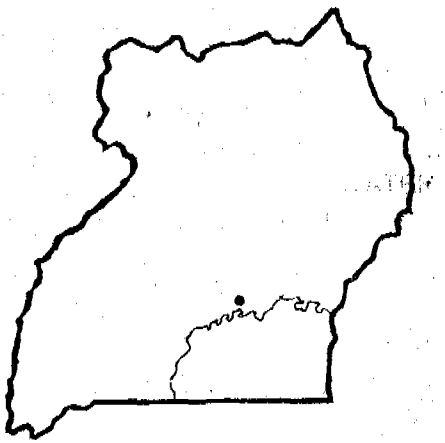
Deutsche Stiftung für internationale Entwicklung
German Foundation for International Development

EAST AFRICAN SCHOOL OF LIBRARIANSHIP
MAKERERE UNIVERSITY

S. A. H. Abidi and L. Hüttemann (Eds.)

DEVELOPMENT OF A NATIONAL INFORMATION AND DOCUMENTATION NETWORK FOR UGANDA



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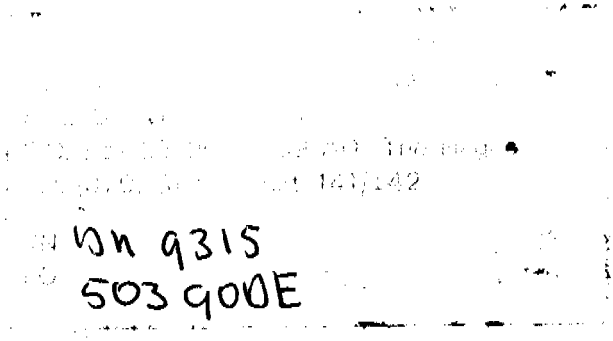

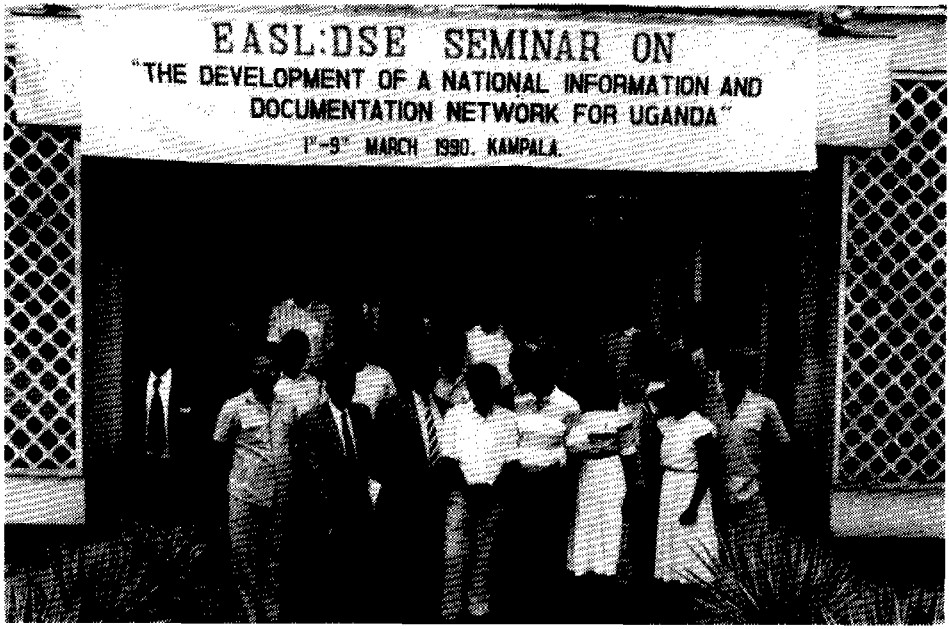

Above: Participants in front of EASL building at Makerere University in Kampala.

Below: Participants at Entebbe Gardens after visit to the National Archives with Lake Victoria in the background.

CONTENT

OFFICIAL OPENING SPEECH

by Dr. Samson B. Kiseka
(Prime Minister of Uganda)

My Colleagues the Hon Ministers,
Your Excellencies and Members of the Diplomatic Corps,
The Vice-Chancellor,
Participants at this Seminar,
Ladies and Gentleman,

On many occasions, I have castigated that Africa is backward and the state of backwardness here in Uganda is worse. From the times of the colonial period we have been testing on educational achievement imported into Africa by the colonial masters. We were supposed to be educated but not for productive purpose because the educational content included no technology transfer and as a result, the knowledge we have been researching in all scholarstic materials or the information imparted to us by our teachers were never for production as we know it today.

I have read with excitement the list of important topics to be covered at this seminar and more so for Uganda if the objective of establishing a National Information and Documentation Network for Uganda is achieved as well as in our sister countries on the continent. It is important because we shall be laying a firm foundation for source of information materials which will be applied as inputs in the policy formation of our development proposals. It is with that in mind that I would wish to express the Government's appreciation to the German Foundation for International Development for the initiative it has taken to sponsor this seminar. I am also welcoming participants from outside Uganda to Uganda for having come to share with us their experiences in information management.

Our state of backwardness cannot be wished away; we have to strive to aquire, hold and apply technology to our production and to a certain extent,

we have to be actively pursuing technology transfer from whatever source to Uganda. To acquire technology and work out achievable policies for our deliverance from our present state of backwardness, we shall need four types of media:-

1. Technology transfer through education which requires a lot of knowledge, information which is well managed for both teachers and students.

2. We shall need a big reservoir of information which is varied and reliable for our planning of development policies and their implementation.

3. We have to establish a major centre or institution which will be a dependable data bank in which we store every kind of information about our society, be it social, economic, demographic, etc., etc.

4. We shall need the management skills for information management that can apply the modern information management technology so that all types of information is not only available but accessible and reliable.

On a number of occasions, I have stated that the NRM politics as a philosophy is about the management of society and I have also stated that the NRM politics is politics of development and not politics of power. Africa will have to change its approach in politics as a process or movement that leads from our present state of backwardness to a status of developed countries.

It is my view that politics of development involve a number of elements and one of them is about proper planning for development based on hard facts, hard facts about the society, the economy and the political systems. It is true, therefore, that to manage society by application of the politics of development will greatly rely on availability of information.

I have already stated the importance of this seminar for us here in Uganda. I cannot help stressing this importance by giving you specific examples of the kind of problems our present government is facing simply because we have no reliable information about so many things and lack of documentation regarding certain subject metters.

Let me illustrate with some examples like the lack of information on our agricultural capacity. For sometime now, we have been searching everywhere for latest and reliable information on soil surveys, climatic data, agricultural

methods employed in the fields. At the end of every season we may not even find reliable figures on production either per district or as a country. You can appreciate the planning problems for each subsequent season because the data which may be available today may be unreliable for determination of the direction to take.

Every year we see the Ministry of Education struggling to put in place an effective policy on education. This may be because there are no reliable data on children demography or stock of facilities. It would have been much easier a question to answer if say the Ministry of Education had from year to year not only collected but preserved reliable figures on which to base the administration of schools and the whole education system by determining the predictable level of requirements for years to come.

After these civil strifes in this country, we find ourselves with no demegraphic data on which to base our national development plans. That is so because a lot of people have died during the last 10 years, people have been displaced, children have been born and our work force has either been depleted or deteriorated for one reason or another. It is true therefore that every time you consider a particular project planned for either a locality or the whole country, the feasibility studies based on certain statistical data is suspect. We definitely have a problem and the sooner we embark on the development of a National Information and Documentation Network, the better; it can be institutionalised as a centre or a "national data bank".

Makerere University established this school of Librarianship to serve the different parts of East Africa by training personnel for information management with special reference to libraries. It seems expansion of these facilities is urgently required. We must have a centre of learning for training our people in this specialised field which is so essential for our development. I will be pleased to learn that there are programmes for further development of the East African School of Librarianship to include subject which lead the student to a professional level of managers of our information centres and persons skilled in the communication systems, data collection, documentation and their preservation. Such persons, we hope, will also acquire the modern technology for information management like the computerising technology. The development

of a National Information and Documentation Network is not only essential but it is timely and will receive government support.

With these few remarks let me trust you with the responsibility of deliberating on matters of great importance and lead to conclusions and recommendations that can be implemented. It is with that hope that I declare this seminar open.

Thank you.

INTRODUCTORY STATEMENT : THE NATIS PROJECT

by Anesta Nakkazi

The subject matter of Information and its integration into the national development programmes is an area which needs to be tackled by an expert. I therefore feel the organisers of this seminar should have chosen someone who is more conversant and competent with the issue at stake, especially when the audience is full of experts, and consultants in the field of Information, Documentation, Libraries and Archives. Nevertheless, since this subject rates high among the programmes of Unesco, whose aims and objectives, we of the National Commission are endeavouring to make known and disseminate, with the ultimate aim of achieving widespread participation of the government and various categories of people into the programmes and activities which are designed in order to achieve these aims and objectives, I shall try to discuss it in the light of our activities in these fields. Therefore we are happy to see that Uganda has also come up to implement prgrammes such as these, the formation of networking which will enhance the formulation and concretisation of the Information systems which government hope to establish. It is against this background that I will present my statement and bear with me if I appear to be preaching to the converted. In my statement I shall briefly:

1) review what Unesco stands for;

2) highlight the importance of Information; and

3) describe the role of Unesco in the development of Information and Documentation services at the International, Regional and National levels. For the latter I will focus on the Uganda case.

UNESCO, WHAT IT STANDS FOR:

Ladies and gentlemen, as you are all aware, Unesco is the specialised agency of the United Nations with particular responsibility in the fields of

education, natural sciences, social sciences, culture, communication, copyright, archives, documentation and library services as well as statistics for the above mentioned disciplines.

Unesco was established on 16th November, 1945 at the end of the Second World War. It was a direct realisation by the World's leaders of the time, that, since wars originate in the minds of man, the roots of peace should also be established in the minds of man. Unesco was subsequently created in an effort to find ways and means by which the world's people of differing origins and cultures could be brought together to appreciate one another. It was felt this could be achieved by promoting collaboration among the nations through education, science, communication and general information etc.

Having cited what Unesco stands for, let me elaborate on the General Information Programme of Unesco to which this seminar relates. First of all what do Information and Documentation involve? Information is defined as "the recorded or unrecorded knowledge man has about his environment". Documentation on the other hand is defined (by Bradford 1953) as: "The art of collecting, classifying and making available the records of all intellectual activities to the scientists, those in his field of study so as to help him avoid duplication of efforts over work already done before him".

Documentation work does not therefore cover unrecorded information and/or data (i.e. legends). To be able to make positive development in any given field therefore the relevant information available must be documented so that it can be used as a reference source on which to base developmental plans and strategies. If the information that has been accumulated over time was no longer available to the scientific community and other types of researchers, scientific discoveries and technological innovations would be impossible because new knowledge is built on already existing ones, one does not discover from a vacuum. This precisely explains why scientific and technological performance of developing countries with extremely low documentary resources is low.

The importance of Information and Documentation has thus been recognised by all governments rich or poor, International bodies and non-governmental organisations. It has also been accepted by all circles that all available information should be harrassed and utilised for development purposes,

decision making, planning and research undertakings. This is why a country's ability to provide essential goods and services for its peoples is determined by the availability and rational exploitation of information resources and documentation of such information resources in all sectors of development. The development of a given society is similarly dependent on the information which is available about the society's resource potentials, that is their quantities, quality and accessibility. It is only when this is known that the planners can plan for their exploitation and utilisation for development.

ROLE OF UNESCO IN DEVELOPMENT OF INFORMATION AND DOCUMENTATION NETWORK

Fellow participants, Unesco's recognition of the importance of information dates back from its very foundation, when its Constitution was adopted on 16th November, 1945. In the Article setting out the purpose and functions of the organisation it is stated that: "Unesco will collaborate in the work of advancing the mutual knowledge and understanding of peoples, through all means of mass communication and to that end recommend such international agreements as may be necessary to promote free flow of ideas by word or image."

So right from its foundation, information and documentation form a very important part of Unesco's programmes. Unesco puts a lot of emphasis and focus on book production and publications of all kinds and to their dissemination, as well as their conservation and preservation in libraries, documentation centres and archives. Unesco's programme under the General Information Programme, known as PGI, is executed at three levels:

1. International level;
2. Regional level; and
3. National level.

1. International Programmes

At international level Unesco in collaboration with other International organisations and non-governmental Organisations (NGOs) such as International Federation of Library Associations (IFLA): International Federation of

Information and Documentation (FID); International Council on Archives (ICA); International Organisation of Standardisation (ISO); engage in joint ventures by formulating rules, guidelines, regulations and procedures to be used by all those who are engaged in different aspects of Information activities. I will mention a few of some of these guidelines or blue prints. Among these are:

- The Unesco Publication Library Manifesto formulated originally in 1949.
- The Charter of the Book in 1971, which spells out the rules for cataloguing and codifying library materials and standardisation of entries and descriptors.
- The "National Information Policy Guidelines", by Dr. D.J. Urguhart (a document sponsored by Unesco) an address to decision-makers and non-technicians. It explains why Information Policy is necessary, describes & assesses the National Information situation, and how to develop Information plan etc.
- The Design and Planning of a National Information System, a paper for government planners, by Bjorn Tell again sponsored by Unesco - is intended to encourage governments and convince them of the need to develop National Information Systems (NATIS).

These guidelines and others published by Unesco assist member States to establish their policies and prepare their plans for the establishment of viable information systems.

Another organ established by Unesco to ease the flow of information is the Universal Copyright Convention (U.C.C.). Unesco established the Universal Copyright Convention in 1952, in order to protect printed works.

The copyright convention aims at protecting literacy, scientific and artistic works to ensure respect for the rights of individuals and encourage the development of literature, the sciences and the arts. It also aims at facilitating a wider dissemination of works of the mind and increasing International Understanding. That is, the convention grants protection to the intellectual works of contracting member states. That means the works of the foreign nationals of contracting states are offered same protection by law as those of its nationals, thereby facilitating other wider dissemination.

At the international level, therefore copyright protects the authors of literary, artistic and scientific works by giving them the right to remuneration and control over the public use of their intellectual works. It covers all forms of works of the mind such as films, paintings, music etc. It encourages creativity by providing legal framework as well as promoting wider access to these works. It protects the owner from illegal persons claiming his work as their own. Many people are ignorant of this facility, others tend to think that it is restricted to books only. In Uganda, the copyright act was passed by act of parliament in July 1964. However, despite this move, Uganda to date has not ratified the universal copyright convention.

Unesco also assists the flow of information at international level by encouraging international exchange of publications, for example between Universities and learned societies.

Forthly, Unesco through its UNISIST programmes spearheaded the formation of international information systems and councils aimed at the development of various scientific and technological disciplines. Such systems include:

- UNISIST: International Information Systems for Science and Technology.
- INIS: International Nuclear Information System.
- ICSU: International Council of Scientific Unions.
- SPINES: Intergovernmental Exchange of Information on the application of science and technology for development.
- DEVSIS: International Information System for sciences of development.

2. Regional Programmes

Unesco conducts its regional programmes through the organisation of training programmes for the member states of the region i.e. through seminars workshops and conferences, research undertaking

- Assisting such regional groups in establishment of Information Infrastructures.

- Provision of Technical Advisory services in the relevant areas through consultancy missions, etc.
- Supply of Equipment.
- Awarding of fellowships, scholarships and study grants to local information personnel.

In Africa generally and East Africa in particular the following serve to illustrate a few assistance provided by Unesco for the region:

In 1953, Unesco provided financial assistence to the Government of Nigeria for the organisation of the first regional Seminar on the development of Public Libraries in Africa, at Ibadan, Nigeria. Subsequently similar assistance was provided by Unesco to establish schools for training librarians in Nigeria, Ghana and Senegal.Other Regional Institutions in other disciplines were later set up for instance, such schools included: The Department of Archival Studies at the University of Ghana established in 1974, for the English Speaking African countries, and a similar archival Institution was also set up for the Francophone states.

In East Africa, such programmes included, the 1970 Regional Experts Meeting held in Kampala, on the "National Planning of Documentation and Library Services in Africa"; The International Conference on the Development of Library Documentation and Archival Infrastructures by the German Foundation for International Development (DSE) in collaboration with the East African Academy (EAA) held in Nairobi, July 1974. This meeting was organised on the request of Unesco.

In 1976, Unesco again in collaboration with the International Development Research Centre (IDRC) of Canada, organised a training programme for the region on the "Implementation of Modern Documentation" held in Nairobi, Feb/March 1976.

3. National Programmes

Like at Regional levels, Unesco's Contribution towards the development of Information Activities in its individual member states is given by:

- providing financial assistance to member states on request for the organisation of training programmes at national level.
- Provision of Technical Advisory Services - through consultancy missions.
- Supply of Equipment.
- Award of scholarships, fellowships and study grants to local experts.

In the fields of training, Unesco provided financial assistance to the Government of Uganda for the Organisation of the Regional Experts Meeting on the National Planning of Documentation and Library Services in Africa - in Dec. 1970 the meeting was held here in Kampala. In addition Ugandan nationals have been offered many fellowships to go abroad to undertake post graduate, Masters programmes in both Library and Archival fields.

Unesco also does assist Information Units of Member States by supplying them with the necessary equipment. A recent example of such offers was the supply of a Micro Computer to the Uganda National Documentation Centre.

In the field of Information, Unesco from time to time responds to requests from member states in the areas of technical assistance. In Uganda such gestures dates as far back as 1970's when Unesco commissioned consultant Jerry Akita in July 1978 came to Uganda to assess the Archival situation in order to assist the Government through Unesco to modernise the Archival and Records Institutions. Earlier, Prof. Taun was commissioned by UNDP/UNESCO to set up the Uganda National Documentation Centre at IPA.

In 1980, Unesco also sent Dr. Haider Ali, an expert on school libraries, to assist government set up a model school library in Uganda. The project was planned to be implemented in phases and was expected to start in Secondary schools and later expand to all levels of the school system.

NATIS PROJECT

Efforts towards the establishment of an integrated national Information System for Uganda to and in development efforts dates as far back as the 1970s. The first step in this direction was demonstrated by Uganda's request to host the Unesco organised Regional Experts meeting on the "National

Planning of Documentation and Library Services in Africa", held in Kampala in Dec. 1970.

In 1973, following Uganda's participation in the "International Conference for the Development of Documentation Library and Archival Services" organised by DSE in collaboration with the East African Academy, held in Nairoby, in July; a National Steering Committee, called "National Documentation Centre Advisory Committee" was appointed. This committee was charged among others with the responsibility of advising government on the implementation of the Deposit Library and Documentation Centre (UNDOC) Act no. 38 of 1969.

Subsequently, the government requested Unesco to provide technical expert to come and set up the Documentation Centre. Prof. Tan, was accordingly appointed by UNDP/Unesco to set up UNDOC at IPA. The few collections at the centre was the result of that assistance, very few documents were added to the centre's collections since the consultant left.

In 1974, following the Unesco Conference on the Planning of Library, Documentation and Archives infrastructures, held in Paris, the National steering committee was transformed to an ad-hoc committee. It was charged with the responsibility of assessing the possibilities of setting up an integrated National Information System for Uganda. No further action was taken although the Committee presented a cabinet memo seeking cabinet's approval for establishing such a structure to aid in Development programmes. The reason for this was that Government's priority was diverted to the fast raging war between Uganda and Tanzania and subsequent civil wars.

Again in 1978, on recognising the important role properly organised Information resources plays in facilitating speedy development, Uganda made yet another request to Unesco to assist in the reorganisation and modernisation of Archival and Records Centres in Uganda. Unesco thereafter sent a Consultant, Mr. Jemy Akita to Uganda to assess the archival services with a view to advising Unesco on the appropriate action to take. Mr. Akita's report made a number of recommendations both to Government and Unesco and emphasised among other things the need to integrate all the existing information resources in the country. Like other earlier attempts, Government, constrained by other pressing national issues failed to implement the recommendations contained in that report.

Further efforts towards streamlining other sectors of the Information Infrastuctures were made in 1980, when government requested Unesco to set up a model school library system for Uganda schools. It was noted establishment of library in schools would enhance greatly the reading habits of school children, so that they would grow up not only to value bocks but treat them as valuable sources of Information. Dr. Haidar Ali carried out this report in 1980. His mission like others came up with a number of recommendations. These recommendations were however later found unsuitable for the Ugandan situation and were subsequently abandoned.

In spite of the unsuccessful previous attempts by government to set up an integrated information system, Uganda did not give up. In only 1986, following Unesco Director General's invitation by letter of 31 July, 1986, which invited member states to consider designating a government agency as National Information focal point; the NRM government appointed the National Information Agency Advisory Committee (NIAAC) to:

- Advice government to establish an Integrated National Information System (NIS).
- Draw up a suitable structure for co-ordinating the activities of NIS.
- Prepare proposals to be presented to Donor agencies for funding.

