

LIBRARY AND INFORMATION SCIENCE EDUCATION AND DISSEMINATION OF AGRICULTURAL INFORMATION FOR SUSTAINABLE DEVELOPMENT IN NIGERIA

ADAMU, MOHAMMED SABA (CLN)

*University Library Services,
Federal University of Technology Minna, Niger State, Nigeria*
mohd.adamu@futminna.edu.ng
07037769819

GIDEON A. BABALOLA (Ph. D)

*Department of Library and Information Technology,
Federal University of Technology Minna, Niger State, Nigeria*
gaboft7r7@gmail.com g.babalola@futminna.edu.ng
08034370219

DOGARA, LADAN (CLN)

*University Library Services,
Federal University of Technology Minna, Niger State, Nigeria*
dogara.ladan@futminna.edu.ng
08076667597

Abstract

This paper examined the indispensability of library and information science education as the major pivot upon which sustainable development in agriculture in Nigeria and globally is hinged. Literature which are relevant to the paper were searched. Access to relevant, current and up to date agricultural information is crucial to maximum output of rural farmers. In this information driven age, the use of ICT devices could be reliable especially mobile phones in disseminating relevant and current agricultural information to rural farmers with a view to boosting their productivity. Rural farmers, however need a kind of pedagogy so as to benefit fast from the avalanche of information formats that are made available with ICT and its applications. The paper recommended that the Federal Government of Nigeria should follow suit with developed countries such as China to design agricultural information dissemination models. Example of such models may include but not limited to Web Portal, Voice-Based Service, Text (SMS)-Based Service, Self-Support Online Community, Interactive Video Conferencing Service, Mobile Internet-Based Service and Unified Multi-Channel Service Model.

Keywords: *Agricultural Information; Dissemination, Education; Library and Information Science; Sustainable Development; Nigeria*

Introduction

Library and Information Science Education is an indispensable aspect of education that is widely connected to other existing aspects of education and which intends to inculcate into the public the methods of processing, organising, preserving, retrieving, disseminating and using information and its resources for individual and group sustainable development across the globe.

To achieve this, there are different types of libraries such as school libraries serving the school children, special libraries serving special patrons, academic libraries established in tertiary institutions and public libraries which comprises national libraries and state library boards that are regarded as peoples' university. Information is a major economic resources for individual, corporations, and institutions. Like other major resources, information offers the greatest possibilities to those who know how to use it (Emojorho cited in Ahmed, 2014). In other words, information is power and libraries or information centres play a lot of information disseminating role on individuals regardless of their areas of specialisation. Librarians play awareness, informational and educational role in the dissemination of agricultural information for sustainable development across the globe including Nigeria.

The Great Soviet Encyclopedia (2010) defined Library and Information Science (LIS) as a segment of science in which the goals, system, tenets, content and kinds of the public use of information sources are studied. LIS can also be defined as an interdisciplinary discipline basically concerned with the collection, manipulation, classification, storage, retrieval, movement, dissemination and safeguarding of information. Information is an essential ingredient required for any form of development: education, political, economic social and even agriculture. Library at every stage is responsible for acquiring and disseminating information to the society (Uwaifo, 2009). The agricultural information provided is exclusively focused on policy maker's researchers and those who manage policy decisions with little attention paid to the information needs of the largest beneficiaries of the policy decision. Information is also an essential factor in the practice of farming and it is the basis of extension service delivery. As such rural farmers require agricultural Information to boost productivity because it is an important device for sustainable development (Goldfarb cited in Emmanuel, Chuwang & Adiwai, 2009).

The non-provision of agricultural information is a key factor that has greatly limited agricultural development in developing countries particularly Nigeria. The dissemination of agricultural information is vital to improve agricultural production because it is a media through which people get acquainted with new ideas and better farming methods, fertilizer applications, improved seedlings, modern pest control measures, pesticides, herbicides, and fungicides etc (Aguolu, 2000).

Library and Information Science Education

LIS will be defined as the study of information and how it is being used by individuals regardless of the area of specialisation. Saka (2015) opined that library education is a professional programme designed to prepare students for degree in Library and Information Science. The history of LIS in Nigeria could be traced back to United Nations Educational, Scientific and Cultural Organisation (UNESCO) seminar in 1953 which was held in Ibadan. Among other identified areas was the establishment of professional training courses in Nigeria. This led to the formation of West Africa Library Association (WALA) and financial support from Carnegie Corporation respectively. As documented in many papers, the first library school or Department of Library Science in Nigeria was established at the Institute of Librarianship in the then University College Ibadan in 1959. While the first batch of students were admitted in 1960 for postgraduate Diploma and Master's degree in less than a decade, as cited in Saka and Abdullahi (2007). Carnegie Corporation sponsored a study on "Library needs for Northern Nigeria" under the leadership of F.A. Sharr and the report recommended that a library school be established in

