



Documenting and Disseminating Agricultural Indigenous Knowledge For Sustainable Food Security: The Efforts of Agricultural Research Libraries in Nigeria

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Abstract:

Developing the agricultural sector remains a critical factor towards the achievement of sustainable food production and, indeed, global food security. While indigenous agricultural knowledge is of immense value in improving food production, its documentation and dissemination remain a big challenge confronting librarians and other information professionals, particularly in Africa where cultural practices are prevalent. This study is aimed at investigating the efforts of agricultural research libraries in Nigeria in documenting and disseminating agricultural indigenous knowledge towards achieving sustainable food security in the country. It is also aimed at determining the agricultural indigenous practices that have been documented as well as the obstacles to the documentation of agricultural indigenous knowledge. Librarians in selected agricultural research libraries in Nigeria constitute the target population of this study while questionnaire is the instrument for data collection. Based on the findings of the study, various recommendations have been made.

Introduction

Of all the basic needs, food seems to be the most critical. A hungry man is an angry man goes a common saying. In most cultures, there are popular sayings or proverbs emphasizing the importance of food to human existence. Among the Yoruba people of South Western Nigeria, there is a popular saying to the effect that no other matter can arise or be entertained in the presence of hunger. It is, therefore, not a surprise that the world food situation which has reached a critical and alarming state has led to the apprehension of global food crisis and made food security a global concern. It is estimated that over 900 million people around the world suffer from the pangs of hunger while even a larger number experience malnutrition, majority being in lower income developing countries. Strategic programmes and initiatives have been adopted at different levels to tackle the challenges of food security and prevent imminent global food crisis. International organizations, particularly the United Nations Food and Agricultural Organization (FAO) have championed some of these initiatives. In Africa, the African Union (AU) has put in place a plan to make Africa food secure by requiring countries in the continent “to allocate a substantial portion of their budget to agriculture, provide farming input subsidies, and make available affordable information and communications technology” (<http://foodcrisis.foreignpolicyblogs.com>). This is in apparent recognition of agriculture as the critical sector for sustainable food security. One of the strategies for developing the agricultural sector is to harness the potentials of indigenous agricultural knowledge (AIK) which has gained recognition through many initiatives including the 1992 United Nations Conference on Environmental Development (CIESIN Thematic Guides) and whose potential contribution towards achieving the millennium development goals, particularly the eradication of poverty and hunger has been acknowledged. This can be promoted through the documentation and dissemination of AIK. The documentation and dissemination of AIK, therefore, constitute a critical challenge facing librarians in Nigeria.

The literature on AIK does not provide a single definition of the concept. This is in part due to the differences in background and perspectives of various authors, ranging from social, anthropology to agricultural engineering. Nevertheless, the various definitions have some common traits which are that AIK is:

- generated within communities (Agrawal, 1995);
- location and culture specific (Ahmed, 1994);
- the basis for decision making and survival strategies (Agrawal, 1995: 416);
- not systematically documented;
- concerned with critical issues of human and animal life: primary production, human and animal life, natural resource management;
- dynamic and based on innovation, adaptation, and experimentation; and
- oral and rural in nature.

According to Sundamari and Ranganathan (2003), AIK is an unwritten body of knowledge. It is held in different brains, languages and skills, in as many groups, cultures and environment as are available today. According to Atte (1989) cited in Williams and Muchena (1991), “it covers the whole range of human experience”. Hence, as AIK is closely related to survival and subsistence, it provides a basis for local-level decision making in:

- food security

- human and animal health
- education
- natural resource management
- various other community-based activities

However, the existence of AIK is threatened by the development process, and the World Bank states that indigenous knowledge systems are ‘at risk of becoming extinct’ (Ahmed, 1994). Kothari (1995) attributes this to the fact that oral paths are being blocked and people are no longer staying in homogenous community blocks. AIK systems in rural communities are rarely documented. Thus, should the method of preservation and perpetuation be disrupted, there is a risk that within one generation, the knowledge could be lost forever (Warren, 1993). Given that AIK is threatened with extinction, it is possible to justify the documentation.