The National Information Agency Advisory Committee (NIAAC) came up with project proposal for a consultancy request to Unesco. The technical assistance was requested to come help assess the Information system status in this country and recommend to government its integration in National Development Plan.

The one month consultancy mission request was submitted to Unesco during the 24th session of the Unesco General Conference in 1987. This request was approved but reduced to two weeks. During the two week period of the consultant's mission in 1989 the following activities took place:

- During the first week, the Consultant Prof. A. Neelameghan, toured selected information institutions in and around Kampala and Entebbe. This was meant to enable him assess on the spot problems and potentialities of the existing systems on which to base his recommendation.

- During the second week, a National Seminar was organised, aimed at discussing the methodology of establishing NIS and problems emanating from setting up such a structure so as to avoid gaps and duplication that may arise in the course of implementation.

The NIS seminar achieved the following: It came up with a Draft Proposal Policy guidelines on Information systems and services. It drew up a structure for the National Information Policy and Co-ordinating Agency. It recommended an appropriate institutional frame work for NIS be set up in the office of the Prime Minister.

The seminar proposed that the NIS Co-ordinating Agency should comprise of the following:

- The interministerial body consisting of Representatives of relevant Ministry. Responsible for formulating policy guidelines, setting standards and norms of operation.
- The Executive Directorate. This body will carry out the co-ordinating and other functions for the Agency. It is the Secretariate.
- The Advisory Group. This comprises of Technical Information Experts of different disciplines. The main function of this body is to advise the Inter-ministerial Council on policy matters relating to information plans, strategies, and programmes in this country.

The main functions of the National Information Policy and Co-ordinating Agency include among others:

- Co-ordination of NIS activities;
- Establishing Policy Guidelines in information related matters;
- Set up standards/norms to facilitate information exchange and transfer;
- Training and Development of Information manpower resources.

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PADIS METHODOLOGIES AND TOOLS

by Francis K. Inganji

One of the immediate objectives of PADIS is to promote the utilization of common methodologies for information handling in Africa and ensure compatibility with international information Systems. To achieve this objective, PADIS designs common standards, methodologies, manuals and other tools for use by all participants in the System.

PADIS has developed, adopted or adapted the following tools for processing development information:

(a) Manuals for Document Analysis

Each document selected for PADIS undergoes a series of procedures that lead to the creation of a bibliographic record containing the information required for its retrieval. The PADIS data bases are made up of such bibliographic records. Document analysis therefore entails: identification of document; bibliographic description; and content analysis. The PADIS Manual describes in detail how to analyze documents as outlined above.

(b) The PADIS Worksheet

The PADIS worksheet is divided into three main parts, corresponding to the Main Steps involved in the creation of a bibliographic record. The first part identifies the record, the input Centre and the type of documentary unit order consideration. The second part contains all the information considered indispensable for describing the documentary unit being analyzed. The third part is used to describe the content of the unit by means of Standard alphanumeric codes, standardized indexing terms or descriptors, and free language abstracts. These parts are arranged in Sections grouping and defining the fields to be completed by the indexer.

The significance, function and format of the various fields are described in the PADIS manual. Fields are identified by a fixed length Code, called a tag, which will have the following format (where x stands for a number from 0 to 9).

Axxx: tag format of fields belonging to worksheet Sections for identification of documentary unit and bibliographic description. Bxxx: tag format of fields belonging to content analysis Section of worksheet.

(c) The OECD - Macrothesaurus

This is a thesaurus published by the organization for Economic Cooperation and Development (OECD), and used very extensively by PADIS. The OECD Macrothesaurus endeavours to provide a language which can process information relating to all the aspects of economic and social development, and at the same time, give a common dimension to the more specific vocabularies corresponding to each of them.

Its aim is therefore to offer in several widely spoken languages a common fund of terminology which has been duly tested in the practice of documentary analysis, in which adequate expression is given to the many approaches to development and in which the Special vocabularies that translate them extensively find sufficient number of anchor points for an exchange of information among specialized agencies.

This thesaurus has therefore been adopted by PADIS as the language for processing its information. It is used by various organizations, among them being OECD (Paris), ILO (Geneva), IDRC (Ottawa) etc. One major achievement of the OECD Macrothesaurus, is that a type of discipline has been maintained in the processing of information relating to development and that cooperative practices have been adopted or strengthened in the organizations responsible for such processing. OECD macrothesaurus is presently being used in various PADIS participating centres including, Benin, Botswana, Niger, Togo, Marocco, Zambia, Swaziland and Ethiopia.

(d) Software Available at PADIS

Two main software packages MINISIS and Micro-CDS/ISIS are available at PADIS and are used for processing development information. MINISIS was developed by the International Development Research Centre (IDRC) of Ottawa, and has been adopted by PADIS. PADIS uses this software for the preparation of DEVINDEX-AFRICA and the creation of data bases of development information.

CDS/ISIS has been developed by UNESCO, and PADIS has also adopted it for use in its information processing work. CDS/ISIS is a generalized information storage and retrieval system designed specifically for the computerized management of structured non-numerical data base.

(e) PADIS Purpose Codes

The purpose code defines the purpose for which a document was prepared. The assigning of this code determines the main heading under which the record will appear in the main bibliographic index of DEVINDEX-AFRICA.

PADIS PURPOSE CODE (B140)

Select, from the list of PADIS purpose codes below, the ONE code that most closely reflects the purpose for which the documentary unit was prepared and enter the three-character code in the appropriate space on the worksheet.

A. FACTS, TRENDS AND ANALYSES

A.10 Basic information and data: national and regional

Statements of factual information and data relating to existing economic and social conditions and phenomena (including resources, production, consumption, distribution, trade and other transactions) for the African region, sub-regions and for particular countries.

A.20 Extrapolations and forecasts: national and regional

Extrapolations of economic and social conditions and phenomena (including resources, production, consumption, distribution, trade and other transactions) carried out with the purpose of forecasting future situations for the African region, sub-regions, or for particular countries.

A.30 Existing situations: national and regional

Descriptions and analyses of existing economic, social, political and legislative situations carried out with the purpose of identifying causes of underdevelopment and factors favouring development in the African region, sub-regions, or particular countries.

B. PRESCRIPTIONS FOR DECISION-MAKING

B.10 Prescriptions for development policy action: national and regional

Statements and studies produced with the purpose of recommending new policies and programmes to foster economic and social development in Africa, its sub-regions or in particular countries.

C. OFFICIAL POLICIES, PLANS, PROGRAMMES AND ARRANGEMENTS

C.10 Official statements of development policy

Documents issued by or on behalf of organizations: international, regional, national and local, such as governments, banks, funding and investment agencies and political parties, defining or explaining their policies in relation to the pursuit of development goals. Overall general descriptions by such organizations of their present and future activities.

C.20 Commentaries on official policies and activities

Commentaries on the policies and overall activities of organizations: international, regional, national and local, such as governments, banks, funding and investment agencies and political parties.

C.30 Development plans

Official plans, papers on plans and statements issued by organizations: international, regional, national and local such as governments, banks, funding and investment agencies and political parties, detailing their development plans, programmes, resource allocations, budgets, etc.

C.40 Commentaries on development plans

Commentaries on the official plans issued by organizations: international, regional, national and local.

C.50 Legal, financial and administrative arrangements: international and regional

Official documents relating to co-ordination and co-operation in development activities, establishing or involving international or regional institutions, or

linking parties in different countries: treaties, agreements, institutional and contractual arrangements.

C.60 Commentaries on international arrangements: legal, financial and administrative

Commentaries on international arrangements relating to co-ordination and co-operation in development activities: legal, financial and administrative aspects.

C.70 Legal, financial and administrative arrangements: national

Official documents relating to co-ordination and co-operation in development activities, established or involving national or local institutions within single countries.

C.80 Commentaries on national arrangements: legal, financial and administrative

Commentaries on national and local arrangements relating to co-ordination and co-operation in development activities.

D. DEVELOPMENT ACTION: OPERATIONAL EXPERIENCE

D.10 Studies for particular projects

Studies (including feasibility studies and market surveys) related to the economic and social aspects of specific projects and the evaluation and appraisal of proposals and projects.

D.20 Development resources (particular projects)

Studies identifying resources for a specific development project and methods used in raising the resources.

D.30 Announcements and descriptions of new projects

News releases, announcements and descriptions of development projects that have been approved and are to be undertaken.

D.40 Operational experience (particular projects)

Descriptions and progress reports of particular development projects: reviews and evaluatory reports of the experience itself, including managerial, financial, legislative, administrative and contractual aspects: co-ordination and control experiences.

D.50 Operational experiences (general)

General review and evaluatory papers on experiences in implementing development projects and programmes, including managerial, financial, legislative and administrative aspects; co-ordination and control experiences. Retrospective reviews, such as annual reports, of the activities of organizations involved in development actions.

E. CONSEQUENCES AND EVALUATION

E.10 Impact

Analytical studies and interpretations, commentaries, reviews and evaluations of the economic and social impact of development policies, plans, programmes and projects.

E.20 Evaluations

Evaluatory reports of specific development strategies, programmes and projects on the basis of the results achieved.

F. RESOURCES AND TOOLS FOR DEVELOPMENT

F.10 Research policy and surveys of research capacities and research personnel for development purposes

Descriptions of policies, programmes and activities (including annual reports) of development research institutes. Directories of research institutes and personnel. Bibliographies of research publications.

F.20 Information

Descriptions and surveys of information systems and services designed to support development activities. Directories of such systems and services. Glossaries and other terminological aids.

F.30 Men, money and materials

Descriptions and surveys of the resources available for development actions: international, regional and national. Directories of such resources.

F.40 Models, methodologies, techniques and tools

Descriptive and evaluative accounts of techniques and tools (e.g. economic and social indicators, econometric models, methodologies and computer programmes) useful in economic and social forecasting, development policy-making and planning, project appraisal, project management and programme evaluation.

G. SCIENTIFIC, TECHNOLOGICAL AND OTHER INFORMATION RELATING TO DEVELOPMENT ACTIVITIES

G.10 Scientific, technological and other information generated in the African continent and relating to any area of social and economic development which has not been entered into an international data base or international indexing and abstracting service.

G.20 Scientific and technological information which is considered important within the framework of the transfer of technology among developing countries.

THE ROLE OF APPROPRIATE INFORMATION TECHNOLOGY IN AFRICA'S DEVELOPMENT

by Francis K. Inganji

The use of new information technologies has become an integral part of the economic development activity of the advanced nations of the world. The desire by the African countries to use them for similar activities derive from the recognition of the role of new technologies in Africa and ensuring an effective and efficient information atmosphere which is congenial to development planning at the national level on the one hand, and for gaining competitive advantage (individual or collectively) in a global economy on the other.

Against this introduction this paper seeks to examine the role of information technology in Africa's development, and problems being encountered by PADIS and the African countries to effectively use the new information technologies.

PADIS AND THE USE OF INFORMATION TECHNOLOGIES

Activities of PADIS centre around four major areas of information work, namely:

(a) Information processing

(b) Information transmission

(c) Information retrieval, and

(d) Education.

Each of these areas requires the use of a range of new information technologies, such as telephone, telex, radio, video display, facsimile, and computers (main frame, Minisis, or Micros), at both PADIS headquarters and its national coordinating Centres at national level. The operational issues surrounding the acquisition and use of these technologies in Africa, include the following:

- Lack of adequate financing
- Lack of information technology policies
- Hardware and software problems
- Servicing of computers
- Personnel problems.

To show that the above problems exist in Africa, the Pan African Development Information System (PADIS) prepared a study in 1988 on the use of microcomputers in information and documentation Centres in Africa that was presented to the Fifth Session of the Joint Conference of African Planners, Statisticians and Demographers (held in Addis Ababa, 14-21 March, 1988).

Sixty two institutions filled out and returned the questionnaire. Eight others returned the questionnaire noting that they did not fill it out because they did not have any microcomputers.

Because of the differences in the level of development of the African countries, and the sources of funding for information technology, it becomes difficult to standardize the type of hardware to be used by the African countries. However, because of the nature of information activities PADIS is engaged in Africa, it seems that there is a trend towards the adoption of CDS/ISIS as the preferred software for biliographic data base management. In any case, Standardization is crucial for the African member States if information exchange has to be effected. This calls upon all the African countries to promulgate policies related to the acquisition and use of information technologies.

THE USE OF MICROCOMPUTERS IN DOCUMENTATION AND INFORMATION CENTRES IN AFRICA

(reprinted from PADIS document E/ECA/PSD.6/TP4 of Dec. 1989)

I. Introduction

In 1988 the Pan African Documentation and Information System (PADIS) prepared a study on the use of microcomputers in information and documentation centres in Africa that was presented to the Fifth Session of the Joint Conference of African Planners, Statisticians and Demographers (held in Addis

Ababa, 14-21 March 1988). The Conference commended the study and requested that it be replicated for the Sixth session of the Joint Conference in order to discern changes and trends in the area.

As in 1988, PADIS again sent out a questionnaire to its mailing list of libraries, documentation and information centres in Africa. The number of responses in 1989-1990 were comparable to those received in 1988. (A list of the responding institutions and a copy of the questionnaire are available upon request from PADIS). The data was processed using SPSS/PC+ software on an IBM-compatible microcomputer.

In order to facilitate comparability of the two surveys the same questionnaire was used, updating those questions which referred to specific dates. The questionnaire had three section:

- The first section dealt with general information: name and address of the institution, types of activities undertaken, kinds of user services provided, documentary collections, staff.

- The second section sought information on the type and characteristics of the computer equipment used, in cases where it was present, and, where applicable, the plans for computerization;

- The third section concerned only institutions which had, or had access to, microcomputers. It dealt with types of computer applications, kinds of software used, user services provided using microcomputers, equipment and personnel problems encountered, policies following for training and acquisition of equipment and, finally, the kind of assistance that might be requested from PADIS.

II. The Responses

Sixty-two institutions filled out and returned the questionnaire before the preparation of this paper; one questionnaire was discarded as invalid. Eight others returned the questionnaire noting that they did not fill it out because they did not have any microcomputers.

Forty-four percent of the institutions said that they are engaged in bibliographic activities; an additional 6.6 percent dealt with referral information, while

24.6 percent said that they handled bibliographic and referral information. An additional 3.3 percent dealt with numeric as well as bibliographic information, while 8.2 percent said they handled the three categories of information (bibliographic, referral and numeric). The 1988 and 1989-1990 questionnaires had virtually the same percentages of responses in each category.

Most centres said that they had no specialization or left it unstated (55.7 percent, as compared to 43 percent in 1988). However, one quarter said that they were multi-sectoral, 8.2 percent indicated a sectoral specialization and 11.5 percent said that they were at the same time sectoral and multi-sectoral.

Fifty-nine percent were offering current awareness listings, 73,8 percent provided bibliographic services, 54.1 percent provided Selective Dissemination of Information, 60.7 Question and Answer Services, and 19.7 percent online searches. Eleven percent said they provided other services as well.

Regarding their book collections, thirty percent had collections of more than 10,000 books, thirty-four percent had between 1,000 and 10,000 books, while 18 percent reported collections ranging from less than 100 to 1000 books. A sad tendency was noted in the acquisition of books - a situation that is becoming more frequent in Africa - 75 percent said that they acquired no books or stated no number in 1988. Only 21 percent acquired more than 100 books in the year. (One institution, however, acquired more than 5,000 books).

A similar situation occurred with respect to the acquisition of periodicals; 80 percent either didn't respond or said they had acquired none; a further 13 percent acquired less than 100. Again, one remarkable institution acquired between 1000 and 5000 periodicals.

As in 1988, microfiche were not commonly found. In 1988 75 percent had fewer than 1000 micofiche/forms; in 1988-90, the figure was nearly 79 percent. Only 6.6 percent of the present respondents reported any acquisition of microfiches in the previous year. Maps and audio-visual aids were infrequently found and less frequently newly purchased.

The majority of institutions replying (57 percent) had between one and five professional staff members. Nine institutions (thirteen percent) had 15 or more professional staff members. As in the 1988 survey, a significant number of the libraries, documentation and information centres surveyed reported having **no**

trained librarians or documentalists (fourteen percent in 1988, 16.4 percent in the present survey). The majority (fifty-seven percent) had between one and three librarians or documentalists. Six institutions had more than 10 documentation staff, while two had 53 and 63, respectively.

There was an increase in the number of computer specialists found in the present survey; while two-thirds of centres responding in 1988 reported no computer specialists, this was presently the case with only 46 percent. Thirty-nine percent had one or two such specialists (against twenty-seven percent in 1988). Two centres had more than ten (there was one with 15 and one with 60).

Three-fourth of the centres responded that they had computer equipment as opposed to 58 percent in the 1988 survey (an increase of 17 percent). A growing number (39.3 percent, up from 32 percent in 1988) had the facilities within the documentation centre, while in 18 percent of cases they were within the parent institution or shared with another institution.

Of the 46 centres with computer facilities, five (11 percent) were using mainframes; eight (17,4 percent), minicomputers and 43 (93,5 percent) were using microcomputers. (Several had combinations of micros with mini- or mainframe computers). The predominance of microcomputers was thus clear. Two centres had computer equipment, but were not using it. (There were four such cases in 1988).

Of those centres without microcomputers, seven (about 12 percent) reported plans for computerization in 1990; one, in 1991-1993; four others (6.6 percent) had plans for computerization, but without definite dates. Eighty percent of this group intended to acquire microcomputers, while ten percent each were planning to acquire minicomputers or mainframes.

III. Utilization of computers

This part of the report is based on the replies of those centres which reported use of computer equipment.

The number of microcomputers per centre were as follows:

Table 1

Number of Microcomputers per Centre

Number of micros	Frequency	Percentage
1	15	34.9
2	11	25.6
3	12	27.9
4 or more	5	11.6
	43	100.0

Compared with the 1988 survey, an increase in the number of microcomputers per centre can be observed. While in 1988, 43 percent had only one micro, in the present survey this fell to about 35 percent. In 1988 only 9 centres had three or more micros; this had nearly doubled in the present survey. One remarkable centre (in Egypt) reported 425 micros! In nearly 12 percent of the cases, the micros increased their utility by being connected to mainframe computers.

Of those centres with microcomputers, five (11.6 percent) had IBM compatible models **without** hard disks; another centre had a non-IBM compatible model without a hard disk. Thirty-seven centres (84 percent of those with microcomputers) had IBM PC/XT/AT and compatibles models; they generally possessed one or two such models (sixty percent of this group); however, one centre had seven units, and another had 327! Some 79 IBM PS/2 and compatible models were also found in the group surveyed, distributed among three centres (one with one, one with two and one with 77!); this also included machines with powerful 80386 processors. Four other centres (comprising a total of 24 microcomputers) were using non IBM-compatible machines with hard disks.

Respondents were asked for what purposes they used their computers. Nearly 58 percent were using them for bibliographic and/or library data base

management; 54 percent for word processing, 16.4 percent on financial and management applications; and 16.4 percent on numerical and statistical applications. Another eight percent used them for other applications as well.

Regarding bibliographic and/or library data base management, there was an overwhelming dominance of use of CDS/ISIS in its several forms. Of 34 users reporting utilization of bibliographic software programmes, more than three-fourths (26 centres, 76.5 percent) were using CDS/ISIS in its micro and mainframe versions, either alone or in combination with MINISIS. Only 8 centres used another software programme. In its mini-micro version, this respresented a doubling of the usage over the 1988 survey (22 vs. 11 users reported earlier).

On the subject of peripherals and other reproduction equipment either linked or auxiliary to microcomputers, the majority had dot matrix printers (55.7 percent); laser printers were also found widely (in nearly forty percent of centres). Fifty (eighty-two percent) had photocopiers and 17 institutions (27.9 percent) had microreprography equipment. Another quarter also had offset presses. Thus, of those with microcomputer equipment, many were well set up for in house publishing activities, whether in microform or hardcopy format.

Eighty-six percent of centres with computer facilities reported using them for user services (as against two-thirds in the 1988 survey). Nineteen (44.2) percent used them to provide current awareness lists for their users (again representing a doubling of centres doing so over the 1988 survey), 72 percent prepared computer-generated bibligraphies, nearly half (48.8 percent) operated Selective Dissemination of Information services (SDI), while thirty percent provided question/answer services and one-third did online searches for users. Nearly ten percent provided other unspecified computer-based user services as well.

The bulk of centres operating computer generated user services sent or gave the results of their searches to users in the form of computer printouts (81.4 percent); thirty percent furnished their users with the results on diskettes while 4.7 percent distributed data to users on magnetic tape and another 4.7 used other, unspecified, formats. Three centres (seven percent) indicated that they used CD ROM for user services (one more centre than in the 1988 centres).