Ahmadu Bello University Zaria which came to existence in 1968 as cited by Alhassan and Ahmed (2015). LIS is vital as information plays a crucial role in agriculture as it helps to boost agricultural productivity for sustainable development. Information is needed for individual growth and development. And by extension societal growth and transformation. It is required for personal, social or work related activities of individuals and for the development of societies and states (Ekoja, 2010). Information has received a pervasive acceptance as the indispensable property of production, consumption and exchange in this modern age (Opeke cited in Emmanuel, Chuwang & Adigwai, 2009).

Agricultural Information

Agriculture is one of the essential issues which has always been given adequate consideration throughout the globe especially in developing countries. In Nigeria, agriculture plays an important role in the economic and social development of the country. Hence, it is imperative to give emphasis to agricultural development and extension with the objective of increasing in production and redistribution of income and profits for peasant farmers in Nigeria. In spite of the fact that agricultural development relates to the special attention of the previous and present governments in developing nations including Nigeria, agricultural resources and manpower are considered as two effective factors for the growth and development of agriculture.

Zhang, Wang and Duan (2016) opined that agriculture plays a significant role for economic and social development in most undeveloped countries. Information of adequate quality is a necessary condition for improvement of all areas of agriculture. With the rapid development of ICTs, data and information can be effectively generated, stored, analyzed, disseminated and used to support farmers and farming communities to improve agricultural productivity and sustainability. Information services for farmers at the national and regional levels are a promising new field of research and application in the emerging field of e-agriculture. Zhang, Wang and Duan (2016) outline agricultural information dissemination models in China to include:

- Web Portal – a collection of relevant web sites to form one stop centers for users, e.g. Ministry of Agriculture Web Portal.
- Voice-Based Service – information dissemination through telephone, i.e. call centers, e.g. Liaoning 12316 Golden Farming Hotline.
- Text (SMS)-Based Service – information dissemination through text message of mobile phones. This service is normally jointly operated by agriculture sector and telecom service providers, e.g. Hunan Agri-Telecom Platform.
- Self-Support Online Community – information services provided by a community to its members. This is a membership based system involving all stakeholders. Members share experience and exchange information through interactive service platforms, e.g. farmers Mailbox in Zhejiang Province.
- Interactive Video Conferencing Service – using online multimedia technology to facilitate information service, e.g. Shanghai Farmers “One Click and Go” service, or Intelligent Farmers service.
- Mobile Internet - based Service – information dissemination through smart phone service, e.g. Agribusiness price information, E-news, etc.

- Unified Multi-Channel Service Model – utilizing multiple methods to effectively disseminate information through telephones, computers, and mobile phones., e.g. “3 in 1” service in Fujian.

Consequently, the existence of useable sources such as specialists and experimental manpower in any nation results in agricultural extension as a result of fundamental planning for sustainable development. Information is a formidable bedrock and a pivot upon which any developmental activities including agricultural productivity are hinged. In other words, if the stakeholders in agriculture such as researchers, farmers, extension workers and policy makers have suitable information or knowledge about modern agricultural systems and their applications. Surely there will a better production of foodstuff for sustainable development in the nation. The growth and development of agriculture of any nation can be achieved with skilled and effective manpower through continuous increase in knowledge. Therefore, it is vital to have immediate access to innovations, transformations and the latest results of agricultural research.

The importance of agriculture cannot be over emphasised as rural farmers in the rural areas are the major stakeholders in the provision of food for every nation and to some extent, a major source of export materials. The rural farmers, most especially in developing countries - like Nigeria, require crucial information to improve their productivity for the fact that most of the people that are engaged in farming are people who reside in rural areas, who have suffered serious neglect due to information impoverishment especially by the people in government. Similarly, Emmanuel, Chuwang and Adigwai, (2009) stated that most of the people in these rural areas are predominantly farmers and as such they need vital information to enhance their productivity. They stated further that this is because rural farmers in the developing nations have suffered a great deal as a result of information deprivation, which is an aftermath of neglect from successive government and non-governmental agencies such as extension agents, banks, researchers, agricultural input suppliers and other financial institutions as well as being deprived of basic social amenities like portable water, electricity supply, hospitals and all season motorable roads for transporting their produce to marketing centres.

