

THE ROLE OF UNIVERSITIES IN THE PROVISION OF SCIENTIFIC AND TECHNICAL INFORMATION IN TANZANIA: PROBLEMS AND PROSPECTS

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ABSTRACT

This article discusses the role of University libraries in Tanzania in providing Scientific and Technical Information (STI) services and problems deterring effective delivery of STI services in Tanzania. The article also, examines the state of STI services in two public Universities, namely the Sokoine University of Agriculture and the University of Dar es Salaam and the two constituent colleges. The article ends by examining prospects for improving effective provision of STI services and the role of local and international agencies.

INTRODUCTION

The importance of Scientific and Technical Information (STI) to economic and social development is increasingly being recognised by policy makers in Tanzania and elsewhere in Africa. UNESCO and the International Council of Scientific Unions (ICSU) have been in the forefront under the World Science Information System (UNISIST) programmes implemented in the 1980's in the planning and development of the use of STI particularly in the developing countries.² The UNISIST programme has provided assistance to developing countries, including Tanzania, in supplying guidelines on how to set up an STI system. among other things.³

However, the availability of this information is restricted to many countries with the exception of a few. Tanzania, like most of other African countries, is beset with multiple problems that seriously affect its ability to acquire and disseminate information to those who need it due to infrastructure, organisation, expertise and financial constraints. International efforts to improve information systems and services in Africa can only prove to be effective if, in the long run,

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² Radhakrishna, S., Science, Technology and global problems: Views from Developing World, Oxford, Pergamon Press, 1980, p.74.

³ Ibid.

African countries themselves develop the capacity to sustain such services and also by generating its own information system. That is collecting and organising it, indexing as well as disseminating such resources.

Science and technology are crucial factors in promoting development. The importance of STI in development has been widely discussed and various efforts have been made to sensitise African policy makers on the importance of STI for social, economic, cultural, political and spiritual development. Information is also a critical factor in promoting equality and human rights. Hence its availability and timely access to decision and policy makers is crucial.

University libraries in Tanzania play a crucial role in providing scientific information to a wider audience particularly students, teaching staff and researchers both local and international. In Tanzania, like in most African countries, University libraries also act as national libraries.⁴ This is because these libraries have larger and well-organised collections, equipment and highly trained professionals compared to other libraries.

University libraries are also major sources of information, for industrial and technology sectors in the country. Although they play this role these libraries are also highly dependent on donor funding to acquire materials they need. In these times of stringent local budgetary allocations they rely on financial support from various international organisations. By contrast, developed countries have established and stocked national libraries and documentation centres, which provide information to its wider scientific community. These libraries are also well funded by national governments.

Definition of STI

Scientific and Technical Information has been defined to be both information arising and pertaining to research activities in natural and social sciences, and information related to technology.⁵ In the African information science scene, Ocholla has defined scientific and technical information to be all information that might be useful to further research or to the practical activities and organisation of society.⁶

⁴ Bandara, S.B., Can university libraries serve the national library role in less developing countries, in: Line, M.B. and J. Line (Compilers), *National Libraries*, Vol. 2, ASLIB, 1987, pp. 63-64.

⁵ UNESCO, Report on Intergovernmental Conference on Scientific and Technical Information for Development (UNISIST), Paris, 28 May - 1 June, 1979.

⁶ Ocholla, D.N., Developing an Infrastructure for Scientific Information in Kenya, *Library Review*, Vol. 4 No. 5, p. 48.

Users of STI in Tanzania

Users of STI in this context include government Ministries and departments, policy makers, academic and research institutions, universities and institutions of higher learning, public institutions as well as individuals. Other public sectors served include those engaged directly in production and innovation such as industries, promotion and consulting firms, as well as individual entrepreneurs and researchers. Basically, STI Users in Tanzania can be divided into the following groups:

- i) General population i.e., peasants, farmers, small scale industrialists and artisans both in urban and rural areas;
- ii) Students, teachers, field or extension workers and technicians;
- iii) Specialised scientists and professional staff in various fields such as natural scientists, engineers, doctors and other type of professionals working in universities, research organisations, the government, public sector, private sector and industry;
- iv) Policy makers, planners and administrators. This functional group includes politicians, executive officers, civil servants and directors.

The State of STI Provision in Tanzania

In Tanzania, information systems and services fall under the following categories that is University Library Systems, (both public and private)⁷ public library Services (Tanzania Library Services) and government research institutions, non-governmental organizations and the private sector.

