Agricultural Libraries.

- ➢ Lack of sufficient budget.
- ➢ Lack of skilled manpower.
- ➢ Lack of encouragement to implement ICT.
- ➢ Lack of sufficient infrastructure facilities.
- ➢ Lack of acceptance of technological advancements.
- ➢ Lack of awareness among users regarding latest developments in agricultural libraries.
- ➢ Lack of interest in change management among some of the agricultural library professionals.

CONCLUSION

In today's digital society people need instantaneous access, single window search, flexibility, quality in every service and library users whether of academic library or agriculture library are no exception as they are also a part of present knowledge society. The agricultural libraries have been using technologies to modernize their library but these efforts are sufficient more inputs should be put in to make digital Indian. To achieve digital India in agricultural libraries, ICAR should take lead in providing required financial support to procure and implement up-to-date technological trends. It should also take lead to train the library professionals to work towards the realization of digital India.

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