Eigthy-four percent of those centres with microcomputers reported encountering some kinds of problems with their use. In the hardware category, one quarter stated that they had difficulties with peripherals, 35 percent had problems with memory, another thirty percent had difficulties with processing speed, and 37.2 percent had problems in obtaining spare parts. Nearly 19 percent had found problems in utilizing various software, with one-fourth had problems with software documentation. The environment (heat, humidity, dust, etc.) also posed problems for a quarter of microcomputer users. More than a third (37.2 percent) had maintenance problems with their microcomputer hardware.

Microcomputer users were asked what actions they took when servicing problems arose. More than four-fifths (81.4) reported difficulties in obtaining local servicing of their microcomputers. In the unavailability of local servicing, 9.3 resorted to the use of a backup system, only one centre (2.3 percent) sent the system abroad for repair; another identified the faulty parts and replaced them itself. Although the majority had said that local servicing was not easily available and that they had encountered problems, most did not identify the strategies that they used in such situations, leading to the possible conclusion that many servicing problems go unremedied. While locally servicing had been mentioned as a problem, the majority (62.8 percent) did say that they were able to purchase spare parts from local dealers (about the same percentage as in 1988).

Two-thirds of centres reported shortage of trained staff (as opposed to only 50 percent in the earlier survey; while one might surmise that staff trained earlier have been leaving for other employment, only 12 percent reported this as a problem).

Fifty-six percent of microcomputer users complained of lack of training facilities/opportunities in their localities. Nearly half (46.5 percent) of centres were sending their staff abroad for training. This figure had increased by more than 14 percent over 1988, while most of the training abroad continued to be in short courses. Fourteen percent said that no local training was undertaken/available. However, of the 86 percent who utilized local training, one third used dedicated training (including at dealer sites) while 18.6 percent organized the training themselves. Nearly a third (30.2 percent) utilized both dedicated

and self-training methods. Less than half organized training on their own site; of these, most training was done in groups rather than individually.

While the bulk of institutions/governments were still without policies governing the acquisition of computers, there was a growing trend in this direction. In the 1988 survey, 57 percent of respondents said that their institutions/governments lacked such policies; the present survey reported the lack of such policies in 49 percent of cases. The following table gives the breakdown for all categories on this variable:

Table 2

Computer Acquisition Policies

	Frequency	Percent
No Policy	21	48.8
No restriction on purchase	9	20.9
Local purchase only	8	18.6
Brand restriction	4	9.3
Other considerations	1	2.3
Total	43	100.0

Thus, nearly twenty-one percent reported no restrictions on purchases made (as opposed to only 13.3 percent in this category in 1988). More respondents were reporting purchase restrictions to companies with local representation in 1989-1990 than in 1988 - 19 as opposed to 10 percent earlier. Perhaps this represents the growing awareness of the need for local brand service. The percentage remained about the same of those restricted to purchase from particular companies.

Despite the problems reported above, nearly three-quarters of respondents with microcomputers (72.1 percent) said that they felt their efficiency had been increased through the use of these machines. This represented a small increase (2.1 percent) of satisfied users over the 1988 survey. That the percentage of satisfied users was not higher may reflect the need for more and

better training and backup service facilities to increase the efficient use of microcomputers.

The types of requests for assistance addressed to PADIS by the centres equipped with microcomputers which responded to the questionnaire are listed below:

Table 3

PADIS Assistance Requested

Type of assistance	Percent	+ over 1988 Survey
Training in software use	79.1	9.1
Software installation	46.5	3.5
PADIS data base installation	60.5	17.5
PADIS user services	62.8	12.5

Thus there was an increase in all categories of requests for PADIS assistance, pointing to the need for PADIS to intensify its technical assistance to member States in the listed areas. The fact that the greatest percentage increase was in requests for installation of PADIS data bases shows the increasing sophistication of libraries, documentation and information centres in Africa and growing awareness of the need for computerized resources to supply the information needs of their users.

Conclusions

A number of conclusions can be drawn from this survey, by itself and in comparison with the 1988 survey. The picture that emerges of libraries/documentation and information centres in the Africa region (the population surveyed) is that of relatively small centres, with small documents collections and smaller resources for the acquisition of costly books and periodicals. Their staffs, too, are small. Although less than two years elapsed between the two surveys it is clear that the centres are acquiring microcomputers at increasing rates and the percentage which are computerized is also growing. That the majority is committed to microcomputers over other forms of computers is

appropriate given the generally small scale of their operations. It is comforting to see, as well, that more and more are acquiring computer specialists to deal with this process and smooth the transition from manual operations. The number of computer-based services that they are providing to users is also increasing. Computerization is not without its problems, but it is clear that information technology offers many low cost possibilities to Africa to participate in the "information revolution." One particular problem area that needs amelioration is the reported availability or inadequacy of local (i.e. in country) training facilities.

While African libraries, documentation and information centres lag behind other regions in this area, the direction towards other complementary information technology (such as CD ROM), for full document storage among other uses, is also beginning to take shape. While a number of centres have facilities for microreprography, the use of microforms do not appear to be either widespread or increasing. There is a clear trend toward the adoption of CDS/ISIS as the preferred software for bibliographic data base management. The increasing services requested of PADIS is also encouraging; however, it puts the burden on ECA and PADIS to seek the funds to continue its clearly needed operations beyond 1990 (when its present funding ends).

INFORMATION FOR AGRICULTURE

by James Mugasha

INTRODUCTION

The topic I was asked to present a paper on is **"Information for Agriculture"**. While the words, **"Information"** and **"Agriculture"** which are the key words in the topic may not be strange to us all, I feel that it is necessary to define them so that we all get to know the parameters of our discussion.

The concept of **"Information"** in the context in which it is used here embraces Technical Information, Management Information, Public Information Operational and Research Projects Information in the field of Agriculture. The word **"Agriculture"** as defined by Food and Agriculture Organisation covers the following subjects: Animals, Crop, Forestry, Fisheries, Food, Nutrition, Wildlife, Environment, Rural Development and Marketing of all agricultural products.

This paper will, therefore, attempt to give an overview of the major global achievements in the field of Production, Organisation and Dissemination of Agricultural Information and will then concentrate on Uganda's case.

THE GLOBAL SCENE

The importance of information in the process of national development does not need to be stressed. The exponential growth of information as a result of Research and Development efforts in the various parts of the world as well as the diversity and specificity of user requirement have led to the creation: at national, regional and international levels, mechanismes, data banks, systems and networks which aim at the effective organisation and dissemination of the world's information resources.

There are many International, Regional, National and Institutional Agricultural Information Systems such as Commonwealth Agricultural Bureau (International) (CABI), Pan African Development Information System (PADIS), National Agricultural Library Bibliographic database (AGRICOLA), etc., but this

paper will deal in detail with Food and Agriculture Organisation's Information and Documentation activities mainly because Uganda is already participating in those activities as shall be explained later in this paper. Food and Agriculture Organisation's Information and documentation activities have been geared to the need of its member countries along three main lines:

- the development of specialised bibliographical, statistical and numerical data base or banks;
- the development of International Co-operative Information systems;
- the establishment and/or strenthening of national and regional agricultural information infrastructures.

Most of the FAO data bases or banks are unique and of worldwide interest. FAO Library co-ordinates AGLINET which is a network of agricultural libraries now consisting of 27 members from developed and developing countries. Within this network which was launched in co-operation with the International Association of Agricultural Librarians and Documentalists (IAALD), members are able to exchange among themselves photocopies and material available in their collections.

FAO Specialized Data Bases and Data Banks

FAO generates a large number of publications, project reports, meeting papers and technical studies which are made available to member countries. A computerised data base containing full bibliographic references and synopses of these publications and documents is maintened by the FAO Library. Retrospective bibliographic searches are offered and the listed documents are available on microfische. At the end of September, 1988, 93,500 records had been entered into the data base which can be retrieved on-line at FAO.

Microfisches containing the full text of the unrestricted FAO reports/documents/publications are available on subscription basis. Special subject bibliographies are also compiled from time to time based on FAO documentation data base and these are distributed by FAO on request.

FAO's specialised data bank contains extensive information on the following topics:

- Statistical Data
- Forestry Data
- Land Resources Data
- Fertilizers/Plant Nutrition Data
- Farm Data
- Agrometeorological Data
- Seed Information Data
- Animal Genetic Resource Data
- Sheep and Goat Information Data
- Early Warning System Data
- Fisheries Data
- Geographic Information Data

International Co-operative Information System

In early seventies, FAO recognised an acute need for bibliographic control in the field of agricultural information because of tremendous amount of literature that was being produced all over the world which was not accessible. An international solution was needed to ensure that the world knowledge in agricultural sciences and technology be shared as widely as possible among nations. This led FAO to launch two International Co-operative Information Systems, AGRIS and CARIS. AGRIS stands for International Information System for the Agricultural Sciences and Technology while CARIS stands for Current Agricultural Research Information System. Both are based on the following principles:

- each country participates voluntarily in the system by providing input of the relevant information produced within its boundaries.
- each country draws information from the system according to its own needs.
- countries participate through national or regional centres.
- FAO maintains the Co-ordinating Centres.

(a) AGRIS

This co-operative concept has proved to be highly successful, as illustrated by the continuous growth of the AGRIS system since it became operational in 1975. It is now the largest system dealing with world Agricultural Literature. In September 1988, Dr. E. Samaha, Director of the Library and Documentation Systems Division of FAO, reported that by mid-1988, 134 countries and 19 regional or international centres had joined the system. That the data base had accumulated nearly 1,500,000 references and was increasing at the rate of 120,000 items per year. About 15 % of the input were non-conventional documents or what is called Grey Literature.

The out-put of AGRIS appears in two formats - one is the monthly printed **Agrindex** while the second one is the corresponding magnetic tape which are all available on subscription. **Agrindex** now appears in French and Spanish in addition to the English version issued since 1975. The AGRIS data base is loaded on DIALOG's computer and is accessible via International Telecommunication networks.

For those countries which find the use of telecommunication facilities very expensive or do not have adequate computer facilities to use the tapes, FAO offers, on request, retrospective bibliographies and selective dissemination of information.

(b) CARIS

Caris is another system which basically deals with gathering of Information on on-going research activities in the fields of agriculture in member countries of FAO. It, therefore, provides developing countries with a mechanism to exchange among themselves and with developed countries information on their respective on-going research activities.

This system produced in 1978, a world wide directory covering 3,000 research institutions, 10,000 research workers and 3,000 research programmes (20,000 Research Projects) in 60 developing countries. Since 1979, CARIS is operating through a decentralised network of national or regional centres, each being responsible for collection, processing and dissemination

of data on current research projects in its country or region. 111 countries and regional or International Organisations have so far joined the system. National or regional CARIS directories are published by the countries while FAO maintains the global data base obtained by merging national and regional files. This data base contains more than 15,000 records from 70 countries and is searchable online at FAO. For both AGRIS and CARIS, FAO has developed a number of guidelines, working tools and training materials and the major ones are:

- AGROVOC; a multilingual thesaurus of agricultural terminology
- AGRIS/CARIS Categorisation Scheme
- CARIS Input Pack
- AGRIS Input Pack

In Uganda and in many other developing countries, publishing as an industry is not yet well developed. As a result, the output of research, and other scholarly activities are normally not published in academic journals etc., but will normally appear as Grey Literature. This type of Literature is not indexed or abstracted by the major International Indexes or Abstracting Journals. On the other hand, AGRIS and CARIS offers the opportunity to the participating countries the facility for this type of literature to appear in **Agrindex** and CARIS directory and hence increasing its accessibility.

NATIONAL/REGIONAL CAPACITIES

Information Systems and networks offer more effective access to information provided that countries have the infrastructures to handle and use this information. Over a number of years, FAO has helped in establishing 38 documentation centres, 28 of which are in Africa. It is now in the process of establishing such a centre at Kawanda Research Station for the Ministry of Agriculture under a technical Co-operation Project.

Through its advisory services and training workshops for all regions in the developing countries, regional capacities for handling information has been reinforced. Awareness and need to establish a regional network of information in Eastern and Southern Africa as well as strengthening of National Centres is beginning to emerge. A regional planning workshop on PESTNET was held in Lusaka, Zambia from 27 - 29 November, 1989 and attended by representatives

of Ministries of Agriculture in the region to formulate strategies for creating a specialised mission oriented Information System covering major crop pests and vectors of livestock and human diseases in the tropics. The participants endorsed the establishment of a regional centre at ICIPE (Nairobi/Kenya) and the designation of appropriate centres within the National Programme as National Co-ordination Centres. A follow-up conference is planned to take place later this year.

UGANDA

Having received several requests for assistance from Agricultural Institutions in Uganda, FAO decided in 1984 to carry out a survey of information units in the Agricultural Sector with the view of advising Government on matters of strengthening of agricultural information infrastructures. Consequently, a project report containing recommendations on establishment of Agricultural Information and Documentation Services at Kawanda Agricultural Research Station, as a first step towards the establishment of a National Agricultural Information System was prepared by FAO's Consultant - Mr. Michel Menou and submitted to Government in 1984. Before its implementation in July, 1989, another FAO Consultant, Mr. Stephen Parker came to Uganda and revised it in order to bring it up-to-date. The principal aims of the project are:

- To establish an Information and Documentation Service at Kawanda Agricultural Research Station.
- To equip the Unit at Kawanda with Micro computers, Photocopier, Typewriters and Microfische readers etc., in order that the Centre can carry out the much needed service.
- To provide training to staff at Kawanda and others working in Government Libraries.
- To act as the National AGRIS and CARIS Centre.
- To act as a National Co-ordinating Centre.

Work designed to achieve the above aims is in progress. It is planned that at the end of this project, another project document will be prepared seeking

to develop a system and a network of Agricultural Information in Uganda. The development of a network will involve the following stages:

- establishing the National Agricultural Documentation and Information Centre (NADIC) within the Research Division of the Ministry of Agriculture.
- integrating the Libraries of Ministry of Agriculture Research Stations and other Units of the Ministry (possibly including the registries) with NADIC to form the National Agricultural Documentation and Information Service (NADIS).
- establishing functional links with other Libraries in the Agricultural Sector, adopting common standards and methodologies, to form the National Agricultural Documentation and Information Network (NADIN).

Once NADIN is attained, it will be possible to say that a sub-system for the Agricultural Information would have been formed with a National Node in Kawanda. The sub-system will consist of all agricultural Libraries under the following Ministries including their parastatals: Agriculture, Animal Resources and Fisheries, Co-operatives and Marketing, Environment, Wildlife and Tourism and Faculties of Agriculture in the University.

The NATIS Project

Recognising the need to integrate, co-ordinate and improve information services in Uganda, the Uganda National Commission for UNESCO on the advice of UNESCO under its general information programme and with goodwill and support of the Ministry of Public Service established a National Information Agency Advisory Committee (NIAAC).

The Committee's prime responsibility is to advise Government of Uganda on the following issues:

- the establishment of a National Information System (NATIS) in Uganda through Legislation.
- the acceptance, adoption and implementation of National Information policy for Uganda.

The Committee which began its work in 1986, has prepared a report entitled "The Proposed Establishment of National Information System (NATIS) and National Information Policy. Guidelines for Uganda". In September 1989, a Seminar on establishment of NATIS was held in Kampala and representatives of all major information units including UNESCO Consultant, Prof. A. Neelameghan attended the Seminar.

The establishment of the Agricultural Information Sub-system is being carried out along the lines outlined in both the Committee's report and Prof. Neelameghan's paper entitled "National Policy on Information Systems and Services for Uganda: a Proposal".

Discussion

Strengthening of various information or Library Units, establishment of nodes, sub-systems, systems and networks to make up NATIS may appear to many as a grandoise project, too expensive to implement. Yes, the project will require alot of resources both human and material all of which are lacking in Uganda at this stage.

Questions such as Where do we get the necessary funds to implement the establishment of NATIS? Where do we get expertise to assist in setting up the system? Shall we establish NATIS as a co-operative movement or not? How will NATIS be financed and maintained? and many other questions will be asked and answers should be found.

In trying to find answers to some of these questions, one is bound to discover a dichotomy between "Information rich and Information poor countries". Users in developed countries of Europe and North America have full access to the information they need, and are thus "Information rich" while those in developing countries especially in Africa have limited access to information and are thus "Information poor". The situation gets worse if you critically looked at an urban and rural set-ups in developing countries. Other questions such as these will be asked:

- What have we done to solve problems that have impeded effective information transfer from the "Information Rich Countries" to the "Information Poor Countries?"

- Have we made any attempt to design and develop information systems attuned to our actual needs?
- Do we have relevant information products and services we are rendering to our users?
- Has our effort made a difference in national development programme in any sector?

CONCLUSION

This brief review of **"Information for Agriculture"** illustrates the diversity and complexity of the topic. In looking at the achievements Uganda has made in the field of Agricultural Information and what remains to be done, it is clear more efforts and resources will be required not only for the establishment and maintenance of the data bases, but also for promotion and training of users. In developing countries, more efforts are needed for strengthening national and regional capabilities to handle and use scientific and technical information only when such capabilities are in place will users in these countries be able to fully utilise the world's Information Resources.

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DEVELOPING AN INFORMATION AND DOCUMENTATION NETWORK IN KENYA: THE ROLE OF THE FACULTY OF INFORMATION SCIENCES

by Diana Rosenberg

INTRODUCTION

My mandate today is to examine the role that the Faculty of Information Sciences (FIS), Moi University, Eldoret/Kenya, ie. an educational and training institution for the information professions, might play in assisting the development of networking in Kenya. However to place that role into context, it will be necessary initially to spend some time looking at what networking means and the status quo of networking in Kenya.

First a word of warning. FIS arrived only lately onto the information scene in Kenya. We have been in existence for less than two years and our first batch of students do not graduate until 1991. Our main objectives are to provide professional education in a broad range of information sciences - publishing, bookselling, information technology as well as librarianship, documentation, archives and records mangement -, so as to develop persons who are capable of operating in a wide variety of working contexts, and to improve the professional standard and status of the disciplines in the information sciences. To date our energies have been directed at designing a curriculum for our first course and at overcoming problems concerned with shortage of staff, premises, equipment, books and other key resources. Therefore, although we have plans aplenty, much of what I say will be about the future role of the Faculty, rather than what we have accomplished or are currently undertaking.

NETWORKING: DEFINITION, ACTIVITIES AND REQUIREMENTS

Networking is a generic term encompassing a range of cooperative activities. The goals of any network are to share resources, whether these be materials, functions or services, and to make these resources available to all potential users. However interlending, cited by Boadi[1] as "**a sine qua non** for co-operation in the building and sharing of resources", is generally accepted

as the main objective of any network. Other cooperative schemes and services may follow. The rationale of a national information and documentation network is that "careful planning, coordination and integration of existing libraries, archives and documentation services will maximize use of available resources"[2]. Services to users of libraries will improve, while the costs to members of the networks of providing the services will be reduced. Resource sharing is advocated as a method of making meagre resources go much further. One writer has even tried to establish a philosophical and ethical base for cooperation and claims that "cooperation is not an activity libraries may or may not choose to engage in - it is the element in which they live and prosper. Cooperation is as essential to a library as is water to a fish or air to a mammal"[3]. In short, to paraphrase John Donne, "no library is an island, entire of itself".

An information and documentation network may include all or any of the following activities:

Interlending of books, journals and other materials between libraries and information centres. A corollary to this activity is **coordinated collection development**, in order to avoid unnecessary duplication of materials in areas which do not serve the primary interests of the library's clientele;

Cooperative cataloguing: shared access to bibliographic data in support of technical services;

Information networking: for example, the production of abstracts or indexes in specific subject areas through the cooperative provision of entries; or accessing remote databases to find out relevant sources of information;

Referral services, where users are directed to libraries or information centres where they may find the information they need;

Information brokerage, where one information centre offers searching services, especially in online access to hosts and databases.

For any network to get off the ground, there are certain essential prerequisites. Without these, it is vertually impossible to achieve viable resource sharing:

(a) There must be a demand from the users of the country's information system for resource sharing. For instance a Zambian writer[4] makes the

point that their heaviest demand ist for books for examination purposes; these are not the sort of materials which would usefully be offered on interlibrary loan. A demand for cooperative cataloguing depends on enough libraries acquiring the same publications within the national network.

(b) There must already exist an infrastructure of well organized libraries and information centres. If these organizations are poorly managed, then the network will also operate inefficiently.

(c) There must be sufficient resources to share and the institutions must have finance to continue to build up and develop these resources. If the demand is for articles from foreign journals, then these journals must be held and their subscriptions maintained, before any interlending system is established. It is impossible to share what you don't have; if too little is shared, then everybody ends up with less.

(d) There must be locating tools, so that what resources there are can be found. These tools may be union catalogues, union lists of serials, or, in the case of referral services, directories of libraries or of expertise. To maximize a country's locally produced resources, bibliographies, indexes and databases are essential.

(e) A good communication system is essential for any network. For online information networking, advanced telecommunications are a must. Even the most basic interlending system cannot work without an adequate postal system and a photocopier.