Tanzania has three public Universities and two constituent university colleges, namely, the University of Dar es Salaam, the Sokoine University of Agriculture, and the Open University of Tanzania. The Muhimbili University College of Health Sciences and the University College of Lands and Architectural Studies are constituent colleges of the University of Dar es Salaam. The Open University of Tanzania has no well-established library service of its own and mainly uses the services of other existing University Libraries and TLS.⁸

⁷ University of Dar es Salaam, *The Library and Library Technical Services: A Brief History 1970 – 1980*, Dar es Salaam, Library Technical Services, 1980.

⁸ Open University of Tanzania, *Provisional Prospectus, 1994*, Dar es Salaam, Dar es Salaam University Press. 1994, pp.61-63.

University of Dar es Salaam

The University of Dar es Salaam Main Library is the largest library in Tanzania. In 1995 the library's book stock was about 750,000 volumes and 850 current periodical titles.⁹ In addition, the library has a growing collection of manuscripts, microfilms, microfiche, maps and other non-book materials. The library also has more than 950 dissertations and theses and 800 microforms.¹⁰ Since 1993 the library has set up seven CD-ROM workstations¹¹ and databases including biodiversity, ERNETA, etc. The effective use of University of Dar es Salaam databases has been enhanced by the fact that they are regularly updated. In general, CD ROM and document delivery services have enhanced the access to STI.

The University Library caters for a wide variety of STI users whose needs range from scientific and technological information to policy, bibliographical and non-bibliographical information. The Library has a good coverage of reference materials in different subjects. Due to financial constraints most of them tend to be old and outdated. However, with the introduction of Information Technology (IT) at the University of Dar es Salaam it is now possible to get access to international databases through the Internet and CD-ROM resources.

Sokoine University of Agriculture

Sokoine University of Agriculture Library was designated the national agricultural library in 1992¹² by virtue of the Sokoine National Agricultural Library Act 1991. Section 5(2) of the Act states that: "The Library shall be an agricultural library within the national agricultural library system and shall be developed as the centre of the national agricultural library network." Section 4 also clearly states that: "The Library shall be both the Library of the University as well as National Agricultural Library of the United Republic."

Currently, Sokoine University library has a stock of approximately 56,000 volumes. The library subscribes to more than 1150 periodical titles annually.¹³

⁹Bartz, B., H. Optiz and E. Richter (eds), World Guide to Libraries, 12th Ed., Vol. 2, Muenchen, K.G. Saur, 1995, p. 561.

¹⁰Ibid.

¹¹Nawe, J., Computerization of Library Services at the University of Dar es Salaam: Experiences and Challenges, Paper presented at the Panel Discussion on the African University Day, 13th November, 2000, Dar es Salaam, p.3.

¹²Act No. 21 of 199.

¹³ Bartz, B., H. Optiz and E. Richter, (eds.), World Guide to Libraries, 12th Ed., Vol. 2, op. cit., p. 561.

Since 1981 the Library has been providing a current awareness service on agricultural information known as the Tanzania Literature Service (TALIS) which was initially launched in 1978 by the Ministry of Agriculture.¹⁴ This service is offered to scientists and researchers working in the Ministries of Agriculture, Livestock Development and Natural Resources and to training and research institutes, which fall under these Ministries. TALIS services include providing photocopies of content pages of current issues of periodicals, and photocopies of requested periodical articles by its users. TALIS was established with the assistance of the government of the Republic of Ireland and by 1990 TALIS was serving 120 centres and between 1800 and 2000 scientists, researchers and teachers.¹⁵ The utility of TALIS has been seriously affected by the virtual decline of most of the agricultural and livestock training institutes thus perhaps leaving users at SUA be the beneficiaries of TALIS activities.

Muhimbili University College of Health Sciences

The Muhimbili University College of Health Sciences library is part of the University of Dar es Salaam Library System. The last stock taking conducted in 1988/89 shows that the Library had 80,000 volumes and 350 Periodicals titles, 450 dissertations and theses, 500 microforms, 250 manuscripts, 675 government publications, 75 films, and 275 audio-visual materials including 95 sound recordings.¹⁶ In February 1983 the Medical Library was designated the national focal point for the Health Information Network in Tanzania.¹⁷ The Medical Library also promotes networking between the Tanzanian and the international scientific community. The library, in addition, distributes 50 copies of the *Tanzania Medical Journal* to other medical libraries in Africa and a varying number of issues to other centres of learning and research institutions outside Africa.¹⁸

Since 1980 the Library has prepared, compiled and distributed the *Tanzania Health Abstracts* annually. In 1982 the Medical Library began to produce a

¹⁴ Gessesse, K., and S.S. Mbwana, Scientific Literature Services in Tanzania – Historical Account, *Annals of Library Science and Documentation* 1990, 37 (4), p. 121; Gessesse, K., and S.S. Mbwana, *The Scientific Literature Service in Tanzania*, Third World Libraries, Vol. 2 No. 2, Spring 1992, p. 60.