In Nigeria, it is encouraging to observe that, over the last two decades, there has been a dramatic increase in interest in the role that indigenous knowledge can play in truly participatory approaches to food security for sustainable development. It may not be accidental that the growing interest in the potential contribution of indigenous knowledge to development is becoming manifest at a time when current development models have proven not too successful. Recent research has given valuable insights into how people use their own locally generated knowledge to change and improve, for example, natural resource management. The agricultural sector provides a prime example. Farmers adopt a wide range of indigenous agricultural practices based on generations of experience, informal experiments and intimate understanding of their environments. The application of indigenous agricultural farming for example has reflected in the following:

- Indigenous soil preparation and planting materials
- Indigenous methods of controlling pests and diseases
- Indigenous methods of maintaining soil fertility
- Indigenous methods of controlling weeds
- Indigenous methods of harvesting and storage

This paper is not interested in the details of the indigenous knowledge itself, but in the ways that agricultural research institutes in Nigeria have documented and disseminated AIK in assuring sustainable food security in Nigeria. The idea of documentation of agricultural indigenous practices in Nigerian national agricultural research institutes is based on the observation that carefully documented case histories can provide excellent guidelines for policy making and planning new projects that can sustain food security. Literature has shown that many people are working on agricultural projects in which indigenous knowledge plays an essential and practical role. It is very important that information about these kinds of projects is made available worldwide so that other people can learn from the experiences.

It is believed that indigenous knowledge has much to offer and teach the world at large and only by research and documentation can it be preserved and made available to development workers worldwide, and its uses exploited. Tikai and Kama (2010) in their study of indigenous knowledge and its role to sustainable agriculture in Samoa recommended proper recording and documentation of indigenous knowledge for agriculture and that it is important to find who knows what in order to tap the right source for data to truly reflect indigenous knowledge in the community when documenting. It is for this reason that the

efforts of national agricultural research institutes in Nigeria at documenting and disseminating agricultural indigenous knowledge was investigated.

Food Security Situation in Nigeria

As in other part of the world, food security is a major concern in Nigeria. The importance attached to it is reflected in the policy thrust of the Late Musa Yar Adua (the immediate past president of Nigeria) and his seven-point agenda for the country. According to the United Nations Food and Agricultural Organization's definition cited in Koc et al (2000),

'food security' means that food is available at all times; that all persons have means of access to it; that it is nutritionally adequate in terms of quantity, quality and variety; and that it is acceptable within the given culture'.

From this definition, the key elements of food security are food availability, accessibility and utilization. The situation in Nigeria is worrisome. Though domestic food production is on the increase, it is however not enough to keep pace with the increasing population because of the serious neglect of the agricultural sector. Access to adequate and nutritious food is limited by low income of the majority of the populace. Consequently, access to food is now perceived by many as a privilege rather than a basic human right. Larger number of people (mainly women, children and the elderly) suffers from malnutrition. A high level of malnutrition is, particularly reported among rural children with figure varying from 56 percent in rural communities in South West to 84.3 percent of those in Northern Nigeria (Akinyele; 2009). According to the National Bureau of Statistics (2007), food utilization and nutritional well-being of many households in Nigeria are of relatively low quality while about 60.8 percent Nigerians are malnourished. Far from disappearing, hunger and malnutrition seem to be on the increase. The continuing reality of hunger and malnutrition makes food security an essential concern.

Problem Statement

AIK offers great opportunities for improved agricultural production and sustainable food security. Many authors have recognized it as an important source of developmental information (Anyira, 2010) and have recommended its proper documentation and dissemination for sustainable agricultural development. In Nigeria, much of AIK has been lost because of lack of documentation. It is, therefore, imperative to create awareness and bring critical issues relating to the documentation and dissemination of AIK to the front burner so that its potentials can be harnessed to engender sustainable food production to combat imminent food crisis. This is the plank upon which this study is anchored.

Objectives

The study sets out to achieve the following objectives:

- i. Find out the existence of a policy for the documentation and dissemination of AIK in national agricultural research libraries in Nigeria.
- ii. Find out whether AIK is documented and disseminated in these libraries and areas of agricultural production covered.
- iii. Determine the methods employed for and the format(s) in which AIK is documented.

- iv. Ascertain the users of AIK and the channels of dissemination.
- v. Investigate the constraints/obstacles to the documentation and dissemination of AIK.

Literature Review

AIK has become valuable not only to those who depend on it in their daily lives, but to modern industry. Warren (1991) notes that AIK has made a tremendous contribution to crop production by poor farmers. Okuneye and Ayinde (2004) cited in Anyira (2010) add that small scale resource farmers have good reasons for sticking to their local knowledge and farming practices, because modern technologies can only be successful and sustainable if indigenous knowledge is taken into consideration. One of the best modern approaches to preservation of traditional knowledge is documentation in some permanent form and public accessibility. In addition to preservation, documentation and dissemination of agricultural indigenous practices provides an effective tool for research and innovation. However, Lwoga et al (2010) observed that research libraries have not been particularly active in documenting AIK. Nakata and Langton (2005) assert that libraries must consider indigenous knowledge not simply part of a historical archive, but a contemporary body of relevant knowledge.