(f) Finally, any network will only be as good as the staff that run it. Networks often founder not just because there is a dearth of professionals in the information field, but because of rivalries and jealousies within the existing professionals. The will to cooperate is not there. The status of information professionals within a country also can affect the calibre of staff and their commitment to the service ideal.

NETWORKING IN KENYA

Since the early 1970s, Kenya and, in particular, her librarians, have been active in promoting the establishment of a national information and documentation network. The 1973 Cenference on the Development of Documentation and Information Networks in Eastern Africa accepted the idea of the coordination of information services. The concept of National Information Systems (NATIS), launched in 1974, was fully supported by Kenya. Integral to the NATIS concept is the establishment of a statutory body to coordinate activities of libraries, archives and documentation services; this way forward has been advocated throughout the 1970's and 1980's, with writers like Ng'ang'a(1985)[5] and Otike(1988)[6] both arguing for the formalization of networking through a national coordination centre. The Kenya Library Association's Annual Seminar of 1989 took the NATIS concept and its implementation in Kenya as its theme and, despite a few dissenting voices, endorsed the idea of a formalized national information system, coordinated by a central body[7]. Most recently, Kenya's Development Plan for 1989-1993 commits the government, during the plan period, to create "a broad policy frame regarding the coordination and development of the information infrastructure...leading to a clearly articulated national information and informatics policy". The Plan also recognizes the need for a "network of information technologies (informatics) and data communication systems"[8].

But, despite this positive approach over almost 20 years, networking in Kenya remains virtually non-existent. Such cooperation and resource sharing as does take place, does so in an **ad hoc** way. And "resource-sharing is confined almost exclusively to interlibrary lending and photocopying...Schemes such as co-operative acquisitions, centralized storage and standardized cataloguing have never been conceived"[9]. Of the 300 libraries and institutions listed in the "Subject guide to information sources in Kenya"[10] (the data was collected in 1982), 41 said that they offered interlibrary loan services and 98 that they have or had acess to photocopying facilities. But interlibrary lending seems mostly to be confined to the major academic and research libraries, and is of a small scale and confined to books[11]. Statistics are not easy to come by. Kenyatta Unitversity Library's Circulation Services Unit reported that in 1988/89 21 libraries were registered with the right to loan, but only 11 exercised this right. Over the year 111 books were loaned. The

comparable figure for 1982/83 was 102 books. At Moi University Library in 1987/88, 195 books were loaned from four libraries; in the month of January 1990, the Library made 21 requests to other libraries, but only 8 of these were satisfied. There are no standardized procedures for loaning. Some libraries are now refusing to loan to others, because of losses in the past. A loan usually has to be personally collected from the loaning library - for Moi University, this may involve travelling the 320km to Nairobi and back, together with an overnight stay. To obtain photocopies of journal articles is difficult, as prepayment is more often than not demanded, with all the bureaucratic delays that this entails.

A more successful small-scale network is the Nairobi Information Group, made up of a number of internationally-financed libraries situated in Nairobi. These share information and access to computerized databases; material is also loaned to members of the group. With the introduction of databases on CD-ROM, information brokerage services are also starting to be offered in Kenya. The British Council in Nairobi now offer searches on Bookbank, ERIC and Medline. The searches are free, with a charge being levied for every page of print-out. During 1989, 186 searches were carried out on Bookbank.

Over the years, some progress has been made in improving the information infrastructure. The afore-mentioned "Subject guide...", together with the earlier "Directory of Libraries in Kenya"[12], even though neither have been kept uptodate, give some basis for referral services. Locational tools are few, but the University of Nairobi Library is currently establishing a database for a union list of periodicals in Kenyan libraries, which will replace the now vastly outdated Union List of Periodicals in East African Libraries. When finished this will be available on disk or in printed form. Problems arise from inaccurate or incomplete data from inputting libraries and establishing a mechanism for keeping the base uptodate. The "Kenya National Bibliography" (KNB) came to fruition in the early 1980's. Although the last volume, published in 1989, is for 1984, it is currently being computerized, which should make publication quicker. In an attempt to control scientific information, two major documentation centres have been set up - Kenya Agricultural Documentation Centre (KADOC) and Kenya National Scientific Information and Documentation Centre (KENSIDOC). However, "their effectiveness has not been felt by those in the information field"[13]. Some local indexing/abstracting has been successfully completed. "Kenya

Medical Abstracts" continues and the indexing of "Weekly Review", Kenya's main news magazine, was recently finished, from its inception to date. Last, but not least, the Faculty of Information Sciences owes its existence to pressure brought by the library profession to improve the supply of professional manpower.

But none of these steps have resulted in a national network getting any nearer. Some will argue that this is because no national coordinating body has been set up and no national information policy established. In my opinion, this is not necessarily the reason. To quote Umbima, "the more formal an activity is, the more bureaucracy is placed behind it with the attendant evils of more and more delay and possible corruption"[14]. Rather it is that in Kenya the essential pre-requisites of networking are still not there and would not be there even if a coordinating body existed. That is why talk of networking has remained talk. As Parker warned as long ago as 1979, "in many developing countries...it is necessary to cooperate in improving existing library resources, either in quality or quantity, or both, before we can cooperate in using them"[15]. It is therefore in the context of assisting in establishing the pre-requisites of a national network that I intend to discuss the role of the Faculty of Information Sciences.

ROLE OF THE FACULTY OF INFORMATION SCIENCES

The will to cooperate can be affected by rivalries between professional groups - for instance between archivists and librarians - and by a low professional status, resulting in poor morale and the exodus of the brightest and the best into other areas of employment. Both are the found in Kenya. By its very existence, FIS may be able to encourage an atmosphere more conducive to the growth of networking. The Faculty has been set up to embrace education and training for all those professions involved in the transfer of information. Coordination therefore lies at its very centre. No matter where their future career lies, all entrants to the various professions will have had a common core education, leading to mutual understanding of problems and possibilities. FIS is also endeavouring to maintain close contact with practising professionals, through its competency based and harmonized curriculum, through its Advisory Board made up of practising professionals, and through incorporating into its degrees periods of fieldwork, partly assessed by the practitioners[16]. In

addition, within the University, the Information Sciences have been given the status of a Faculty. This puts us on a par with other professional groups, like doctors, lawyers and engineers. We are therefore able to operate both within and outside the university from a recognized position of strength. Kenya has thus conceded the importance of information in national development. It is hoped that the acknowledgement of this importance may be translated into financial support of collection building.

Whilst thinking about this seminar, I asked a number of librarians their opinions of networking in Kenya. All emphasized poor and diminishing resources as one of the barriers - but nearly all also stressed that networking was pointless until libraries were better managed and organized and could maintain accurate and uptodate records. Certainly data about resources is very difficult to find. The Central Bureau of Statistics does not publish comparative figures. Individual libraries often do collect statistics, but there is no commun format and the data can be both inaccurate and misleading. My own investigations into stock figures, as given in directories and annual reports, found many of them grossly inflated. One library claimed a total stock of 29,000 - whilst the figure from the shelves and the issue was more like 12,500. The total stock figure of KNLS for 1988 is given as over 590,000 - an impressive figure, until one is told that no new books have been bought for the branches since 1985 and that all additions to stock are donations. It is figures like these that encourage assertions that, for example, "Kenya has vast sources of information" and that there is "a solid network of information infrastructure"[17]. To plan without reliable data is a sure path to disaster. By educating and training future professionals in sufficient numbers and through a curriculum specifically geared to the skills and knowledge appropriate to Kenya, FIS hopes to maks a positive impact on the management and organization of information resources. In 1988, we carried out a survey into the information jobs available in Kenya and the sort of skills required in these jobs[18]. As a result the curriculum is weighted towards information organization, retrieval and management. All graduates will also be able to cope with the new technologies. It is recognized, that, for the moment telecommunications have not developed enough for direct online access or wide area networking; however Kenya is moving very fast in this field - microcomputers are now common and packet switching is expected before too long. With between 50 and 60 full professionals graduating each

year from the undergraduate course, FIS also hopes to make an impact through numbers. When training was done abroad, maybe ten or so new pofessionals entered the market each year; this was hardly sufficient to make any dramatic improvement in information management. With 50 or 60, trained cadres will now be entering markets as yet untouched (eg, law, engineering and architecture libraries) as well as those which have been recently neglected (eg. government libraries).

It often seems to be forgotten that networking is not an end in itself, but only a means to an end - that of improving the ability of each participating library or institution to perform their basic function of matching user needs with information sources. Very little research has been carried out on networking or whether networking is the only solution to the problem. FIS might well undertake research of this nature, either staff research or that done by students for the final year project, carried out in their chosen field of specialization. For instance the demand for interlending in Kenya has never been quantified or analyzed. If, as would seem to be the case, most interlibrary requests generated by Moi University are for undergraduate basic texts, then this is an acquisition rather than an interloan/networking problem. If most requests by research institutions are for western-published journals and reports and if none are being purchased in Kenya because of foreign exchange problems, then no amount of resource sharing will help. Networks themselves cost money; every interlibrary loan costs money; would it be cheaper for the requesting library to purchase the book? What is needed is an evaluation of the benefits and costs of a network, compared with no network. In addition more work needs to be done on the possible alternatives to national networking - a planned central facility (like BLDSC) or sharing without a scheme (the sort of ad hoc lending arrangement that exists in Kenya, but with more commitment by members). Armed with this sort of information, those working in the information professions would be able to justify their decisions rather than merely accept networking as a "good thing".

During the three year undergraduate course, our students undertake two periods of practical training, each of six weeks. I envisage that during the second practical training and in some cases for their project, students may well contribute to the development of tools for locating resources in Kenya or to the creation of local databases, two of the basic prerequisites for networking. For

example, Kenya is a centre in Africa for theological colleges, each with a fairly well-endowed library. In six weeks, a student could complete a union list of the periodicals held in these libraries. Kenya publishes a number of journals, but very few are indexed; as a result the information in them is rarely accessed. Another possible project for this year is the indexing of the backfile of Swara, the East African wildlife journal. Resources are people as well as books or journals. A human resource index of staff at Moi University is planned as a student project. The University of Nairoby Library is considering setting up a number of small data bases - one of our students may compile a data base of the discussion papers published by the Institute of Development Studies. The possibilities are endless - but each will add one more inventory or local database, which will assist in locating information.

If developing countries are to continue to rely on information produced in the developing world, then their resources are bound to remain meagre, given that the financial problems of developing countries are unlikely to disappear in the near future. One answer to this problem is to encourage the publication of locally produced books and journals. The Faculty of Information Sciences has already established a Department of Publishing and the Booktrade and our first degree course offers a specialization in this area, with courses on editing, design and layout, management and marketing, and the booktrade. Publishers in Kenya have been very supportive and expect that formal education will make a big difference to standards in their profession. The fact that future publishers are being trained together with future librarians, archivists or information technologists, means that they should be far more aware of the forces generating information, its organization and use and one hopes that this will have a beneficial effect both on quantity and quality. Moi University has recently set up a Desktop Publishing Unit, which is managed by the Faculty. The immediate purpose of this unit is to produce course textbooks for students. Two have been produced and three more are at the editing stage. A longterm result will be that academic staff will gain experience in writing and the confidence and ability to produce work for commercial distribution - and so augment the amount of local publications.

FIS has no direct experience of networking at any level - and this also applies to most of the institutions involved in information transfer in Kenya. Therefore evaluations of networking proposals are in no way based on any

practical experience. This is why we are particularly keen to participate in the proposed 4-year pilot project in Innovation and Human Resource Networking, managed by Syracuse University and funded by Unesco. This project will link eight information education programmes located in developing countries with selected information resources, wether these be clearing houses, intergovernmental organizations, universities, etc. The network will be both electronic and nonelectronic. The link between information education and national development policy will be stressed, as will an exploration of the use of information technology. After this experience, I feel that FIS will be much more competent to advise on the direction of national networking in Kenya.

CONCLUSION

Although it is an aspect of networking that I have, in this paper, avoided it may be deduced that I belong to that group of people who view the NATIS concept with some disquiet and consider that its active promotion in Africa from the 1970s onwards to have been untimely. It has led to endless discussions about what should be included in a national information policy and even what the name of the central coordinating body should be - whilst simultaneously, the existing information infrastructure has been in a state of continuous deterioration. It reminds me of the story of the Emperor with no clothes.

However, if one accepts that the way forward is first to ensure that the pre-requisites of a network are in existence - by better management and organization of existing libraries and other information institutions, by producing more inventories and locational tools, by creating useful databases, by encouraging indigenous publications, by making maximum use of existing technologies and telecommunications, by promoting an atmosphere of co-operation - I think that the Faculty has an important role to play. Then, and only then, the establishment of a national network - whether this be of a centralized or decentralized model - may be fruitfully discussed.

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COMMUNICATION

by Justin P. Okullu-Mura

Very many of us often tend to confuse communication with information. Over the last one week, we have heard a lot of presentations. Most of which dwelt on information but not communication. From all these presentations, we have learnt that information is defined as "signs or coded messages transmitted in one direction from a source to a receiver". The art of such transmission constitutes communication. In other words, communication corresponds more to the complexity of the phenomenon of various interchanges, through signs and symbols, between individuals or communites"[1)].

There are several other concepts of communication, such as being a "broad field of human interchange of facts and opinions", (Redfield), or "...the form of interaction which takes place through symbols" which symbols may be "gestural, pictural, verbal or any other which operate as stimuli to behaviour which would not be evoked by the symbol itself in the absence of special conditions of the person who responds." (Lundberg).

To other people, communication is understood as "... encompassing all forms of expression which serve the purpose of mutual understanding". (Revesz). Our basic purpose is to alter the original relationship between our own organism and the environment in which we find ourselves. More specially, our basic purpose is to reduce the probability that we are solely a target of external forces, and increase the probability that we exert forces ourselves. Our basic purpose in communication is to become an affecting agent, to affect others, our physical "environment" and ourselves, to become a determining agent, to have a vote in how things are. In short, we communicate to influence - to affect with intent" (Berlo)[2)].

Communication is therefore a "Process of exchanging news, facts, opinions, messages etc. ... between individuals and people". In other words where as information is unidirectional, Communication is a two-way exchange. It is not just transportation as some people take it to mean. Resulting from the foregoing, we may ask one pertinent question. What is the significance of

communication in the Development of a National Information and Documentation Network in Uganda?

The importance of communication needs not be overemphasized. It is the most vital vehicle for the transmission of information. The accelerated evaluation of knowledge through collection, storage, processing and dissemination of e.g.news, data, facts, opinions, messages, comments, etc. ... that are required in order to understand and react knowledgeably to personal, environmental, national and international conditions so as to be capable of taking appropriate decisions, need information. It is through information that a way to progress can be opened. This is because information helps us know about development, which development is the global phenomenon that affects all aspects of humanity.

As we all know, effective information is "sine qua non" to effective implementation of any government (Personnal/private etc. ...)policies and programmes. Uninformed or ill informed person runs the risk of remaining permanently backward. President Museveni illustrated this point very clearly while examining how he found uninformed or illinformed people dying of curable diseases in Luwero Triangle, during the guerilla war: "You can find somebody with syphilitic skin marks completely unaware that he is still sick, arguing that this is due to the past sickness and that it is normal" he said.[3].

Quite often, ignorant people turn to witchcraft practice. As Mr. Museveni put it, there is widespread belief in Uganda (Particularly in Buganda) that "obusukko" (cellutitis-inflammation of the connective tissue due to bacteria) or "ttalo" (pyomyositis) is incurable by modern medicine because it is due to somebody (patient) stepping over a magical charm which an ill-wisher would have buried in one's path, and that treatment for it is by "numbwa" (clay plus some herbs) and red soil, which form ideal breeding ground for tetanus[4].

It is only through information that such people can be educated so that they can get enlightenment. That is why a body like the one we want to form is important because it can store information that we need for various purposes.

Unless we preserve information, it soon disappears. We know, for example, that oral or un-preserved information vanishes with holder (when he

dies) or gets watered down or distorted as it is orally passed from generation to generation. However, we are yet to accommodate oral information transmission for a foreseeable future due to a high illiteracy rate in the country. This is true for other developing countries as well.

As stated earlier information is the most crucial instrument for development. The initiator of the idea, conceives this idea, arranges it then passes it to other. The latter then use this information to implement whatever has been envisaged. That is why printed information is very important because it can be referred to later on, unlike the oral information.

As we have already indicated earlier on, it is the act of passing information from a source to recipients with a possible feedback reaction that constitutes communication. But how do we pass such information. We can use several means to communicate e.g. signs and words, languages, reading and writing, post and telephone, mass media, satellites, computers, cables, etc. Unless we communicate an information to others, this information will remain worthless to development etc. We saw at the beginning that the main purpose of communication is to influence or affect with intent. Since the Adam era in the Garden of Eden, man has been using communication for this end albeit with primitive and simple methods. This includes signs and words (or "body communication") we still use them even now inspite of the great technological invention. When somebody gesticulates, dances, signs, paints, draws, or uses images, sculptures etc. ... he is actually communicating information to somebody else.

As the MacBride Group put it "in communities where isolation or smallness of scale or illiteracy have encouraged the survival of tradition ..." such methods "remain the most common, if not the only means of transmitting information"[5]. This interpersonal communication network enables the provision or exchange of information among people.

Interpersonal communication is further important because it maintains "a vital importance in all parts of the world, both developing and developed and is even expanding". Secondly, the majority of people in the world, paricularly the rural inhabitants of developing countries, comprising as much as 60 to 70 percent of the world's population, continues to import, receive and what is more, accept messages through these channels (i.e. traditional and interper-

sonal) of communication. Third, it is impossible to comprehend completely the advantages and limitations of modern media if they are treated as factors separate from the interpersonal communication, for clearly communication networks grow cumulatively, which each form adding to but not eclipsing the older systems. On the contrary, interpersonal communication takes on a whole new significance in the feature in the furtherance of democracy within societies"[6].

As time went on, other methods of communication also evolved. One such key methods has been the invention of writing. This is important because, unlike in oral communication, it preserves the information in a permanent form unless otherwise destroyed. However, this method of communication can be hampered by illiteracy and the multiplicity of languages which are not understood by many. Fortunately, however illiteracy may, to some extent, be counterbalanced by the modern media such as audio-visual means i.e. by the use of spoken word and image. But this still leaves an illiterate incapable of fully participating in his society and the world at large, so denying somebody these vital communication tools (ability to read and write), is a gross violation of human right to inform and be informed.

What can we do to counter-balance this gross violation of human rights. In my opinion, we can do so by strengthening communication infrastructure, such as the National Information and Documentation Network. By so doing, we shall be able to collect, document and store the necessary information for policy makers, researchers, mass media, etc. In fact such data can cover all aspects of human life, which data if integrated into national development programmes, can have a considerable effect in the development of a nation.

Many a time politicians have tended to castigate civil servants for failing to implement some government policies. What they should also know is that there might have not been enough information documented on such or such a project. This is because in a place like Uganda we do not yet have a National Information and Documentation System. Once political leaders use radio or T.V. for personal publicity and glory, they think everybody has got enough information through such media.

Effective communication medium should not only be able to provide the public with information about national development but also avenue through

which they can contribute ideas to the decision making process. This presupposes that he has access to all the necessary information. The National Information and Documentation Network will be in a better position to provide such information, which can help to:

(a) Promotion of tourism,
(b) attracting foreign investment,
(c) fight endemic health hazards,
(d) implementation of government policies and programmes,
(e) fostering understanding among communities,
(f) promotion of adult education,
(g) educating masses on RC activities etc.

In this paper we have tried to show the importance of communication in national development and how to use it to achieve that. From this survey, we can assert that Information and Communication constitute the **pivot** for human development.

In fact it is communication which animates and maintains life since it is the motor and expression of social activity and civilization. It leads peoples from instinct to inspiration, creates a common pool of ideas, strengthens the feeling of togetherness through exchange of information and messages. It translates though into action and integrates knowledge, organisation and power. Communication is therefore at the heart of all social intercourse. We can summarise by contending that the concept of communication can be said to have three main functions in society:

(a) It informs people about their soical, economic, political and cultural environment;

(b) It links the component parts of the society;

(c) It transmits social values, norms and morals.

At the national level of development, this process performs the additional task of linking the separate communications networks and carrying out their functions on a national scale. If ever established, we would expect the National Information and Documentation Network to play its role with this in mind if it is to justify the "raison d'etre" of its creation.

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INFORMATION RESOURCE SHARING - A CASE FOR UGANDA

by Remy Ogwang-Ameny

DATA AND INFORMATION

Information is a resource in its own purview, as are other factors of production such as land, labour and capital. The growing importance of information has led us to this new decade of Information Revolution as we enter the 21st century. The present structural changes in various economies of developed and developing countries are strongly influenced by accurate information used in the production of goods and services in both public and private sectors. It is therefore helpful at this initial stage to clarify the concepts of data and information as we enter into our subject of discussion - Information Resource Sharing.