¹⁵ Gessesse, K., and S.S. Mbwana, Scientific Literature Services in Tanzania – Historical Account, op. cit., p. 122.

¹⁶ Bartz, B., H. Opitz, and E. Richter, (eds), *World Guide to Librarians*, op. cit., p. 561.

¹⁷ University of Dar es Salaam, Annual Report of the Activities of the University of Dar es Salaam, Research and Publication Section, 1988, p. 61.

¹⁸ Ibid.

quarterly bibliography known as *Health Information in Tanzania*.¹⁹ In recognition of this, in 1982 Muhimbili Medical Library was one of the seven resource libraries selected by WHO in Africa to form the African medical libraries network. It is also the Regional Focal Point for East Africa.²⁰

University College of Lands and Architectural Studies (UCLAS)

The University College of Lands and Architectural Studies (UCLAS) was established as constituent college of the University of Dar es Salaam in 1996. Initially, it was established in 1958 as a Survey Training School and latter elevated to Ardhi Institute in 1972. UCLAS has a small library with a collection of 20,000 bound volumes and 200 periodicals.²¹ A trained professional librarian heads the library. As indicated in the resources it has a small collection that needs to be updated to reflect the current development in the subjects taught. One of the problems that constitute a major constraint is inadequate funding to the library. It needs to be pointed out that the availability of Information Communication Technology (ICT) at UCLAS has great potential in improving access to these resources which needs to be explored.

Local and International Efforts

Through IDRC support Tanzania has established a scientific and technological information network known as the National Information System for Science and Technology (TANISSAT). This is a result of the endeavours of the United Nations Centre on Science and Technology for Development (UNCSTD) and its efforts in promoting science and technology for development in developing countries. Implementation of the first phase of TANISSAT began in 1994.²² In Tanzania the project is co-ordinated by the Commission of Science and Technology (COSTECH). The network was envisaged to involve 19 local institutions, representing a cross-section of institutions from different parts of Tanzania. This is designed to ensure that the network extends its nodes to remote parts of Tanzania. The project is also aimed at creating a database for information on science and technology.

¹⁹ Gulbraar, K., and Moen, J., *Books and Libraries in Tanzania*, 1986, Oslo: Departement for utviklingshjelp, 1986, p. 33.

²⁰ University of Dar es Salaam, *Annual Report of Activities of the University of Dar es Salaam 1983 – 1984*, Research and Publication Section, 1984, p. 99.

²¹ University of Dar es Salaam, *Prospectus 2000/2001*, Dar es Salaam, DUP(1996) Ltd, 2000, p. 369.

²² United Republic of Tanzania, *Hali ya Uchumi wa Taifa katika Mwaka 1993*, Dar es Salaam, Government Printer, 1994, p. 76.

The network was supposed to link with University libraries in Tanzania in the production, collection, compilation and dissemination of STI. The first phase of implementation included the Sokoine University of Agriculture Library, which is also the National Agricultural Library of Tanzania and source of agricultural information.²³ The University of Dar es Salaam Library System, which includes the Library at the Muhimbili University College of Health Sciences, and the University of Dar es Salaam Research and Publications Committee were scheduled to be included in the network by mid 1996. The University of Dar es Salaam Library with its rich collection on science and technology information was assigned the role of providing information to the network through document delivery service. The Muhimbili medical Library is supposed to feed the network with medical information.

The use and application of computers and telecommunication facilities has greatly improved access to information, its processing, storage and dissemination. ICT is now available in most university libraries in Tanzania even though it is still in its infant stage. All University libraries have now introduced online information services including Internet connections, CD-ROM services and document delivery.

Local Initiatives

Since 1989, The University of Dar es Salaam and some research libraries in Tanzania have established a co-operative acquisition scheme²⁴ involving mainly the acquisition of periodical literature. The scheme was financed by Swedish Agency for Research Co-operation (SAREC) in response to financial problems facing university libraries particularly with journal subscriptions. The scheme was also established to avoid unnecessary duplication and at the same time to increase access to a range of periodical titles and to maximise utilisation of the grant from SAREC. This scheme involves four libraries, namely; the University of Dar es Salaam, Sokoine University of Agriculture, Mpwapwa Livestock Research Institute and Temeke Animal Research Institute. Each library is responsible for specific subject areas to ensure the development of a comprehensive collection. About 450 titles were acquired annually under this scheme.²⁵

Since 1989 these libraries have mutually exchanged materials relevant to

²³COSTECH, Project Proposal on Establishment of Scientific and Technological Information Network in Tanzania, Dar es Salaam, January 1992, p. 9.