Many methods have been suggested by different authors for the documentation of AIK. The International Institute of Rural Reconstruction (IIRR) in 1996 suggested identifying specialists, case studies, field observation, in-depth interview, participant observation, participative technology analysis, surveys, brain storming, games, group discussions role play, SWOT analysis, village reflections, village workshops, flow chart, mapping, taxonomies, participatory video and photo/ slide documentation. The IIRR also reported that AIK could be documented in the form of descriptive texts such as reports, inventories, maps, matrices and decision trees; audiovisuals such as photos, films, videos or audio cassettes as well as dramas, stories, songs, drawings, seasonal pattern charts, daily calendars and so on. Indigenous knowledge could also be stored in local communities, databases, card catalogues, books, journals and other written documents, audiovisuals and museums.

Karter (1993) pointed out that the verbal style of investigation does not yield satisfactory results always. He argued that observation becomes more important. He asserted further that real insight could be obtained by prolonged observation. Chande (1993) reported that surveys, competitions and interviews help document AIK. Dubey et al (1993) reported several methods like the case study method, the oral history method; key informant means, making diagrams, case histories, critical incidents, preference ranking and inventory of farmers' indicators could be used for documenting knowledge from local people.

Mare and Suteria (1993) used methods like dialogue, field observations and joint interpretations to arrive at conclusions to document indigenous knowledge. Rajasekaran (1993) also recorded details of AIK using farmers' participatory methods such as participant observations and unstructured exchanges. Rath (1993) was of the view that the participatory approach was the method for indigenous research. Signh and Rajoo (1993) concluded that individual and group interviews, participant observations and agro-ecosystem analysis play a vital role in documenting indigenous practices in agriculture.

- Indigenous knowledge does not flow on its own accord. It needs owners or originators with the vision motivation to create, adapt or exchange it. These owners need to have the creative, technical and people skills to transform an idea, an artifact, knowledge,

belief, value, norm, art, moral, law, custom, language, human institutions, technology and tradition into something that can be disseminated or exchanged. Disseminating indigenous knowledge within and across communities can help enhance cross-cultural understanding and promote the cultural dimension of development. Vivekanandan (1993) stated that conducting village level workshops and group discussion with farmers, publishing newsletters in local language for the exclusive communication of traditional farm technologies and travelling to interior regions were some of the effective means of disseminating AIK.

Methodology

A descriptive survey design was adopted for the study. There are fifteen national agricultural institutes in Nigeria established at different dates with different mandates all geared towards boosting agricultural production as indicated in Table 1 and each with its own library.

Table 1 National Agricultural Research Institutes in Nigeria

NAME OF RESEARCH INSTITUTE	YEAR ESTABLISHED	FORMAL MANDATE
Lake Chad Research Institute P.M.B 1293, Gamboru Road Maiduguri, Borno State	1960	Genetic improvement and development of production technologies for wheat, millet, and barley; the improvement of the productivity of the entire farming system in the North Eastern Zone
Institute for Agricultural Research P.M.B 1044, Ahmadu Bello University. Samaru Zaria.	1924	Genetic improvement and development of production and utilization technologies for sorghum, maize, cowpea, groundnut, Cotton, sunflower, and the improvement of the productivity of the entire crop-based farming system in the North West Zone of Nigeria.
Institute of Agricultural Research and Training P.M.B 5029, Ibadan, Nigeria	1956	Soil and water management research, genetic improvement of kenaf and jute, and improvement of the productivity of the entire farming system of the South West Zone
National Cereal Research Institute P.M.B 8, Badeggi, Bida Niger State	1975	Genetic improvement and production of rice, soybean, benniseed, sugarcane and improvement of productivity of entire farming system of the Central Zone
National Root Crop Research Institute P.M.B 7006, Umudike, Umuahia, Abia State	1976	Genetic improvement of cassava, yam, cocoyam, Irish potato, sweet potato, and ginger and overall research in improvement of farming system of the South East Zone
National Horticultural Research Institute P.M.B 5432, Idi-Ishin, Ibadan	1975	Research into genetic improvement, production, processing and utilization of fruits and vegetables, as well as ornamental plants