Data is an interpreted raw statement of facts. While information is known to be recorded data which is classified, organised and interpreted within the purview of a specific problem situation. Therefore whatever type of information i.e. required for planning/decision making and/or research and development (R & D), is indeed an evaluated data for a particular problem, provided at a specific time and for an explicit purpose of achieving a definite goal.

As a matter of emphasis, information has an important role to play in turning an individual's or group's ideas into actions. That is specifically why it is a vital resource to be exchanged and shared within the community we live. Let us briefly consider where the research into information management, transmission and utilisation has led. Not only has it produced systems which reduce costs; which have benefitted society and which have aided economic and industrial process; nor is information just a raw material; nor just the essential tool for executive action and strategic planning - it is also an economic product which can be sold abroad to earn foreign exchange.

RESOURCE SHARING

Realising that it is now evident that information is a "Master Resource" of our time, the chief raw material and principal product in modern economies; and that the message is clear: whether rich or poor, nations wishing to improve their social and economic performance must develop and manage effective and integrated information systems, the need for information resource sharing is undoubtedly most highly cherished.

By definition, in computing and communications, resource sharing refers to a joint use of resources available on a system or a network by users or peripherals. In the language of information management, when we talk about resource sharing we simply mean collective use of information of all types by various end users from a central coordinating unit or from within a network component at a reduced cost with easy accessibility.

May I at this stage briefly touch on the evolution that has occurred in the field of information sharing and exchange in the rich industrialised countries and also in developing countries since 1960's e.g. Uganda. In those days, when we talked about information supply we usually meant providing photo-copies of articles in journals or giving books on loan. Nowadays we mean enabling the end user to obtain selected, predigested, verified, wholly relevant information at a screen on his desk (or in a personally tailored report) from a central process or from within a network system where various users have access to the same type of information from their own terminals.

Then, scientific and technical information (STI) meant only the natural science and engineering. Now it includes most fields of knowledge and especially business and commercial information which forms the core of resource sharing dynamics for R & D, industrial activities and marketing.

Still in those days we manipulated data on large and expensive mainframe computers. Now inexpensive micros, CD - ROMS, CDS/ISIS (Unesco data-bases), and other information technology (IT) equipment are common in many countries, developed and developing - Uganda inclusive.

All these are meant to make STI in a library of a group of libraries of documentation centres etc. easily accessible to a user at various points in time and place. In 1960's almost our whole attention was devoted to printed

material. Now we deal with a wide range of electronic publications - i.e. transnational - bulletin boards, electronic mail etc.

At that time also communication was mainly in writing by letter with some use of telephone or oral messages. Now telex is already being replaced by facsimile and various other types of electronic communication via bulletin board and electronic mail and via high transnational network; and speed data links are increasingly common.

In the 60's librarians agonised on how to store the ever rising flood of printed publications. Nowadays with shrinking budgets storing journals is less of a problem and information can be stored in compact form. Instead the problem is that of verifying and reducing to assimilable quantities the growing excess of information.

The above outlined developments in the past three decades, clearly illustrate how the need for information for social and economic development in the present human society has precipitated the use of modern technologies in information handling, exchange and sharing. In brief, there is now an urgent need for all nations to establish, develop, expand and integrate their various information systems and institutions on national policy framework, in order to ensure proper management of information services and products for national development and international cooperation.

The present Uganda Natis project coupled with formulated national policy on information systems and services, purports to coordinate the development of various subsystems and services of Natis (NIS) in order to facilitate the processing, exchange and sharing of development information and data for solving problems, and for gainful decisions in priority areas of national development plans, projects and activities. In particular the project among other things, aims at promoting cooperation among the information resource centres in networking and sharing resources - also promoting the judicious application of information technology, especially micro computers, local area network, etc. in order to make resource sharing machanism in the country as a whole encompassing.

INFORMATION SYSTEMS DEVELOPMENT AND RESOURCE SHARING

The fundamental premise of the overall national policy on information systems and services is that any economic and political system is likely to perform more efficiently and effectively if a mechanism is provided by Government (of Uganda) which ensures that decision makers, managers and researchers have timely access to relevant, up-to-date and reliable data and information.

In order to accomplish the above task, an information systems and services policy reflecting the priority needs of all sectors of national endeavours is necessary to guide in the proper establishment and development of national information systems, resources, services and products for exchange and sharing among present and potential users at home and abroad. Such a policy should be incorporated into the national development plan of the country.

The following underlined facters are expected to be clearly covered in the policy guidelines:

1. Information Resources Development:

The following activities are to be covered:

(a) Allocation of responsibilities to participating institutions for building strong collections in special subject fields;

(b) Organisation of a national document supply centre on the basis of the British document supply centre at Boston Spa e.g. at the National Documentation Centre for document supply service here and outside, backed by legal deposit law with penalties;

(c) Establishment of data banks for scientific, technical, social and economic data;

(d) Preparation of national union catalogues of books, serials and periodicals and the development of the country's development abstracts, registers of on-going research and databases of holdings of all libraries, documentation centres etc.

2. Information Users

Here activities to be covered are as follows:

(a) Identification of the present and potential users of STI and management information and their information needs;

(b) Creation of information consciousness among users through sensitisation programmes for users of STI as often as possible (i.e. public relations programmes on radio/TV etc.);

(c) Organising training programmes for users of STI as often as possible;

(d) Conducting research on categories of users and their information gathering habits and problems.

3. Information Services

The activities to be covered here include the following or more:

(a) Development of necessary tools, normally selective dissemination bulletins, subject specialisation profiles, bibliographies, newsletters etc. and techniques adequate to meet users information needs and demands as these change from time to time at different levels;

(b) Establishment of subject oriented information grids (networks) supported by adequate communication facilities to enable users to tap information from remote specialists, systems and institutions;

(c) Development of facilities for providing the following information services to industry - question and answer services, bibliographic service; reference service; current awareness bulletins, information packages and photocopying services;

(d) Establishment of national referral centre to provide referral service to users by means of bulletin boards, electronic mails etc.;

(e) Provision of translation facilities in various languages for users to benefit from STI from various parts of the world i.e. both East and West;

(f) Provision of adequate reprographic facilities in information centres and the promotion of the use of microforms of documents in exchange and sharing of information among users;

(g) Provision of adequate computer configurations for fast storage, retrieval and dissemination of STI to present and potential users.

4. Manpower Development

The following activities are expected to be covered under the above programme:

(a) Building up expertise and provision for education and training courses, seminars, workshops etc. for an adequate number of information personnel of different categories in library science, information science, and/or informatics and communications to many various participating systems;

(b) Supporting programmes and projects in information management;

(c) Supporting research programmes in information studies/management;

(d) Preparing guidelines, curricula and teaching material for training information personnel;

(e) Developing national programmes for fellowships, awards and liaising with governments and agencies for training abroad in librarianship, information science, archives and records management;

(f) Securing adequate service conditions and status for information personnel.

COOPERATION AND BUDGET

The national policy on information systems and services relating to cooperation hinges on the following factors to facilitate information resource sharing and exchange at national, regional and international levels:

(a) Cooperation with national and international organisations engaged in information and documentation systems and services such as IFLA, FID, UNESCO, PADIS, DSE, African Administrative Information (ANAI), etc. for

exchange of STI and databases for research and development activities etc.;

(b) Collaboration with International Organisation for Standardisation (ISO) in order to obtain normative guidelines in terminology, thesaurii and bibliographic descriptions i.e. ISBN, ISSN *etc. for information* exchange between systems and institutions. At the national level however, the following activities are to be considered under the same policy guidelines:

- Supplying the established associations of writers, editors and publishers *in the country* with the guidelines aimed at improving the quality and quantity of their information services and products;
- Assisting book publishers to *use standard serial numbers and codes* in their work to facilitate information exchange.

The budget entails government commitment to provide sufficient funds and seek financial assistance from foreign governments, organisations, agencies and donors to support projects, programmes, activities etc. in the fields of information studies and management. And to encourage well developed information systems and institutions to sell their products to raise additional income to finance more new projects.

CONCLUSION

It is concluded that:

(a) information resource sharing should be guided by a well designed national policy on information systems and services;

(b) information technology equipment and management should be provided to *facilitate information transfer* process;

(c) the already developed machanism should assist in bridging gaps or lacunae in our information infrastructures and services;

(d) proper training should be mounted in order to ensure efficient management of systems and services by the enlightened personnel; and

(e) the machanism should help redress or minimise duplication of efforts in research projects, products, tools and equipment etc.

It is also to be ensured that:

(f) users have tools and skills to make them easily aware of relevant sources of information they want;

(g) development projects are implemented and completed on schedule as there is easy accessibility to all types of information producers, planners, decision makers etc. needed in the execution of their work.

It should be noted by all information conscious people of the world that information resource sharing promotes mutual understanding among nations, provides accessibility to foreign technologies and markets, facilities adoption of international standards for compatible production of databases and their uses; above all it serves as a lubricant to the wheels of economic development of a nation which connotes development priority areas for Uganda such as:

- agriculture
- industry and manufacturing
- market and trade
- domestic and foreign trade
- human resource development
- energy/environment
- natural resources
- social and cultural aspects of population etc.

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COMMUNITY INFORMATION AND DEVELOPMENT IN UGANDA

by Syed A.H. Abidi

Uganda is not in Kampala and Jinja. Uganda is in the villages where more than 90 % of Ugandans live, who are employed directly or indirectly in some or the other kind of agricultural activity, accounting for over 60 % of the Gross National Product and major earning of the Government revenue. Any talk of 'Development' whatsoever will be out of place until it is discussed in the context of rural population. Development activities concentrated in urban areas drain out resources for the good of minority. This policy leads to emergence of an internal conflict. In a democratic set up, equitable distribution of development resources forms the basis of political wisdom. In a nutshell the development of Uganda means the socio-economic transformation and betterment of rural folk.

The concept of social change with above background has a direct bearing on agriculture, health care, formal and non formal education, recreation, cultural activities, security, democratic institutions, communication, business, small scale industries and new researches in these areas. We cannot move an inch in any of these important fields of human activity without information.

In agriculture our concern is to employ new methods of farming, use of agricultural engineering, use of appropriate manure and better seed, adoption of convenient means of irrigation etc. with an objective to get quick and better yield. The implication is to utilise the researches accomplished at the agricultural research stations and other research institutions. A call for proper research coordination activity is also implied.

Health care is concerned with prevention of disease, sanitation, family planning, first aid, maternity homes, child clinics etc. No AIDS prevention programmes can be successful without effective communication of information. Large number of women die with pregnancy related complications whereas many such calamities can be avoided if appropriate information is available

at hand. Improved sanitation and family planning information can be used to improve community's health.

Recently on 30th January 1990 a report on Uganda Demographic and Health Survey (UHDS) was released by the Minister of Health. The report which covers 24 districts with a sample of 4730 women of 15 to 49 years age group, indicates that woman fertility rate in Uganda is very high at 7.4 percent with women having an average of seven births. Level of the use of contraceptives is too low. Only 5 % of Ugandan women use any form of contraceptives. The report points out that in many cases women carry a desire to have many children. Hopefully the report will be used as an important source of information by planners and policy makers.

Formal education in rural areas is concerned with primary and high school standard institutions. Non-formal education covers adult education, literacy projects, correspondence courses or distant education (Makerere University Centre for Continuing Education is planning to introduce a degree course through correspondence w.e.f. October 1990). Without proper provision of information and communication the distant education programme is bound to fail. Adult education and literacy campaigns need strong information and communication support, and planning of primary and secondary schools has to be based on background information about population factors and already existing facilities. The planners have to decide carefully whether to start new schools or expand the existing ones. All this is to be guided by relevant data.

Recreation and cultural activities are important part of rural life. Some of these activities help in preserving the heritage of the community whereas other contribute to ensuring good health of the society. Besides, these activities add to cooperate spirit and communal harmony. Information again plays a very significant role here. Recreation centres or cultural centres are information centres in a real sense, where cultural information can be disseminated through various activities, exhibitions, lectures, discussions, music, dance, drama, competitions, shows etc. etc.

Security can only be guaranteed if proper communication systems are used to link the different security organs together, and the democratic institutions survive with free flow of information and active participation of the masses.

Business activity needs strong information backup. We simply cannot produce and sell without information on market demand. Industry can survive only if it can sustain competition. Competition is possible if data about the other competing industries is available.

The secret of rural development lies in setting up small scale industries where locally available raw material is used to get value added products. In Ugandan context this issue deserves very special and urgent attention. For hundreds of years raw materials is being exported from Uganda inspite of the fact that value added products made out of this raw material are on demand in neighbouring countries and overseas. Instead of exporting cotton, Uganda should be able to export sewing thread, cotton socks, cotton undergarments, cotton gloves, tarpoline, hose pipes and several other items. Instead of exporting simsim, sunflower seed, cotton seed and groundnuts, Uganda should be able to export cooking oil produced from this material. Oil cake obtained as a by-product from this expelling process may also fetch good revenue. These are only few examples. A thorough survey of the issue may bring startling facts. Unfortunately it is the weakness of information sector which is responsible for shifting of the profits from Uganda to foreign countries which import Ugandan produce in raw form. There is a serious need to inject the concept of change in todays peasant dominated economy. An example from India's economy may be an eye opener, where in 1960s agriculture was contributing 60 % of the national income and only 23 % contribution came from industry. Now the position is other way round. If stagnation of traditional economy is allowed Uganda will be simply exchanging plane-loads of vegetables and fruits for a few tiny chips. Small scale industries development has several other advantages:

(a) Government's input is not too much as the individuals or small private enterprises are always prepared to accept the challenge.

(b) The profits are not concentrated in a few hands.

(c) Demands of the local market are taken care of.

(d) Coordination of small scale industries leads to large scale industries development.

(e) Research activity increases and information flow is accelerated.

When we examine the present day information scene in rural Uganda we come across serious efforts put in by some Ministries and Government Departments to advise and assist the rural population. For example Agricultural Officers, Health Officers, Veterinary Officers, Education Officers are available at District level and they keep contact with people through their field staff right into the interiors of their districts. There are several Non-government Organisations (NGOs) working for the same cause. Church Organisations are also very active on information advisory services. The most important development has been the setting up of Resistance Councils right from village level to the national level. This has ensured a kind of networking. In every Resistance Council there are secretaries responsible for 'Information', 'Youth', 'Women Affairs', 'Security' etc. All these offices may be very active in their own right, yet their working in isolation leaves a lot to be desired. The information needs of a farmer cannot be satisfied by Agricultural Officer alone, or by Veterinary Officer alone. If the nature of a farmers information need demands his going to different offices, it may be not only troublesome but in most cases impossible to accomplish the mission due to paucity of time and resources. What is recommended as an ideal situation is to establish one central information Complex. With its public relations offices in rural areas, depending on the size of the district. This District Information Complex should house information units on Agriculture, Health, Animal Husbandry, Education, Small Scale Industries, Culture and Recreation, Social Counselling, Trade etc. etc. This District Information Complex should be equipped with adequate transport facilities to cover the rural areas as a regular routine job for which the time table should be strictly observed. The vehicles with properly trained staff will go to villages and disseminate information on topical requirements. The trained staff will attend to the information needs as expressed by the rural population. This methodology will have to employ several tools for dissemination of knowledge and information. Mobile cinema, especially made video shows, lectures in local languages, discussions in presence of the rural population, direct discussions with the people, exhibitions, demonstration sessions, festivals organised in rotation in different areas may be some of the effective tools. This complex will actually become the hub of information activity with heavy involvement in literacy campaigns. It will also act as an agent for distant education activity. These activities bring the Complex very close to the existing District Libraries. It will be decided by the authorities, the planners and decision makers whether

the District Libraries will be merged into this proposed Complex or the District Libraries themselves may be made a nucleus to develop the proposed Complex. In any case there is no need to have duplication of activity. This is in fact the essence of the whole concept being discussed.

When we talk of the National Information Network for Uganda, we normally think of the existing information units to be linked together with a mechanism for resource sharing facility. However if this system is to operate for the good of both the rural and urban population, we must seriously think in terms of District Information Complex as an important link in the National Information and Documentation Network for Uganda.

COMMUNITY INFORMATION SYSTEM AT DISTRICT LEVEL

Table 1: Institutional Involvement

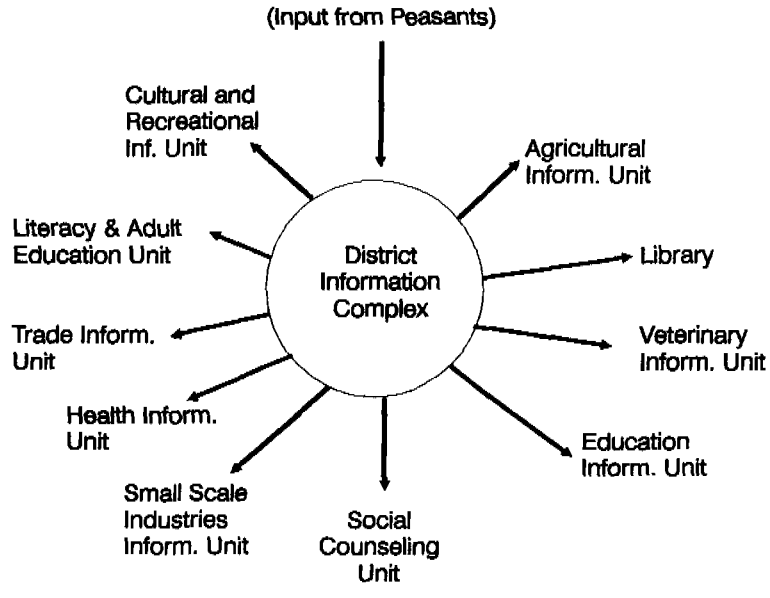
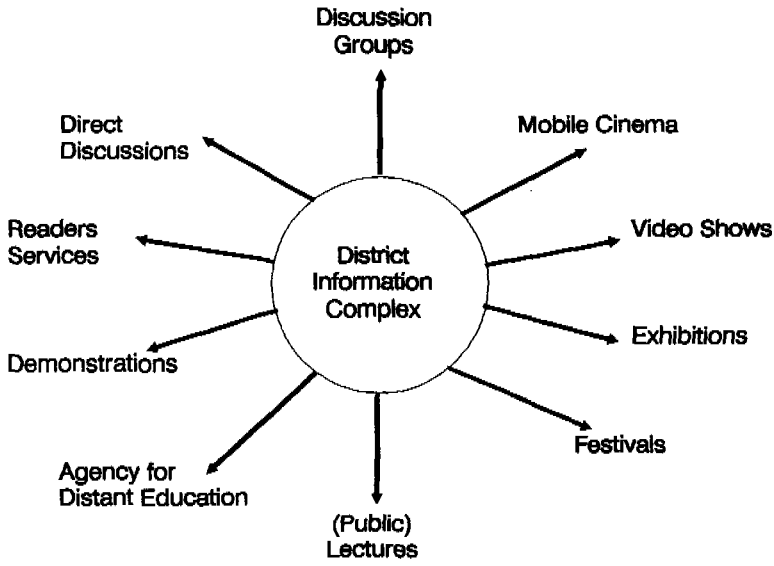


Table 2: Activities and Tools



HEALTH INFORMATION SERVICES IN UGANDA

by Maria G.N. Musoke

INTRODUCTION

Health information services include those services provided by medical, hospital, health sciences, paramedical/nurses' schools and welfare Libraries in Uganda. For example, the University Medical Libraries, such as Albert Cook Library at Malago; hospital libraries (found in various hospitals) catering for medical and other health care hospital staff; health sciences libraries, such as the Uganda Virus Research Institute Library at Entebbe; paramedical training schools/colleges' libraries, such as the Medical Laboratory Assistant School Library at Jinja; schools of nursing, such as the Mosaka School of Nursing and Midwifery library; welfare libraries, such as the Uganda Foundation for the Blind Library in Kampala.

In addition to the above, there are health information services provided by the Ministry of Health (MOH) Library at Entebbe, the MOH District Medical Offices and the MOH - Health Education Division. The Family Planning Association of Uganda has a Library at its head office in Kampala; besides this, the Association is involved in the dissemination of information about family planning and related subjects.

Domestic and international organisations like Banks, UNICEF, Red Cross, Rotary, etc., participate in the provision of health information either directly or indirectly (e.g. by providing reading materials, building libraries, etc.). The Uganda Women's Doctors' Association, among other things, is involved in the dissemination of health information to grassroot people especially in rural areas. UNICEF has a library at its head office in Kampala; in addition, it has done a lot in the field of health education which includes information dissemination and retrieval. Efforts to find out the role played by the Save of Children Fund in health information provision bore no fruits.

Patients both in hospitals and at home, the housebounds (e.g. the elderly) and the physically handicapped, however, remain almost unserved by the

above mentioned services today! In the past, the Public Libraries used to extend services to them.