²⁴Mhina, M.N., and D.R.M. Katundu, Cooperative Acquisition and Collection Development in Tanzania, in: Mascarenhas, O.C. (compiler), Establishment of a National Information and Documentation Network in Tanzania, Bonn/Dar es Salaam, DSE, 1989, p.117.

²⁵ Ibid.

their specialisations. It is estimated that about 300 titles were being exchanged through this system. This also made it possible for users to have access to relevant materials in their areas of specialisation.

Problems of Provision of STI in Tanzania

Provision of STI in Tanzania has been difficult due to, among others, the following reasons; lack of a clear national policy on STI, poor co-ordination, and lack of means for attaining laid down objectives and goals. Due to this, local efforts and donors' assistance in alleviating the last problem have not been very effective.

On the issue of policy, the government promulgated in April 1996 the National Science and Technology Policy for Tanzania. However, the policy mentions in passing about STI stating one objective as to "stimulate the generation of scientific and technological knowledge."²⁶ The part on information and documentation services in the policy states that COSTECH should also act as focal point in establishing industrial and technological information system.²⁷ There is a need for the promulgation of a national policy that will specifically address itself to the question of development and provision of scientific and technical information in Tanzania.

Another problem has to do with users of STI and their needs. They are so diverse to the extent that the information needs of STI users in Tanzania vary a great deal. To meet these varied needs requires a systematic and integrated approach. One problem is that potential users are not easily identified and stimulated to seek and demand scientific and technical information. As a result, these users do not benefit from STI, which filters into Tanzania. Without such vital information, it is very difficult for local researchers and scientists to become innovative.

The second problem has to do with collection and dissemination of STI. This problem is often attributed to the underdeveloped communication infrastructure and lack of adequate facilities. For example, in Tanzania, there are few academic and public libraries, which are well stocked and equipped. Most of them also lack modern facilities such as computers and trained personnel to facilitate smooth information collection and its dissemination. Information activities in science and technology barely exist in Tanzania and where they exist they are poorly uncoordinated. Efforts to rectify the situation are severely hampered by financial constraints and ignorance on the need for such services. This is a problem experienced by many institutions in the country, with the exception of Universities.

²⁶ URT, The National Science and Technology Policy for Tanzania, Dar es Salaam, April 1996, p.8.

²⁷ *ibid.*, p.48.

The third problem stems from poor co-ordination of donor assistance, which often results in duplication of efforts. Hence there is a need to co-ordinate technical assistance, training and also the purchase of equipment in order to develop a strong STI system and infrastructure in Tanzania. This would also facilitate resource sharing and networking at national, regional and international levels.

The fourth problem is the lack of an effective national research system and effective library and information services to support it. Lack of properly defined national library and information policies and lack of a strong co-ordinating body hamper efforts for an effective research system. Most research institutions in Tanzania, work independently and are accountable only to their parent Ministries and less so to the National Commission of Science and Technology which is supposed to co-ordinate such efforts.

Prospects for Improving STI Services

The general impression one gets from the analysis of STI provision in Tanzania and University libraries in particular, is that too many problems and numerous contradictions which are often beyond the capacities of the libraries confront them. Their solution requires participation and assistance of other national and international institutions and organisations. However, despite these problems tremendous achievements have been attained in the past few years in the provision of library and information services in Tanzania. For example, collection growth has progressed well despite lack of adequate funds. Secondly, co-operative ventures have been initiated to ensure optimal use of available resources. Measures to improve services have also been adopted including the introduction and use of modern information and communication technologies.

CONCLUSION

Scientific and Technical Information dissemination is increasingly becoming important. During the past thirty-five years substantial progress has been made in the development of university libraries in Tanzania and their involvement in STI provision. Collection developments in terms of books, journals and other research materials have also been strengthened to an appreciable extent. Lending, reference and documentation services are being further developed. Training and retraining of human resource is equally being emphasised to ensure effective management of STI. While much remains to be done, there is also a need for proper consolidation of what has already been achieved so far. University libraries have a lot to contribute in improving provision of STI in Tanzania.

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