This agricultural information, as suggested by Agbamu cited in Emmanuel, Chuwang and Adigwai (2009), refers to all published or unpublished knowledge in all aspects of agriculture. He classified agricultural information into four namely: technical, commercial, socio-cultural and legal information. However, for agricultural productivity to improve, farmers should have access to accurate and relevant information in order to facilitate prudent and adequate utilisation of agricultural information for sustainable development. According to Ozowa cited in Emmanuel, Helen & Chuwang (2009), the scarcity of agricultural information is a bane or impediment to agricultural development in developing countries including Nigeria.

Information is imperative for survival in all human endeavour, as it helps to appraise the farmers with the new ideas, new creativity and new innovations in agriculture since it is an essential segment for sustainable development of any nation. The provision of agricultural information to rural farmers is significantly important to rural communities in developing countries of the world. The kind of information that should be disseminated to farmer’s ranges from farm inputs and implements such as fertilizer application, pesticides, herbicides, insecticides, improved variety of seeds/seedlings, integrated pest management policy, disease and weed management systems, value addition and post-harvest processing functions, resources utilisation and

sustainable agriculture. Other aspects are global warming and climatic changes as they affect agriculture, harvesting and processing equipment; storage and preservation techniques, animal husbandry (breeds, feeds, animal's diseases, period of fattening required by farmers). It is equally important for farmers to be armed with the type of information that could alleviate poverty, boost their economic base and eventually enhancing their standard of living. For instance, they need information on how to access loan/credit facilities, marketing strategies, export opportunities and utilisation of organic matter in farming.

The traditional channels of providing or disseminating information to the farmers seem to have minimised the efficiency of production and also the output; this is because it is a single path flow of information. However, modern technology has the capacity to influence the efficiency of production and the output of the crops farm by the farmers as it reflects double way flow of information with response: just as it involves several stakeholders at a time (Ugwa, 2008).

Deploying ICT in the Provision of Agricultural Information

(ICT) is defined as a science of collecting and processing information, facts, values, skills, thoughts, texts, graphics, pictures, card sounds, news and all other forms of data in digital form for dissemination in both immediate and remote locations. Nwana (2009) define ICT a science of collecting and processing information, facts, values, skills, thoughts, texts, graphics, pictures, card sounds, news and all other forms of data in digital form of dissemination in both immediate remote locations. Similarly, Afolabi and Abidoye (2011) stressed that the development and availability of ICTs in the provision of library and information services have not only increased and broadened the impact of information resources but placed more emphasis on effective and efficient service. This is equally pertinent to farmers as agricultural information provision is essential for sustainable development of every nation including Nigeria.

Dissemination is similar to provision of information as information managers are also stakeholders in the dissemination of agricultural information. Other stakeholders include extension workers, media professional and educational facilitators as they have to work hand in hand in multi-dimensional flow of information. According to Ugwu (2008) there are many channels through which agricultural information can be provided to farmers fastest of which is the use of ICT applications. He outlined further the various ICT applications to include: CD-ROM, global positioning system (GPS), smart cards, radio, digital television, digital personal assistants (DPAs) and mobile phones etcetera.

A recent World Bank report noted that mobile phones were the "single most powerful technology" used to extend economic opportunities and key services to millions of people. The report added that in the next few years almost all new customers connecting to mobile phone networks will come from rural areas of developing countries (Dempsey, 2009). Mobile phones have now become the clear technology of choice for communication. One of the commonest way of using mobile phone to communicate is through the short message services (SMS). According to Dempsey (2009), SMS has become an extremely essential means to send and receive information. These short and simple messages are convenient, affordable and usually free to receive. Another advantage of SMS is that it is possible to set up a system to deliver messages automatically to a large number of people at the same time. In view of this, Ugwu (2008)

considered mobile phone as the most viable tool for disseminating agricultural information to farmers and explored the various ways of using mobile phone to do so, including the following:

1. Short Message Service (SMS):- This is considered to be the most affordable means of providing agricultural information to the farmers which is possible via please call me (PCM) and multimedia messaging service (MMS).
 - i. Please call me (PCM) This is a messaging service where a person can send a free text message asking the recipient to call back (Dempsey, 2009). Agricultural information can be provided to the farmers through this platform.
 - ii. Multimedia Messaging Service (MMS) This involves the use of more than one technology to communicate. A device was developed by a Netherlands Organisation for Applied Scientific Research which uses a camera function of a mobile phone to collect a blood sample of an animal and this was sent via MMS to a specialist laboratory for analysis and diagnosis. The result was sent back through the same camera phone in the form of an SMS message (Dempsey,2009).
2. Person to person communication: - Farmers can communicate with one another with the help of mobile phones to intimate themselves with information on market prices and latest processing and packaging procedures. This will go a long way to help them to be part of market supply chain and also advertise their products worldwide.
3. Internet Access Service: - The International network (Internet) is a network that has the ability to deliver both data and voice services. Limitless and detailed agricultural information is now available on the web. The development of Smart phones such as the blackberry, android and the iphone has made it possible for subscribers to begin to have access to the web (Ugwu, 2008). These smart phones according to Dempsey (2009) are tools that provide access to the web over 3G (third generation) wireless networks. This will help farmers to access the web for agricultural information: even though it will require some level of literacy to understand the message.
4. Dedicated Number with a Voice Activated Menu Option: - This is a kind of information service that farmers can use with the help of mobile phone to call a dedicated number to get advice on the best ways to grow a wide range of crops or to raise livestock. In kenya, this service is called Banana information line (Dempsey, 2009). This helps to provide farmers with specific information on a particular situation either in English or in their native language.
5. Combined Service with other Technology: - Mobile phones are now used with other digital technologies to provide information to farmers in rural areas. For example, one can use mobile phones and geographic information system (GIS) based maps with global positioning system to discuss with other group herders about the availability of fresh pastures and water supplies and decide where cattle could be grazed in order to prevent overgrazing (Ugwu, 2008).

Conclusion

The paper discussed the indispensability of library and information science education in the dissemination of agricultural information for sustainable development in Nigeria. Information

and Communication Technologies (ICTs) with its applications have proved to be veritable tools in the dissemination of current, relevant and reliable data in the information driven age with the ultimate aim of optimising the productivity of farmers. Farmers could be reached very fast with relevant information through smart phones.

References

- Afolabi, A. & Abidoye, J. A. (2011). The integration of information and communication technology in library operation towards effective library services. Proceedings of the 1st international technology education and environment.
- Agbamu, J. U. (2006). *Essentials of agricultural communication in Nigeria*, Lagos: Malthouse Press Limited.
- Aguolu, I. E. (2000). Agricultural Libraries and the Dissemination of Agricultural Information in Nigeria. *Annals of Library Science and Documentation*, 47 (3), 115-119.
- Ahmed, H. (2014). Accessibility and Utilization of Information and Communication Technology (ICT) in University Libraries in North East Zone, Nigeria. *Journal of Information Resources Management*, 4 (1), 21-33.
- Alhassan, J. A. & Ahmed, A.O. (2015). Emerging Technologies and the Future of Libraries: Issues and challenges in LIS education and training in Nigeria. *In proceedings of 3rd International Conference of the School of Science and Technology Education (SSTE) Held at CPES Hall, Bosso Campus, FUT Minna, 4-7th October, 2015 152-157.*
- Dempsey, J. (2009). 'ICT update: a current awareness bulletin for ACP agriculture' Retrieved from <http://www.ictupdate.cta.int>.
- Ekoja, I. I. (2010). Personal variables affecting the adaptation of agricultural innovations by Nigeria farmers. *Forthcoming in the South Africa Journal of Agricultural Extension.*
- Emmanuel, H. & Chuwang, P. Z. (2009). Assessment of information needs of rural farmers on Okpokwu Local Government of Benue State. *Journal of information resources management*, 2(2), 85-88.
- Nwana, S. (2009). Needed ICT and Educational Technology Resources in Non-formal Educational for Meeting the MDGs. *NAFAK* 19 (2), 75-80.
- Saka, K. A. & Abdullahi, A. M. (2007). Library and information science education in Nigeria: problems and prospects. *Borno library, archival and information science journal*, 5(1), 39-44.
- Saka, K. A. (2015). Trends in library and information science education in Nigeria in the 21st century. In proceedings of international conference on 21st century education held at HCT Dubai Men's College, UAE, November 2015, 7 (1).

- The Great Soviet Encyclopedia, 3rd Edition (1970-1979).© 2010 The Gale Group. Inc. Retrieved from encyclopedia 2. The freedictionary.com on 21st February, 2017.
- Ugwu, C. I. (2008). Rural farmers and agricultural information transfer development countries: The potential of mobile phone technology. *Journal of information resources management, 1*(2), 108-113.
- Uwaifo, S. O. (2009). Barrier to the Use of Information and Communication Technology by Staff in Nigerian University Libraries. *Borno Library, Archival and Information Science, 8* (2).
- Zhang, Y., Wang, L., & Duan, Y. (2016). Agricultural Information Dissemination Using ICTs: A review and Analysis of Information Dissemination Models in China. *Information Processing in Agriculture, 3* (1), 17-29. Accessed from <http://doi.org/10.1016/j.inpa>.