HEALTH INFORMATION NETWORK

To join the World Health Organisation (WHO)'s campaign of "Health for All by the Year 2000", developing countries have had to identify priorities in their health policies. Three major areas were identified: one of them is "the provision of up-to-date information for medical/health education, research and practice, especially to health professionals in isolated areas"[1]. The WHO sees the provision of information to the right people at the right time as a key factor in its activities, and consequently library services are to play a vital role in the overall strategy. To be effective, however, medical/health libraries need to revise existing priorities as well as modernising their attitudes and procedures. They also need financial support.

Health care is a multi-disciplinary activity involving many professions whose information needs overlap and interact in many ways. Medical documents are very expensive yet because of continuous scientific research, they get out of date very fast. Medical/health libraries, the world over, are faced with financial problems, since inflation is everywhere and the cost of medical literature is high. A British medical librarian, Thornton expressed: "The financial problem affects all libraries and possibly medical libraries in particular. Even our largest medical libraries are seriously short of funds. Increased prices of books periodicals and so on, strain budgets that never increase, correspondingly with rising costs and greater demands from readers"[2].

Developing countries are hit much more than the Developed ones because many libraries do not have library budgets at all; many entirely depend on donations. For example, 65 percent of the libraries studied in the 1984/85 research project did not have a regular library vote. Tiberondwa thus expressed: "Inflation with attendant reduced budgets have reduced our efforts to a hopeless situation"[3]. Then Ovon noted: "Many of the problems of information accessibility arise as consequences of our poverty ... Since most of the books we need to stock our libraries must be imported from the developed countries, our libraries shall continue to lack some of the standard reference books as long as we do not have the hard currencies to buy them"[4].

It has, therefore, been internationally recognised that no individual library can be self-sufficient, so networking has been developed to enable the library to have access to a wide range of information resources wherever they are held, to supplement its own holdings. In other words, networking combines activities of a number of Libraries in the interest of their collective user body, in a cost effective way. For the African region, networking with a major resource library in the centre to co-ordinate activities nationally and internationally was recommended by the WHO Regional Office for Africa (AFRO).

1. The African regional health information network

Prior to the Fourth International Congress on Medical Librarianship (ICML) in Belgrade in 1980, the WHO/AFRO organised a meeting of African Medical Librarians which recommended, among other things, the establishment of health information Network within the African region. After this recommendation, WHO made a survey of African Medical/health Libraries and identified seven major resource libraries to take the lead in the Regional Network. Albert Cook Library was among the seven Libraries.

In 1982, a Workshop on Health Sciences Library Management and Co-operation was organised by WHO, DSE, UNESCO and ESAMI. It was held at Arusha and was attended by Medical/health Librarians from Eastern and Southern Africa. A similar workshop was held in West Africa. The workshops noted that the development and provision of medical/health information services in Africa were haphazard. The Arusha workshop recommended, among other things, the identification and development of National Focal Points (NFPs) for the establishment of Health information network within the African region.

In 1984, WHO/AFRO organised another meeting of African Medical Librarians after the 50th IFLA Conference in Nairobi. The purpose of the meeting was to review the progress made toward networking in the African region since the meeting in Belgrade (1980) and the Arusha workshop. The meeting was attended by twenty seven medical/health librarians from nine African countries, two representatives from WHO and five observers. Only six countries in the region had designated NFPs. Two other countries (one being Uganda) had identified NFPs but awaited official confirmation and endorsement. It was emphasised that networking cannot get started unless all countries designate

their NFP and give it the necessary material and financial support[5]. WHO was to contact the national MOH about this issue. Also raised at this meeting was the issue of the African Index Medicus.

In 1985, at the 5th ICML in Tokyo, Japan, another meeting was held to review the progress of Regional networking. Since then, a number of librarians in the region have worked for short periods at the WHO/AFRO library to acquaint themselves with the networking project. The 6th ICML is to be held in India in September this year (1990). As usual, progress of the regional network will be reviewed and further strategy worked out. WHO has already offered to sponsor at least one librarian, preferably women who have written papers and have never attended any of the ICML, from some African countries.

2. Health information network, services and activities in Uganda

The Regional activities paved may for the National ones: as already mentioned, Albert Cook Library was chosen by WHO to be one of the seven resource libraries to start the Regional network in Africa. At national level, each country was/is required to designate a NFP. In Uganda, Albert Cook Library was identified as Uganda's NFP. Establishment of a health information network at national level, therefore, required two things initially:

(a) Identification and official designation of a NFP, and

(b) Preperation of Network tools, like compilation of a National directory of medical/health libraries, and compilation of a union list of periodicals held by the libraries in the directory (in the country).

In a country where information is not priority, financial resources are minimal and epidemics like AIDS, Meningitis, etc., are wiping out thousands of people, it is difficult to achieve much. The meagre financial resources are spent on combating disease and hardly any is left to develop medical/health information services. Whatever has been achieved, therefore, is mainly due to the initiative and enthusiasm of medical/health librarians. For example:

(a) Research was undertaken in 1984/85 to study the existing health information services in the country. Copies of this research project are available at Makerere University Library and the MOH.

(b) A directory of Health Sciences Libraries in Uganda was compiled in 1985.

(c) Following Musoke's proposal to train Library Assistants in the "Basics of Health Care Librarianship" the MOH (in its Circular of 30 May 1986) directed all its Training Schools to get people at least at '0' level to be assigned the duties of the Library and later to send them to attend the course. At the time of the research in 1984/85, all these 'libraries' were not manned by full time staff. Heads of some of these institutions complained that there were no establishments for library staff, so the libraries had to be run by the Heads who were too busy to do so efficiently and also were not conversant with library work. Now (i) these libraries have full time staff and (ii) the first short course was run in 1988. However, the other two courses, one for those working in hospital and District Medical Offices libraries and the final course are yet to be run.

(d) The Tutors/Principals of Schools of nursing course run by the School of Education (Makerere University) has a component on Organisation and Management of Libraries. This part had always been ignored. In February 1987, I was invited to teach this part.

(e) The above interactions (a) to (d) have led to co-operation between Albert Cook Library and other health libraries in the country. The interactions at regional level as already mentioned in the paper, have led to international co-operation. Co-operation has been mainly through exchange of materials and professional expertise.

3. Shortcomings

Shortcomings include the following:

(a) A union list of periodicals held by the libraries in the directory is yet to be compiled. However, the questionnaire has been prepared.

(b) The publication of the East African Medical Bibliography is yet to be resumed.

(c) Albert Cook Library still awaits the MOH official confirmation and endorsement as Uganda's NFP.

(d) Development of health information services is still not on the priority list of the MOH, except in cases of epidemics.

(e) The short course for Library Staff in hospitals and District Medical Offices Libraries is yet to be funded and run.

(f) The introduction of a book band system at Makerere University: students are to be loaned books which they return after their courses. This means that young doctors shall go in the field without textbooks yet there are no libraries where they are going or if they are there they are not stocked at all! The absence of medical/health libraries or the lack of health information support to the medical and other health personel should cause concern to the policy-makers and a solution to this problem ought to be sought.

Finally, the health information network has not yet taken off. However, there is co-operation which is one of the initial stages of networking. Since much of the background work for networking has been done, the integration of health information services into the National Information System may not pose much problems.

CONCLUSION

This paper has reviewed health information services and activities before and after the identification of Albert Cook Library as the NFP for the Health Information Network in Uganda. This specialised network of health information can very well fit into the National Information and Documentation Network. Unlike some other specialised information services in the country which have not yet established linkages with each other at national level, the health information services have done so by compiling a directory and by co-operating through exchange of lists, materials and professional expertise.

The shortcomings mentioned in the paper are beyond the control of the Librarians. More support is needed from the medical/health professionals and from the MOH.

It is hoped that the establishment of a National Information System in Uganda will strengthen and bring to reality the health information and other national information and documentation networks.

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CONTINUING EDUCATION FOR THE DEVELOPMENT OF LIBRARY AND INFORMATION PERSONNEL IN UGANDA

by John Kakaire-Menya

INTRODUCTION

Continuing education is a process which allows an individual to continue educating oneself after basic training and job placement. It assumes that the individual concerned has an opportunity and facilities to add to his stock of knowledge to make up for shortcomings and deficiencies.

Continuing education centres around an individual and is generally prompted by personal needs. It enables him to assess his own abilities and qualities in relationship to job performance, and progress. The individual is aware of the basic responsibility that he has to direct himself to the next level of development or need. In this way one supplies oneself with energy or motivation to achieve the set objectives and goals.

In an effort to give a more clear picture of continuing education let us contrast it with staff development which is a related concept. Staff development seeks to develop an individual or a group of individuals towards the achievement of organisational objectives.

In other words it is an attempt by management to develop an individual or group of individuals to fit a job or jobs. The employee may not have a hand in choosing the training programme. Management seeks and draws out abilities and qualities of an individual, and provides learning opportunities to develop them to organisational advantage.

The two concepts above have major elements of similarity. They all seek to improve performance of the human resources. Secondly, they concern themselves with the fact that one needs to constantly update ones' own stock of knowledge in preparation for tasks tomorrow. In addition, experience has shown us that the world is not static: but rather dynamic. There are new developments, new information and knowledge created all the time which makes it worthwhile for one to learn continually so as to cope with the new

situations and changes. But for the sake of this paper we shall take continuing education to mean any further training that enables an individual to perform better whether it is at individual; or group or organisational level.

Let us now relate the above concepts to development of Library and Information personnel. Development is to do with acquisition of the attitudes, abilities and skills to perform better the library and information services chores. Secondly, it relates to the fact that with efficiency, the library and information personnel, would be better remunerated: or would be able and prepared to take on bigger responsibilities in light of the newly acquired skills. In case of Uganda this cadre of personnel would include people who work in organisations that procure, process, manage and disseminate information. But more specifically these would be librarians, archivists, computer and information specialists, and documentalists.

In light of what has been said above therefore, we shall briefly highlight continuing education activities of library and information personnel in Uganda and where possible, point out short comings and challenges that the profession faces, and than suggest a plan of action for improvement.

ROLE OF LIBRARY AND INFORMATION PERSONNEL

Library and Information personnel play a big role in linking clientele to information sources for rural development, commerce and industry, health, appropriate technology development and decision making. This human resource coordinates the whole information infrastructure comprising of the physical, communication and information resources, plus organsational structures and the human resource itself.

This forum today, the Development of National Information and Documentation Network seminar, affords us a rare opportunity therefore to look at our information infrastructure, to examine especially the component of continued training of personnel in an effort to build a strong and integrated library and information system.

In developing an information policy we should ensure that the component of continued training of library information personnel is not left out. It is only through training that we can ensure continuous growth and progress. It would

be a wastage of resources to develop all the other resources and leave out the vital link-information personnel-connecting information to users.

Currently most library and information personnel in Uganda are trained at the levels of:

- Certificate in Librarianship (6 month course)
- Diploma in Librarianship (2 year undergraduate course)
- Bachelors Degrec (3 years, recently began)
- Postgraduate Training (9 months courses and any other courses overseas).

The major employers are Makerere University, Public Libraries Board, Government Ministries, Parastatal Bodies, Training and Research Institutions, etc. The institutions listed above are quite well organised and are believed to have staff development programmes under which librarians would automatically fit and benefit for training and development. So why then do we have to look at continuing education? The reasons are many but basically because of the relative importance of information in the process of development; and the position of the library and information worker in the chain of information provision.

CONTINUING EDUCATION FOR WHAT?

Although not fully accepted, generally information is regarded as an important resource. Information has a price, and can be quantified or measured. This means also that there can be investment in information. But, information needs human resource to create it and to interprete it.

Unfortunately for Uganda in the past 15 years, there has not been adequate investment in the continuing education of librarians and information personnel after job placement. Many have gaps of information in their profession at their various levels. It is becoming increasingly necessary to bridge these gaps if the information personnel are going to work better. There is a need for continuing education as a way of passing on few skills, latest trends and provision of an opportunity to an individual to reflect on his job.

Lack of adequate investment in library and information services may be indicative of government's position. Libraries are not on the priority list in

Uganda. But, continuing education enables the individual library and information personnel to assess better the level of influence and consequently launch better strategies for improving services. It also gives a chance to participants to exchange notes on innovative attempts to develop library and information schemes.

As noted above, the information services operate with people of different levels of training. This in itself is enough ground to justify of continuous education. Each one of them has a specific function. There is need for each one of them to prepare for new developments tomorrow. Apart from one meeting the demands of the job, training should help one to get exposed to new ideas which one can use to enrich or improve on the services one offers. Continuing education also enables one to understand ones role and span of responsibility. In this way it provides a chance for growth in the profession. Growth in the profession should not simply mean acquisition of age in the same job. But rather to acquire experience of a whole spectrum of jobs done in a particular information service; to understand what responsive approaches would be needed if a change occured etc., should help and to take over a supervisor's job without much trouble.

The usefulness of continuing education in relation to environmental changes can be illustrated by this Brazilian example: In 1811 Castello Branco in effort to establish the first public library in Brazil considered that, "The librarian should be an individual of very good conduct, capable of reading, writing and counting very well, and it would be desireable if he had some knowledge of languages, principally Latin, French and English".

The above description could have been adequate for Brazil then but not for Uganda today. If is true that these same qualifications are still needed but that they are not the major points of emphasis. The roles and requirements have changed. The Latin is no longer as popular or significant as in the 19th century. The demands these days are on technical skills and professional knowledge. The requirements are beyond counting and reading competencies.

It is true also that environment plays a significant role in determining continuing education needs but in our case what is significant now is for the library and information personnel themselves to be responsive to change and

therefore use continuing education as an avenue for improving their skills and hence to be continually defining their role in society.

The minimum employment qualifications needed for library and information personnel 25 years ago no longer apply today and yet in our information services we have people normally termed 'untrainable'. They are good, they know their work and are actually the backbone of the service due to experience but don't have the minimum qualifications needed for continuing education courses available.

Our challenge in the information field today should be to use continuing education as a means of identifying the training needs, and organising programmes to answer those particular environmental needs for development. It is important to note that learning is normally deliberate, requires farsightedness and requires ability to assess and adjust accordingly to environmental and political factors. All in all it must be planned and conducted carefully in order to achieve worthwhile results.

CONTINUING EDUCATION EFFORTS

The assessment of training needs and opportunities, apart from financial and human resources is application of continuing education programmes, governed by the level of education of an individual at the different levels of library information training. Secondly, the growing strength and importance of continuing education to individuals is related to the failure of the general staff development programmes of various institutions due to lack of funds. Let us relate the above observation to a generalised example.

At establishment most institutions mentioned earlier on had many training opportunities for all staff especially librarians. The training policy demanded that everybody be trained with the objective of developing him to fit in his job and as a result maintain the best brains in service.

By the late 70s because uncertain political trends the donor countries withdrew the fellowships and training opportunities. So the staff development programmes became conditional upon availability of local funding which in most cases was not available. So these days continuing education courses outside Uganda would be available only if there was sponsorship attached.

Many institutions with the library information component have suffered in this way. The only continuing education opportunities are generally outside Uganda. This means that there is a lot of strain on officers in these institutions to monitor and create opportunities for their advancement. Success depends on how one fairs as a leader, how many contacts one has and how well placed one is. This inevitably provides for development of only given category of people. Generally the lower cadres never get any recognisable training.

There are many disadvantages of relying on training courses which originate outside the country. First, there is no guarantee that the information about the training programme will come early enough to facilitate choosing of appropriate candidates. Secondly, in Uganda today, there is a lot of job mobility. Therefore, if you trained an individual outside, it is possible he may not produce that much of multiplier effect. It would not be as big as when you trained 20 people locally. For Uganda this would be more preferable especially after so many years of turmoil.

Despite the troubled times in Uganda, continuing education efforts for information personnel is traceable. Since 1975, there have been at least 9 major continuing education attempts of seminar/workshop type. These have been shared between DSE, British Council, Uganda Library Association and EASL. EASL singly or in conjunction with other organisations has also organised other functions which have enabled librarians and information workers to learn, share, exchange and compare notes on a variety of issues affecting library and information profession. As said above the number of functions is very small in relationship to a given period of 15 years.

Let us look at the major seminars and functions that have taken place and use them to make some observation about continuing education in Uganda:

Name of Course	Organised By	Year
Four Week Documentation Technique	UNESCO/EASL	1975
Training Course for School Librarians	EASL	1976
Course for Library Assistants	DSE/EASL	1979
Seminar on the Role of Information in *Rehabilitation, Reconstruction and* Development of Uganda	ULA	1982
Library Science Course	British Council	1984
British Council Seminar for Book Presentation Programme	British Council	1985
Project Planning and Implementation for Librarians	BLB	1986
Role of Library and Information in Rebuilding Uganda	ULA	1987
Library Automation	EASL	1988

It will be observed that for a period of 15 years on the local scene not less than 9 functions were held. This definitely is quite unsufficient to take care of Uganda's library and information personnel needs. First of all in the same period we have had the greatest manpower turnover and there has been a need to prepare personnel to take over functions for which they had not previously been prepared. We also note that information field is very dynamic and that therefore an average of one course every two years is not enough. The above observations goes ahead to prove that most librarians notwithstanding the fact that many go out of Uganda for courses and seminars, are not sufficiently exposed to training especially after job placement. Simply because avenues of exposure are not many.

Looking at the courses, who they were geared to, and a brief survey of content, the following revelations can be seen:

(a) that none of the courses or seminars were for library assistants without any qualifications;

(b) that only one course was organised for senior library assistants and that for 11 years now nothing else has been done for them;

(c) ULA seminars have been very general. This may be explained by the fact that the Association is weak financially so when it organises a course, it is taken as golden chance to invite everybody to participate. The problem of organising courses for non-homogeneous audiences is difficult and in many cases never achieve desired results. There is a high risk of turning a seminar or training programmes into a talking shop;

(d) all courses were entities in themselves, there was no follow up and there is a big time gap between each. Yet as we are aware things in this country change very fast. Many things are normally overtaken by events.

From the observations, one can argue that we can no longer afford the luxury of attending a course once every 2 years. Changes are many, and we need to be continually trained if we are to plan and manage information services better. It should be noted also that training should be geared towards results, performance improvements and acquisition of new ideas and skills. This means a system of continual identification evaluation of needs and usefulness of programmes must be put in place to monitor the value of training.

ACTION PLAN

From the issues raised in this paper, there are a number of possible actions which can be taken to improve the situation but most are enshrined in:

(a) The formation or revival of activities of an organ like "Council for Library Training in Uganda" to initiate policy, coordinate, monitor and advise on implementation of training programmes under the auspices of EASL and ULA.

(b) As an immediate measure request DSE in conjunction with EASL and any other competent bodies conduct a continuing education needs assessment survey for Uganda with a view to establish the extent of training needed and in which fields.

(c) On completion of the survey launch a crash training programmes at the various levels and categories of people including the so called 'untrainable' to acceptable standards.

(d) Seek to introduce in conjunction with DSE and/or other organisation programmes like: "Introduction to Librarianship and Documentation" and "Improvement of effectiveness of small libraries" or programmes similar in line with those run at the University of Botswana Library School.

It will be noted here that East Africa and Uganda in particular has not benefitted much from regional training programmes. In Uganda, we are saying 15 years have gone by and nothing has happened. May we also try to catch up with interest of the continent. By organising the courses here there will be higher multiplier effect.

(e) Seek to continue benefitting from the regular training programmes organised here and abroad.

But the fact that we are asking for assistance should not make us relax. Together, the training institutions EASL, MTAC, and ITEK and Public Libraries Board could organise programmes on self help basis. It is true we lack funds but we cannot begin from nowhere. The desire should be to lessen dependence on outside training, it is also one way in which we shall ensure the development of library and information infrastructure with our needs and aspiration taken care of.

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THE CASE FOR INFORMATION FOR SCIENCE AND TECHNOLOGY

by Isaac M.N. Kigongo-Bukenya

INTRODUCTION

Jacques Tocatlian contributing to the discussion: Information for Development in the 1980's argued that development in third world countries is exacerbated by the lack of adequate information relevant to national needs and objectives and by the inability of many decision makers to maks effective use of such information as is available[1]. Without relevent information, countries cannot choose the best courses of action in terms of their own national interests. If Information systems and services were to play an effective role in the solution of development problems, they must be able to offer alternative solutions for these problems.

In order to achieve the above, Unesco within its General Information Programme, seeks to develop a strategy that will foster the development of a National Information System and Services operated by qualified staff and that will not only facilitate the flow of information but also increase national capabilities for innovative development, for activity, and for making the optimum use of local and international information resources. Such a national capability to manage its own resources is of prime importance for any country wishing to achieve and maintain real independance[2]. Theme 1/03 - Development of Information Infrastructures - has as its principal activities the establishment of scientific and technological information services for social and economic development, access, availability and use of information[3].