Nigerian Store Product Research Institute P.M.B 1489, km 3, Asa Dam Road, Ilorin, Kwara State	1977	Research into improvement of major food and industrial crops and studies on stored product pest and diseases, pesticides formulation and residue analysis
Rubber Research Institute of Nigeria P.M.B 1049, Iyanomo Benin City	1961	Research into genetic improvement, production and processing of rubber and other lather producing plants
Cocoa Research Institute of Nigeria P.M.B 5244 Idi-Ayunre Ibadan	1964	Genetic improvement, production and local utilization research on cocoa, cashew, kola, coffee and tea
Nigerian Institute for Oil Palm Research P.M.B 1030, Benin City	1939	Research into genetic improvement , production and processing of oil, coconut, date, raphia and ornamental palms
National Animal Production Research Institute P.M.B 1096, Shika, Zaria	1977	Research on food animal species and forages
National Veterinary Research Institute P.M.B 01, Vom	1924	Research into all aspects of animal diseases, their treatment and control, as well as development and production of animal vaccines and sera
National Institute for Freshwater Fisheries Research , P.M.B 6006, New Bussa	1968	Research into all freshwater fisheries, and long term effects of man-made lakes on ecology and environment throughout the country
Nigerian Institute for Oceanography and Marine Research P.M.B 12729, Victoria Island, Lagos	1975	Research into the resources and physical characteristics of Nigerian territorial waters and the high seas beyond; genetic improvement, production and processing of brackish water and marine fisheries
National Agricultural Extension, Research and Liaison Services , Ahmadu Bello University, Zaria	1975	Research into technology transfer and adoption studies; overall planning and development of extension liaison activities nationally; collation and evaluation of agricultural information

Source: RIU Nigeria 2010 <http://www.researchintouse.com/resources/ext/research-institutes-nigeria.pdf>

The 62 library personnel in these libraries constituted the population of the study. In view of the small size of the population, a total enumeration method was adopted. Questionnaire was the main instrument used for data collection. Sixty two copies of the questionnaire were administered while 48 copies were completed and found usable, giving a return rate of 77.4%. The questionnaire was complemented with an informal interview with the head librarians of eight of the libraries. The discussion which centred on AIK policy, funding, equipment and technical knowledge was frank and revealing. Data collected with the questionnaire were analyzed and interpreted using Statistical Package for the Social Sciences (SPSS) and frequency counts and percentages.

Findings and Discussion

The major findings of the survey are presented under the following topical headings:

Existence of AIK Documentation and Dissemination Policy

Majority of the respondents (37 or 77%) claimed that their agricultural research institutes had a documentation policy for AIK materials while 11 respondents representing 23% of the total respondents claimed that no such policy existed in their institutions. However the interview conducted revealed that apart from the enabling legislations establishing them, most of the institutions claiming to have a policy lacked a comprehensive and well-articulated policy that could take care of all aspects of AIK documentation and dissemination process. A policy is a vital requirement for the documentation and dissemination of AIK. It not only confers authority on the institution but also creates an enabling framework and gives general direction for the documentation and dissemination of AIK. Areas to which a policy should relate include the following:

- Objectives of AIK documentation
- Broad areas of agricultural production
- Right of access to AIK
- Funding for documentation project
- Intellectual property rights
- AIK dissemination methods and channels

Documentation and Dissemination of AIK and Areas of Agricultural Production Covered

Most of the respondents (38 or 79.1%) claimed that their libraries documented and disseminated AIK while the rest (10 or 21%) submitted that nothing was being done in their libraries in this respect. The areas of agricultural production covered by those libraries that undertook the project, however, depended on the mandates of their agricultural institutes. The general areas of agricultural practices identified by majority of the respondents include harvesting and storage, pests and diseases control, cropping system, weed management, soil fertility and crop nutrient management. Interestingly, these practices fall within the broad areas of indigenous agricultural practices identified by CIESIN citing Rajasekaran (1993).

Methods and Formats of Documentation

All the respondents identified oral history, case study, group interview, dialogue, field observation and joint interpretation, farmers' participation and key informant means as the major methods employed in documenting AIK. Majority of the respondents (44 or 92%) claimed to document AIK in paper format. The interview session revealed that in view of the oral nature of indigenous knowledge, documentation process entails recording, usually on tape which is then transcribed and put in paper format. Only four respondents (8%) reported to have AIK documented in compact disc. It is rather disappointing that despite the present level of information and communication technology (ICT) development, none of the institutes documented AIK in digital format. This is a reflection of the level of ICT adoption in these libraries and the society they are set up to serve.