Aspiring to fall in line with the international trends in Library and Information Services, Uganda has taken appropriate commendable steps. In 1986 a National Information Agency Advisory Committee (NIAAC) was set up and charged with the responsibility of advising the government of Uganda on:

(a) Establishment of NATIS through establishing legislation, and

(b) Acceptance, adoption and implementation of National Information Policy (NIP).

For fairness sake the NIAAC must be congratulated for its obvious success which include:

- The realisation of the Neelameghan Consultancy Mission to establish the status quo of LIS in Uganda, and hold consultative meetings to identify and agree on policy matters.
- To compile a project proposal document which was presented to the 25th Session of the General Conference of Unesco in October, 1989.
- The drafting and forwarding to Cabinet of a NATIS PROPOSAL which we learnt on Saturday that it has been approved by Cabinet.

The Seminar could not have come at an opportune time as this when detailed discussions and views should be contributed towards the strategies of achieving a prosperous Natis implementation. This is advantageous because through joint consultations we can avoid the pitfalls of the pioneers in such ventures.

PARAMETERS OF INFORMATION FOR SCIENCE AND TECHNOLOGY

The terms information, science and technology are over familiar to the misfortune of misuse sometimes. This being the case one ought to give brief definition of these terms used in the context of this paper.

"Information", is a knowledge/educational raw material, which if and when acquired and utilised properly should contribute to development. Marshall Grawford[4] refers to information as a "valuable commodity which is being created, stored, and sold and re-sold". Tocatlian agress with Marshall when he refers to "information as Society's collective memory which should be made available to all"[5]. Websters Third New International Dictionary of English Language ties the meaning of commodity and the process. It defines information as: "The process by which the form of an object of knowledge is influenced upon a competent mind so as to bring the state of knowing"[6].

It must be qualified that information like any other asset is useless unless utilised purposely. This presupposes not only acquisition, but organisation and retrieval of information for use by the end users. But the transfer of information and its effective utilisation is checked by obstacles which the author also came to grips with during the process of writing this paper. Such obstacles are many and could be identified according to the stages of information transfer.

Obstacles in the way of access to information include inadequate bibliographic control, lack of financial resources required for access to foreign based resources, lack of trained personnel, language barriers and the lack of referral services to identify and direct users to appropriate sources.

Obstacles to the availability of publications include lack of finding aids such as union catalogues; legal barriers such as copyright restrictions, political restrictions and restrictions based on national security, lack of funds to secure documents, lack of effective acqusition policies, lack of documentary depository policy.

There are also obstacles to the absorption and effective use of information which arise from the education level of the users; the poor presentation of information, language barriers and lack of translation facilities; lack of motivation to use information, lack of user training, lack of promotional information activities and in-effective performance of information services.

Science and technology play a major role in achieving social, political and economic goals of every country. They also have an impact on naturally every work, leisure, transportation, communication and welfare. In this context the significance of information resources are paramount and obvious. Such resources include collections of primary documents, bibliographic records, technical reports, data bases of on going research information on chemicals, toxic substance; measurements etc.

Furthermore, basic to the philosophy of UNISIST and now under PGI is the belief that the final goal of information services, the national information systems or required network is to serve the users of information who are an integral part and the final link in the information transfer chain. Unesco agrees in the followings words: "In every country, from the least developed to the most advanced, a certain amount of scientific and technological information locally

produced or of origin - is processed and stored in some fashion for the users unless these users know how to find relevant information available to them, the information "machinery" falls short of its main goal"[7].

At the national level, in policy making and planning, scientific information is required for official control and use in industries, it is needed for innovation. But the transfer of technology to African countries would be incomplete unless it were by the establishment of efficient documentation services. Therefore information centres for science and technology are urgently needed and with the explosion of scientific and technogical information and know how, Uganda urgently needs documentation centres where scientific and technological information is collected, evaluated, stored and retrieved according to modern methods. As E.N.O. Adimorah once stated: "Industries in Africa should not depend solely on information from their parent companies overseas. A two-way flow of information should be established. The internal social development of a country, its productivity, its international competitive capability, in fact its existance, depends on a large extent on how rapidly the findings of scientific research are made known and applied to the country's own socio-economic structures, manufacturing, etc."[8].

EFFORTS AT GLOBAL LEVEL

At the International Conference on Scientific Information (ICSI) held in Washington in 1958, P. Boquet proposed the setting up of an International Centre of Scientific Information[9] whose functions would be:

(a) To assure cooperation between documentation centres.

(b) To collect, classify, select, preserve, translate and reproduce scientific information by modern methods.

(c) Facilitate the dissemination of periodicals and selected monographs.

(d) To organise symposia and conferences and publish their reports.

(e) Carry out bibliographical work for scientific institutions etc.

(f) To organise research services for unifying and improving documentation methods.

A few examples of the result of this Conference are: the establishment of Chemical Astracts and the Medical Literature Analysis and Retrieval system (MEDLARS). Later in January 1967, a joint ICSU-Unesco working party met to define the broad outline and the guidelines leading to the formation of the World Science Information System (UNISIST).

A follow up was made in November, 1970 at the Seminar on Planning of National Scientific and Technical Information Structures which took place in Madrid (Spain). This was the turning point in developing scientific and technological information. The Seminar agreed that scientific and technological information systems could only be developed if they were given priority in national development plans and further realised that scientific and technological information constituted one of the absolutely necessary supporting foundation for social, economic, scientific, technical educational and cultural development, and that it is represented in its many expressions and at its many levels, a source of national wealth[10]. The need for the World Information System (UNISIST) was re-emphasised but with a caution that it should avoid slanting towards developed countries as the should increase the gap between the developed and developing countries.

Since then developments of Scientific and Technological Information Systems at national level have been witnessed. A case in point is the Scientific and Technological Information Centre of Argentina (CAICYT) which is under the National Council for Scientific and Technological Research. Its purpose is to conduct research and development programmes and provide services in the information field[11]. The Danish Technical Information Service (DTO) is another national effort already realised for the purpose of encouraging and helping industries to use existing knowledge in the best possible way, thus increasing productivity[12]. In the United States we have services like Smithsonian Science Information Exchange (SSIE) and the National Technical Information Service (NATIS) which among other things deal with on-going research information or technical reports[13]. In USSR, exists the State Science and Technology Information System. The system consists of information establishments dealing with a wide range of subjects which process certain types of scientific and technical documents and disseminate the results of their work to organisations and firms in all branches of the country. For example VINITI (the All-Union Institute of Scientific and Technical Information) is concerned with the processing of

scientific and technical literature published on the Soviet Union abroad and publishes a journal of abstracts on the basis of this work. On the other hand the All-Union Scientific and Technical Information Center is responsible for the registration of research and experimental design work, and informs interested organisations of its results[14]. The mobilisation and technological information systems and the popularisation of their services to all sectors of the economy account for the remarkable social, economic, scientific, etc., development in the above mentioned countries.

THE UGANDA SITUATION

On first impression one would be tempted to conclude that Uganda has no scientific and technological information services. But this is far from the truth. For instance: the National research Council was established in June, 1970, to guide and coordinate research throughout Uganda and ensure that limited funds available for Research are used to the best possible way to spearhead development and welfare of the people of Uganda. However, the problem has been the ineffectiveness of this organ in performing its functions particulary in as far ensuring adequate documentation of research information between specialists and administrators and the general public, and the initiation and encouragement of research.

Kawanda Research Station and Namulonge Cotton Research Station each has an information service, of some sort. In fact Kawanda Research Station acted as an AGRIS Focal Point at one time under which capacity it was charged to co-ordinate the Agricultural Information System in Uganda. Other Institutions like the Animal Research Centre, The Games and Fisheries Institute. Uganda Freshwater Fisheries Research Organisation, The Analytical Laboratory, Ministry of Health, Uganda Trypanosomiasis Research Organisation, Uganda Virus Research Institute, The Veterinary Faculty, Makerere Univerity and the Faculties of Slences and Technology, all have information services.

The problem, however, is lack of co-ordination between these centres which has led to too many ineffective services and also duplication of resources making information provision very expensive yet unsatisfactory. Mention should be made of the Uganda Polytechnic Library situated at Kyambogo which is the centre for higher technical education in Uganda and prepares

students for various certificates and diplomas in Civil Engineering and Building, Electrical Engineering, Industrial Ceramics, Mechanical Engineering, Telecommunications, Science and Mathematics[15]. The Polytechnic's Library houses the Uganda Technical Information Service (UTIS). Its membership include industrial firms and other profit making organisation, non-profit making organisation for example government departments, student members and other libraries offering reciprocal facilities and the five technical schools. The system offeres a photocopy service, accessions lists of new materials added to stock, advice and assistance in setting up a library within a member organisation, and an inter-library loan service. Unfortunately the service has tended to stagnate due to lack of foreign exchange that has affected importation of materials as well as the periodical subscriptions, lack of Ugandan publications, falling membership, poor internal and external communication and adequate funding.

The demand for science and technology information is on the increase in view of the expansion in the educational curriculum in general and in the science and technology sector in particular, in order to meet the research and information needs of the industrial, commercial and private sectors. Categories of users of the scientific and technological information in Uganda have been categorised viz:

Scientific specialists who create information as the basis upon which to build their own contribution. In this respect the individual scientist has to learn what is already existing, where it has appeared and how to where it has appeared and how to obtain the service material. On the other hand engineers need scientific and technological information as an aid to the interpretation of data, in the design of new equipment or to help solve technological problems. The Administrators, planners and policy makers need technical information repackaged in a different fashion to help them make decisions. Politicians also need a variety of information in order to understand the political census of a given technological decision.

Finally there is the non-technical user who needs scientific and technical information appropriately interpreted and made available in order to understand the society he lives in. Such information is interpreted and disseminated by newspapers, magazines, books, radio and TV etc.

WHAT NEXT?

While there exists scientific and technological information services in Uganda, these still leave much to be desired. Yet in order to cope up with the apparent future scientific and technological development, there must be evolved Science and Technology Information System. Fortunately the skeleton on which to enhance development exists. Priority should therefore be given to the adoption of a science and technological information policy within which planning and implementing development plans in these sectors should be built. Under NATIS should be an arm to ensure the development of scientific and technological information. The Uganda National Council for Science and Technology should act as the development focus of Uganda's Scientific and Technological Information Service. In the same way as the National Council for Scientific and Technological Research in Argentina under which CAICYT (The Scientific and Technological Centre of Argentina) has developed or like the Academy for Technical Sciences in Denmark under which the DTO (Danish Technical Information Service) has developed.

In addition to its original functions the Council for Science and Technology should undertake the following functions:

(a) The compilation and publication of the Union Catalogue of materials stocked by the scientific and technological libraries in Uganda. This is important as a means of locating documentary resources.

(b) Supply of copies through the reprography service and the information network to deal nationally and internationally with requests for copies of articles, reports, patents, standards, theses and other documents necessary for research, study, teaching, decision making and all types of professional activity.

(c) Translation Service: There is need for translating some documents into Swahili and other vernaculars particulary for the non-technical user.

(d) Service for the Selective Dissemination of Information for the scientific and technological organisations, so as to be kept abreast of documents in the appropriate fields.

(e) Interactive Retrieval Systems: This would pay attention to other applications of modern technology to the information field; computerisation has opened up vast new possibilities for instance, interrogation of different data-bases from remote terminals via telecommunications.

Other functions the Council should undertake, should include the education and training of the appropriate information personnel, promoting regional and international relations, compiling of the thesaurus of terms and disseminating research of the Uganda's Bureau of standards. Uganda has to enter the new technological crusade. Without doing so if would lag behind and adversely effected in its scientific and technological development.

At the end of the day, the real effective growth of scientific and technical information will depend on the governments attitude which should influence the adoption of the national policy, setting up the legal basis and providing the necessary resources. The Uganda Library Association in liasion with individual science and technical information services could mobilise support from the users to pressurise the government to realise its support for development of these services. Not an easy task but not an impossible one either but very vital if Uganda were to fall in line with the scientific and technological development Worldwide.

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INFORMATION FOR COMMERCE AND INDUSTRY

by Peter Songa and Catherine Namuwanga

In the complex world of business transactions, whether it is import or export business, the importance of current, reliable, timely and accurate information cannot be overemphasized. Informal channels alone cannot suffice nor can they form the major source of trade information.

It is for this reason that government ministries and other nongovernmental trade organisations have established trade information services to serve the needs of trade promotion organizations and others. But given the information explosion in general, and of business and commercial information in particular, merely having information is not enough. There must be a mechanism determining the type of information to acquire, its analysis and interpretation. This calls for human resources well - versed in the area of acquiring, processing, storing, retrieving and disseminating trade information within and outside the parent organization - the trade-promotion organisation. For instance, if one has to deal with local trade inquires and opportunities and to publicize our products, we need adequate documentation in the country. One should be having the essential basic reference materials which include trade and production statistics, industry studies, directories of exporters, economic year-books, appropriate legislation, or information relating to export inspection and certification, import operations, export licensing, forex control investment policies, buyers' guides on export products and tourist literature.

In Uganda, the Uganda Export Promotion Council and the Uganda National Chamber of Commerce and Industry are two organisations whose roles are export-promotion and development of Uganda's non-traditional exports, and development of Trade and Industry in Uganda, respectively, alongside the Ministries of Commerce and Industry and Technology.

The Act establishing the Council (1983) stipulates that the Council will carry out a wide range of macro-economic functions but all focussing on export promotion and development. To achieve these goals a dynamic approach will

be necessary to give the Council a catalytic role which will, interalia, endeavour to:

- understand national export needs and institutionalise practical trade mechanisms;
- document, store and disseminate trade information especially that pertaining to exports to all participants;
- constantly inspire government and exporters by offering technical advice on export trends, incentives as well as tendering advice for export policy formulation;
- train personnel of the Council, other service institutions and exporters in modern export techniques and
- act as national export salesmen and public relation officers.

The Chamber of Commerce was also established in 1988 under the Companies Act with objectives to:

- promote, co-ordinate and protect trade, commercial and industrial interests of Uganda and of the members;
- establish, maintain, organise, manage and finance trade and industrial exhibitions and displays either on its own or in participation with other persons or organisations;
- promote, support, or oppose legislative or other measures, which affect commercial or industrial interest;
- secure uniformity in commercial usages and customs;
- formulate, uphold and implement a code of business ethics;
- collect and disseminate statistical and other information relating to trade, commerce, industry and shipping;
- provide facilities for inquiry and research studies into commercial and industrial matters;

- Issue certificates of origins for exports and several other functions all relating to trade and industrial development.

To put these roles into effect it becomes imperative to build an effective and efficient trade information service, which must be characterised by currency, commercial relevance, and timeliness. Along this line the Uganda Export Promotion Council has established a Documentation Centre - Trade Information Service (TIS) - whose major role is dissemination of information to its users. Its routine activities include helping exporters and oversees buyers of Uganda's export products by providing advisory, inquiry-reply services and documentation and library services to exporters. This centre is also designated node for the PTA Trade Information Network (TINET).

Its counterpart, the Chamber, is in the process of establishing an information centre to provide services to commercial and industrial communities although in the meantime it is utilising the services of the Council's library. In addition, the parent Ministries of Commerce and Industry and Technology have established libraries to furnish users with trade literature. The Ministry of Industry and Technology, for example, produces a Directory of Manufacturing Establishments in Uganda. Mention has been made of the pre-requisits for an efficient trade information service, but how and where these trade information centres can get the current information - i.e. the acqusition process is the issue now to be addressed.

There are several sources where information for commerce and industry can be obtained. This information is found in various forms of publications, newspapers, periodicals and books. These sources are Financial and Trade Newspapers, Economic and Trade Reviews, Bank Reports, Chambers of Commerce Publications, Industrial Associations Publications, Marketing Boards or State Trading Corporations, Trade Promotion Organisations, International Organisations, Company Catalogues and Official Gazettes.

Such sources can be obtained through subscriptions, donations, exchanges and to some extent on loan basis from the above-mentioned organisations, and the information can be classified into the following categories: Trade Promotion, Marketing, Foreign Trade Regulations, Economic Conditions, International Co-operation, Financing, Management and International Trade.

However, as is characteristic of LDC's there is a major problem of obtaining current, reliable and accurate trade information, the reason being that most of the information received by the TIS is outdated. There is heavy reliance on donor organisations, and because of distances and poor communications net-work, such information is often late in arriving, and even the issues may still be out-dated e.g. an Exporters and Importers Directory of 1985 being donated in 1990.

Inadequate funding is another factor hindering information currency. In order to receive some required information the centres need funds for subscriptions, membership fees, actual purchases of documents and other library equipment.

However, there are ways in which these problems could be overcome. Those organisations with inadequate funding should devise methods by which they can generate funds e.g. charging for the trade information services and selling publications in order to promote their information needs. Information-sharing within and outside the nation for those organisations concerned is one way of reducing costs.

As the basic principle guiding an information network is the linking of organisations which have agreed, and committed themselves, to share resources and work together for a common goal, it is fundamental to establish the "least common denominator" for the participating organisations. Hence it will be necessary to agree upon a number of standards and practices relating to information collection, organsation, dissemination and management.

The more information sources available to the information manager, the greater the chances are for a successful national information service as long as the principle of selectivity is applied to these sources.

As it is in this country, there exists a volume of trade information scattered in different centres - e.g. trade development offices. It would be an advantage to centralize this volume of selective information and pool it into one location as an inventory for efficiency in channelling most inquiries. In-as-much as the above is possible, there would still be required a lot of effort to set up a national information service. This would entail both the recognition of information as a major trade and industrial promotion mechanism and establishment of high

levels of interdepartmental co-operation and communication embracing programmes and administrative supports and also providing a supportive working environment at the parent organisation level.

NETWORKING

by Phenny K. Birungi

I have been asked to talk about networking and as you are aware you cannot talk about networking without talking about co-ordination because I believe you cannot have networking without co-ordination.

We are gathered here to consider the development of a National Information and Documentation Network in Uganda. In my opinion we are tackling a very important aspect of information and the best starting point is to start by looking at the present state of information services in the country which, I hope, will highlight the need for co-ordination and networking.

With the exception of the National Library, we have various elements of information services, however rudimentary. The Public Libraries Board was established by Public Libraries Act 1964 charged with the responsibility to "establish, equip, manage and maintain libraries in Uganda." This wide mandate has been interpreted to mean public libraries rather than all libraries in the country. At its inception the Board inherited 11 libraries from the East African Literature Bureau and from some Muncipal Councils. As of now the Board runs 19 public libraries in various towns of the country. Presently there are no rural library or mobile library services. The Board falls under the Ministry of Local Government.

With regard to academic libraries, which fall under the Ministry of Education, Makerere University Library Service is the leading academic library service in the country. Makerere University has its origins in the 1920s and was able until about 1975 to develop the best academic library service in East and Central Africa. Apart from the main University Library, the University runs the Albert Cook Medical Library at Mulago Teaching Hospital, the Faculty of Education Library, Kabanyolo University Farm Library specializing in agriculture and the Makerere Institute of Social Research Library.

In addition there are departmental libraries of varying sizes. The Makerere University Main Library is one of the two Legal Deposit Libraries in the country.

Recently the Islamic University in Uganda based in Mbale and the Mbarara University of Science and Technology were established and are setting up University Libraries.

While still on the subject of academic libraries mention must be made of libraries under other institutions of higher learning. These include libraries of Institute of Teacher Education, Uganda Polytechnic, Uganda College of Business Studies, National Teacher Colleges, Uganda Technical Colleges and Uganda Colleges of Commerce. There are also libraries under Secondary Schools. All these fall under the Ministry of Education.

The National Documentation Centre was set up by the National Documentation Centre Act 1969 and is attached to the Instutute of Public Ademinstration. As can be expected the centre was meant to document information in the domain of public administration and hence the need to extend its scope and mandate to handle documentation in the fields of social and economic development. For various reasons which I do not have the time to go into, the activities of the documentation centre are still limited.

As regards special libraries, these fall under institutions they are meant to serve. These include banks, parastatal organizations and research institutions under Government Ministries. Finally we have the National Archives at Entebbe which falls under the Office of the President.

As can be seen from above all these information services fall under different Ministries and institutions. This I am sure, is the situation in countries all over the world and indeed it should not be otherwise. However, what concerns me is that there is not co-ordination of all these information services. In the absence of co-ordination or networking it can be safely assumed that there is duplication of effort and resources in this un-coordinated running of information services.

In Uganda the need for co-ordination of information services was felt as far back as 1973 with the holding of the Conference on Development of Documentation and Information Networks in Eastern Africa held in Nairobi/Kenya from 24th July to 1st August 1973. The Conference was organized by the East African Academy and DSE and sponsored by UNESCO. Uganda was represented at that Conference. As a result of this Conference the Advisory Committee on Documentation and Information Network was established to

advise on the implementation of the Documentation Act 1969 and generally to deal with other matters relating to information.