Users of AIK and Channels of Dissemination

The users of AIK materials as claimed by 27 (56.3%) of the respondents are researchers and students from agricultural and other institutions across the nation. Sixteen respondents (33.3%) said that AIK was disseminated strictly to local farmers, agricultural extension workers and foreign researchers while five respondents (10.4%) skipped this aspect of the questionnaire. The interview conducted, however, revealed that some categories of users did not derive satisfaction in the use of AIK because of the format in which it was documented. These users prefer that AIK is documented using modern technology rather than paper format.

The major channel of disseminating AIK as reported by 32 respondents (67%) is leaflets and bulletin. Twelve respondents (25%) claimed to use agricultural extension workers while only three respondents (6.2%) claimed to use the radio and television as channels of AIK dissemination. Other channels identified in the course of the interview are mobile library services and research reports. While the low level of ICT development in the country is appreciated, it is submitted that digital technology should also be employed to facilitate wider access, particularly by researchers (local and foreign) and students who have been identified as key users of AIK.

Obstacles to AIK Documentation and Dissemination

Majority of the respondents (29 or 60.4%) identified inadequate funding as their major obstacle in documenting and disseminating AIK. Fifteen respondents (31%) claimed that lack of co-ordination in documentation services is their major challenge. This category of respondents submitted that there was no proper coordination mechanism in place in their institutes that could spell out the roles of the different players, platform for best practices and lessons outcomes of the different approaches to be undertaken in documenting and disseminating AIK. This finding is similar to that of Sonaike (1999) cited in Okorafor (2010) and has highlighted one of the weak points of the AIK policy of their institutions, as responsibility for AIK project coordination should be clearly stated in institutional policy. Four respondents (8.3%) identified poor infrastructure and dearth of human resources as part of their challenges. The interview conducted also revealed that some of the institutes lacked professional expertise and institutional capability to document AIK. Majority of the personnel working in the agricultural research institute libraries are librarians and not documentalists. Phiri (2002) recommended in his study that a good documentalist should be available to document indigenous knowledge activities. Other obstacles identified include lack of suitable equipment for documentation, language barrier (in cases where the documentalist did not understand the local languages), memory failure on the part of the resource persons as indigenous knowledge is orally passed from generation to generation, particularly in most African societies, cultural practices such as requiring certain rites to be performed as a condition precedent to documentation, and intellectual property right issue which might discourage full disclosure of indigenous knowledge. These findings are in line with those of Anyira (2010) in his study of preservation and accessibility of indigenous knowledge in the Niger Delta area of Nigeria.

Conclusion and Recommendations

The urgency of indigenous knowledge documentation in Africa can be appreciated from the fact that when an old man dies in Africa, a whole library/archive perishes with him

due to the oral nature of African indigenous knowledge. It is evident that AIK offers great potentials for increased agricultural production and, consequently, for tackling the problem of food insecurity.

These potentials seem to have been recognized by national agricultural institutes in Nigeria. The need to document and disseminate indigenous agricultural practices is, therefore, felt and appreciated, prompting most of the national agricultural institute libraries in Nigeria to embark on a project of documenting and disseminating AIK on a varying scale and with a varying degree of success. The project in some of these libraries was, however, haphazard and faced with enormous obstacles which have held it down and which have the potentials of completely derailing it, the most critical being poor funding.

It is, therefore, imperative that AIK documentation and dissemination project in Nigeria should be properly funded with a budget line and annual budgetary provision for it. National agricultural institute libraries in the country must look beyond the government for funding. There are many international organizations with the mandates to support laudable projects aimed at alleviating poverty and hunger to which grants attracting proposals can be submitted by these libraries for support for AIK documentation and dissemination. However, the libraries require a comprehensive AIK policy which will give guidelines and direction that can facilitate proper coordination of AIK documentation and dissemination programme. Necessary modern equipment should be procured while staff capacity building should be stepped up for the project.

Collaboration and networking among libraries need to be extended to AIK project so that one library can learn and benefit from the experience of others to attain a high level of success in the documentation and dissemination process. Furthermore, AIK should be disseminated on a wider scale so that it can be integrated into the conventional agricultural production practices. Those libraries that are yet to embark on the project should embrace and regard it as a necessary component of their mandates, particularly at a time like this when all hands must be on deck to save the world from the pangs of hunger and make food security an accomplished millennium development goal.

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