In 1974 Uganda participated in the Intergovernmental Conference on the Planning of National Documentation, Library and Archives Infrastructures organized by UNESCO from 23 - 27 September 1974. At this Conference the concept of National Information System (NATIS) was adopted and the concept of coordinated information services gained further momentum.

In October 1986 UNESCO requested Uganda Government to set up a committee to formulate a National Information Policy and set up National Information Agency. As a result the National Information Agency Advisory Committee (NIAAC) was set up. The Committee, amongst other things, requested UNESCO to send a consultancy mission to Uganda to assist in formulation of a National Information Policy and set mechanism for implementing the policy on information. The consultancy mission arrived in the country in September 1989 and a seminar was organized at which a draft document on National Information Policy and the institutional framework for implementing that policy was formulated.

I have given a brief summary of efforts so far undertaken to co-ordinate information services. This seminar therefore comes at an opportune moment in the development of our information services and we should come out with concret suggestions to put into action measures aimed at co-ordination and networking.

Let us ask ourselves why co-ordination is necessary. I have already said above that co-ordination removes duplication of effort and resources. I want to state further that co-ordination helps us to look at the information services in the country and therefore map out a course of action for future developments. We are therefore forced to look at present services and how they can be developed to meet present and future user needs. Other reasons which make co-ordination and networking imperative can be summarized as follows:

(a) To enable information services better meet the needs of their clientele by gaining wider access to information resources outside and inside the individual services. We are here talking of maximization of resources inside the information service, and inside and outside the country.

(b) The term "information explosion" is already almost a cliche but a reality we have to cope with. We can only cope by co-operative and not by individual effort since co-operation and networking entail pooling of material resources and human skills.

(c) The utilization of technology that would be beyond the reach of individual units but becomes possible through the sharing of resources.

(d) Attract national and external assistance through provision of better services that result from rationalization and pooling of resources and hence provision of improved services.

As a general rule co-operation in information services, and indeed in other types of services, is more easily talked of than realized because it takes real effort to co-operate. For co-operation and networking to take place certain minimum conditions must be obtained:

(a) There should be a National Information Policy that provides the framework to facilitate co-operation. The National Information Policy would generally recognize the need for co-operation as a way of optimal utilization of information resources. I am aware that co-operation between various information services and units can take place in the absence of a National Information Policy. However, if there was a National Information Policy such co-operation would be enhanced.

(b) There must be a felt need on the part of individual units to co-operate for mutual benefit. The felt need must be backed by willingness to co-operate. This last point seems obvious but it is important to be borne in mind and not to be taken for granted.

(c) The benefits from co-operation must be tangible because co-operation involves extra work and inconveniences on the part of co-operating units. This point ties up with the willingness to co-operate and should not be viewed in terms of heads of institutions but must take into account all staff who make such co-operative arrangements work. It is important that all staff concerned must be convinced that such arrangements are necessary and mutually beneficial.

(d) Co-operation achieves best results when there is a co-ordinating body accepted and belonging to those who are supposed to co-operate. The various institutions and units must feel that such a body is necessary, serves their interest and is not imposed on them from above. Such a body can function effectively with the blessing, support and co-operation of information services.

(e) A good communication system is a pre-requisite because without reasonable postal services, telecommunications and transport services co-operation is doomed to failure.

(f) There must be resources to share, backed up by Union Catalogues, union lists of serial holdings and reprographic equipment.

Hitherto I have been talking of co-operation and networking in general and I now wish to specifically talk of networking. However, before I do so, let me reiterate that networking presupposes co-operation and that there cannot be networking without co-operation. Networking is therefore a particular and practical aspect of information services co-operating in providing better and varied information services to their users.

The Concise Oxford Dictionary of Current English defines "network" as an "arrangement with intersecting lines and interstices recalling those of net, complex system of railways, rivers, canals, etc." The same dictionary goes on to define word "net" (which is the root word of network) as a transitive verb as follows "cover, confine, catch with net(s)". The two definitions should be able to convey to us the concept and purpose of an information network serving as a net to "cover, confine and catch with nets" information in our various information services. I find this a usefuld and apt analogy. The traditional areas of co-operation and networking are:

- acqusition
- cataloguing
- exchange of materials
- interloan
- staff development.

I do not intend to delve into them because most of you must have done these in your library school. The benefits to be derived from such co-operative

arrangement have been listed above and will probably be dealt with elsewhere in this seminar. I want to turn my attention to possible networks that could be set up in the information services in the country. Networking must be linked to the National Information Policy. In turn when we are thinking of National Information Policy we must remember that such a policy must be based on national priorities, legislation, national resources both material and human and administrative arrangements of the country.

The starting point is the co-ordinating body that would act as a clearing body for facilitating networking. Such a body should preferably be empowered by legislation to carry out such responsibility and should be representative of the various information interests. This much said I must hasten to add that the establishment of a National Library of Uganda would help the work of the co-ordinating body at the operational level. The National Library would facilitate this work by the creation of a National Union Catalogue, Union Lists of Serial Holdings and by the production of the National Bibliography. These tools are necessary for networking.

The next consideration is to see areas that could be grouped into networks and sub-networks that would have their apex at the National Library. While thinking of these networks we must bear in mind national priorities so that the networks we create serve vital national interest and in turn attract the necessary resources from policy makers.

Agriculture is the backbone of the country's economy and an Agricultural Information System is a priority. A start has been made to establish an Agricultural Information Service at Kawanda Agricultural Research Station. This could form the focal point for information on agriculture linking and lending support to other agriculture information units especially those attached to research stations. This network would have an element of agricultural extension information for farmers. It is important that agricultural information should be made available not only to agriculture specialists but also, and more importantly, to farmers.

Public health and especially primary health care is another national priority. There is therefore need for a network of public health information service. Albert Cook Medical Library attached to Makerere University medical school could serve as a focal point for this service. The information units of various medical

training institutions and health care units would contribute information to and receive information from the focal point. Other information system one can think of are higher education, commerce and industry, manpower development, economic management and development, natural resources, and the environmental protection. Mention must be made of library services for the general public. The present arrangement whereby stock of Centre for Continuing Education, Makerere University is managed by Public Libraries Board upcountry could be extended to cover other areas such as adult education and literacy.

Each information system with its various units and subsystems would have horizontal and vertical linkages in the national information system. For example the University information services would have linkages with agricultural information service as well as economic development information system.

We would not start with all the networks proposed above. A few would be a good beginning and the experience gained from them could help in the establishment of others.

Finally, what are the prospects for networking? I think the prospects are good. A National Information Policy has been formulated, a number of information systems are being set up in agriculture, industry, economic planning and management. More computers are being required for information handling and postal and telephone services are being improved. Roads are being constructed and road transport shows signs of improvement. All these augur well with networking. What is needed is imagination and boldness on the part of information specialists to put their proposals forcefully to policy makers so that things can start moving. There are many competing priorities for limited national resources and we cannot sit back in the belief that we serve a noble cause which policy makers must be aware of. We have a cause and we have to be agressive in putting forward our cause.

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DEVELOPING AN INFORMATION AND DOCUMENTATION NETWORK: BASIC CONSIDERATIONS AND THE ROLE OF THE N.D.C. IN SUDAN

by Cecile Wesley

An information network may be defined as "an organized grouping of information centers and services for the purpose of transferring or promoting the transfer of information which need not make use of information necessarily, but many information management and dissemination functions can benefit greatly from the use of appropriate information technologies. Computer networks are a type of networks where a group of computers are physically linked in order to exchange data."[1)]

Networks are based on cooperation, shared responsibility and joint action to maximize accessibility and use of available resources, to increase the potential for service and to achieve objectives unattainable by any one centre alone.

Rationale for Developing Networks

With the expanding volume of publications and the increasing demands of users, no library or documentation centre, however powerful, can ever hope to become self-sufficient, neither can it function in isolation. Libraries and documentation centers are likely to consider coming together in a collaborative network if (a) there is significant overlap in their activities and the interests of their user groups (b) the levels of activity in the participating centers are comparable (c) collaboration is administratively possible (d) the benefits of collaboration are mutual and are visibly in excess of its costs.

Networks are needed to provide means for greater cooperation and contacts which facilitate mobilization of resources for the benefit of each unit. Networks provide mutual support to participating units, reducing unnecessary duplication, meeting the varied and complex information needs of users, and increasing the efficiency and effectiveness of information activities.

The most positive aspect of networking systems is that they build up national capacity for information provision and utilization in place of the isolated even competing and duplicate stores of documents.

Objectives of an Information Network

(a) Improving and developing cooperation among partners of the network.
(b) Facilitating exchange of information, ideas, publications and experiences.
(c) Sharing and utilizing existing information resources.
(d) Working towards a coordinated policy for long range development.
(e) Developing compatible machine systems.
(f) Providing rapid communication systems among network members.

These objectives may be fulfilled by activities such as:

- technical meetings, discussions and workshops.
- visits and staff exchanges.
- courses, seminars and group training sessions.
- issuing publications such as directories and newsletters.
- cooperation in the identification, design and execution of projects.
  - joint studies of mutual importance.

Contribution of NDC to Network Development

Sudan does not yet have a national information network so coordinated as to reinforce and enhance the activities of individual units. Nevertheless, the National Documentation Centre (NDC) has undertaken many activities that could contribute towards developing a network of libraries and documentation centers. These activities inculude:

(a) Compiling a union list of periodicals.

(b) carrying out surveys of libraries, documentation and information centers.

(c) surveying databases, files and collections of factual, numeric and bibliographic information.

(d) holding several one-day conferences for finding out users' needs and for promoting the use of information services.

Recently, NDC held two network meetings for libraries and documentation units which have a potential for contributing to and making use of the products and services of the national databases created in the framework of NDC activities. These include collecting and disseminating information on publications relating to Sudan as well as on current research with the objectives of utilizing results of research, avoiding unnecessary duplication of research efforts, identifying research trends, and facilitating communication among researchers, managers of research, planners and funding agencies. To achieve this NDC has created national databases and issues:

- "Sudan Science Abstracts" (SSA) which identifies, abstracts and indexes research reports, studies, dissertations and journal articles related to Sudan generated in or outside the country. Since August 1988 a bibliographic database has been created and used to produce the last two issues of SSA.

- "The National Register of Current Research" which gives information and statistical analysis of on-going research activities carried in or about the Sudan. Similarly, a database has been created and used to produce the last volume of the Register. Databases have also been created for scientific institutions and for specialists.

The National Documentation Centre is also the focal point for international and regional information networks providing the link between users in the Sudan and information sources and data banks in other parts of the world. NDC is the focal point for INFOTERRA (the International Environmental Information System), PADIS (Pan African Development Information System) and CEHA (Centre for Environmental Health Activities) network.

The following activities have been indentified as priority areas for collaborative action of network partners:

- Surveying the availability and location of specialized information resources, manpower, services, equipment and other facilities.

- Collaborative development of resources.

- Preparing an updated edition of the union catalog of journal holdings.

Areas in which NDC could contribute to network units

1. Offering advice and assistance regarding micro-computers and software used by the Centre.
2. Searching databases available to the Centre.
3. Offering copies of publications on microfiche.
4. Making available information from international information sources through contacting regional and international networks for which NDC is the focal point (INFOTERRA, PADIS and CEHA network).
5. Offering the required training to enable participation in the national databases developed by the Centre.

Areas of contribution by network partners

1. Offering information relating to studies, reports, dissertations and conference papers, relating to the national databases created by NDC, in their areas of specialization as well as those produced by researchers of their parent organization.
2. Providing NDC with copies of those studies when feasible.
3. Acting as a link between NDC and researchers in their respective institutions taking responsibility for completing forms for institutions and specialists needed for preparing the national data bases created by NDC.
4. Facilitating microfilming of documents (available only in single copies at participating units) which are relevant to the national databases.
5. Publicizing and utilizing INFOTERRA (International Environmental Information System) network resources within their institutions.

Basic considerations for developing networks

The following are basic considerations for developing networks:

(a) Structure

Goodwill, important as it is, is not sufficient for the development of networks. A formal structure, showing responsibilities as well as required support at the national level needs to be created. The key networking national institution, taking a leadership role, acts as a directing machanism to coordinate the resources and activities into an effective and dynamic whole designed to achieve meaningful common objectives. Libraries and documentation centres best fitted to join and contribute to the network are identified as network components and nodes.

National subject and regional resource centers may be explored and designated on the basis of their size, location, strength of their resources, receiving a substantial and continuing financial support, the presence of trained, qualified professionals on the staff and willingness to provide the required service nationwide. A network committee, composed of heads of libraries and documentation centers, assists the national institution in planning, realization and evaluation of the network.

(b) Planning:

Identification of priorities for implementing cooperative programs on the basis of surveying the resources of network components and identifying their information needs, taking into account; existing problems; programs which may have greatest impact; areas where the prospects of success are greatest; and unfilled information needs and services.

(c) Formal agreements:

Assignment of responsibilities for specific activities through formal agreements with participating centers which make definite commitment whereby materials, information and services, provided by network organizations are made available to all potential users.

(d) Linkages and communication:

Establishment of linkages, communications and contacts between components of the national network so as to minimize possible friction and ambiguities. Lawson believes that communications have to be established

between librarians before communications between libraries can be effective ... It is librarians who must abandon their narrow institutional interests and loyalties in order to discover a purpose that embraces the whole community[2]. A serious obstacle to networking according to Parker is "in the uncooperative behaviour of the librarians themselves, often due to personal or professional rivalries based in a sense of insecurity arising from real or imagined threats to employment or status associated with the idea of cooperation"[3]. Linkages between the national network and regional and international networks should also be established.

(e) Resources:

Commitment of governments and relevant organizations to secure additional resources in terms of continued financial support and professional staff to carry out network programs.

(f) Standards:

Agreement on using common standards for bibliographic control and for hardware and software to ensure compatibility and convertibility which would facilitate bibliographical communication.

(g) Mutual benefits:

Mutual benefits from the network are a binding factor. According to Martin "the sustaining power of a joint project that I enter with you is that we each put something in, thus feeling that the enterprise is our own, and we each get something out, thus feeling that it is worth the effort[4].

(h) Legislation:

Harrison asserts that coordination and cooperation (which are basic to networks)... cannot be left to whims of librarians and government officers. The state has the responsibility to ensure a fully coordinated library service and the required level of cooperation by means of specific and adequate legislation[5].

Evaluation of network activities

Network activities, like other activities, need continuous assessment. Evaluation procedures should be built into the planning process and should be conducted systematically so that the programs be influenced as they go along. For evaluation of programs and activities, Dougherty lists the following *criteria*:

- Has a more effective organizatinal pattern emerged?
- Are professional and nonprofessional staff functioning more effectively?
- Has access to materials been improved?
- Has collection and service policies been revised to reflect the new program?
- Have library procedures been streamlined?
- Have staff been retrained to make maximum advantage of programs?
- Have operational costs been stabilized, or better reduced, or
- Have new services been introduced or existing services expanded?

Dougherty claims that a successful cooperative program must produce measurable changes in most of the categories listed above[6].

Summary

In summing up, the following are some of the ways for ensuring optimum cooperation and interaction among components of the network:

1. Realizing that partnership in the network entails that each unit has something useful to give to others.

2. Basing the development of the network on a two-way relationship of sharing responsibility as well as access to publications and various information services.

3. Sustaining interest through mutual gains to all components of the network.

4. Starting the network with a small number of cooperating centers which offer to cooperate on a formal basis to accomplish specific services and tasks.

5. Delineating the objectives of the network and the joint action necessary to achieve those objectives.

6. Involving cooperating centers (through the network committee) in preparation of a written action program (work plan) and getting their commitment for its implmentation.

7. Enhancing the effectiveness of cooperation through formalization of relationships which also allow for flexibility and experimentation.

8. Securing adequate resources, administrative capability and efficient communications to ensure effective cooperation.

9. Provision for legal responsibility for the realization of the network.

10. Organizing training activities needed to implement network programs and procedures adopted for the network.

11. Commitment to network requirements, standards, procedures, policies and activities.

12. The key to the success of networks lies in the participants themselves, in the support they provide, in their willingness to surrender a certain amount of self sufficiency, and in their determination to make the program suceed.

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RECOMMENDATIONS

by Seminar Participants

Preamble

As far back as 1974, Uganda felt the need to coordinate its information services to remove the duplication of efforts and resources and to make these services more effective. The Advisory Committee on Documentation and Information Network was set up to advise the Government to achieve this end.

In 1986 the Government established the National Information Agency Advisory Committee (NIAAC) to advise on the formulation of National Information Policy and an institutional frame-work for the establishment of a National Information System and Services. As a result of the work of this Committee, the Government requested UNESCO to send a consultancy mission to advise the Government on the above activities. The UNESCO Consultancy Mission was sent to Uganda in September 1989 and a Seminar on the establishment of a National Information System and Services was held in Kampala between the 11th and 15th September 1989. The Seminar formulated a National Information Policy for Uganda and recommended the establishment of a National Information System and Services.

In order to concretise the National Information System and Services efforts, East African School of Librarianship with the sponsorship of the German Foundation for International Development (DSE) organised a Seminar on the Development of a National Information and Documentation Network for Uganda from the 1st - 9th March, 1990. This Seminar was attended by external participants from the Federal Republic of Germany, Sudan, Kenya and the United Nations Economic Commission for Africa (UNECA). The Ugandan participants consisted of policy makers and planners as well as information experts representing Government ministries and parastatals, university institutions, public libraries, banking and research institutions and observers from related institutions.

The Seminar participants expressed their appreciation to the German Foundation for International Development (DSE) for sponsoring the Seminar

and they conveyed sincere thanks to DSE through their representative. The Seminar participants expressed appreciation to the Government of Uganda for the continued support given to the library and information science profession, and expressed special thanks to the Rt. Hon. Prime Minister for formally opening the Seminar, and to the representative of the Hon. Minister for Local Government for formally closing this Seminar.

Recommendations

1. The Seminar recommends to the Government of Uganda that whenever an external consultant in the library & information professions is engaged there should be a local counterpart attached.

2. The Seminar calls upon the Government to ratify the Universal Copyright Convention of 1952 as revised in 1972 in Paris.

3. The Seminar urges the Ministry of Planning & Economic Development to accelerate the establishment and functioning of the designated national focal point for Pan-African Development Information System (PADIS) under the United Nations Economic Commission for Africa.

4. The Seminar notes with appreciation the efforts so far made by the Uganda Government in collaboration with Food and Agricultural Organisation (FAO) to establish an Agricultural Information System based at Kawanda Agricultural Research Station and urges the Government to extend this information system to all parts of the country so that the information from the system is made available to farmers.

5. The Seminar stresses the importance of National Archives in the preservation & management of public records for official reference and research, and urges the government to:

   a) enact the necessary legislations to govern the acquisition, disposal, preservation and use of public records, and

   b) urgently provide suitable and adequate physical facilities.

6. The Seminar recommends that the Inter-University Council for East Africa establishes a Subject Committee for Library and Information Sciences for the exchange of information and cooperation in training programmes for library and information professionals.

7. Recognising the importance of oral literature and cultural heritage & folklore in national development, the Seminar urges the Government to establish a mechanism for the recording, preservation and dissemination of this valuable information.

8. Recognising the role of information in rural development the seminiar urges the Government of Uganda to establish information centres in the rural areas so as to publicise the Government's development policies, and also to satisfy the information needs in agriculture, health, small-scale industries etc.

9. The Seminar urges the Ministry of Health to establish a National Health Information System for Uganda on the lines recommended by WHO and similar to the Agricultural Information Service recently established at Kawanda.

10. The Seminar strongly urges the Makerere University Senate and Council to provide avenues for the diploma holders of the EASL to enter the Bachelor of Library and Information Science programme.

11. The Seminar urges the Ministry of Education to strengthen the teaching of library and information skills in Teacher Training Colleges and Schools and to establish school libraries where they do not exist.

12. The Seminar urges the Ministry of Public Service and Cabinet Affairs (currently housing the Interim Secretariate for NATIS) to commission the compilation of a complete library and information services inventory as a pre-requisite to the establishment of the National Information System and Services.

13. The Seminar recommends that the Ministery of Information and Broadcasting be actively involved in the establishment and functioning of National Information System and Services.

ANNEX I

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ANNEX II

Seminar Programme

Thursday, March 1:

09:30 - 10:30	Official Opening Ceremony (Guest of Honour: The Rt. Hon. Dr. Samson B. Kiseka, Prime Minister of Uganda)
11:00 - 11:30	Registration
11:30 - 13:00	Paper 1: The NATIS Project (Miss A. Nakkazi)
14:30 - 16:30	Discussion of Paper 1 Discussion with Planners and Decision Makers

Friday, March 2:

09:00 - 10:30	Paper 2: Development Information Systems (Mr. F. Inganji)
11:00 - 12:30	PADIS Methodologies and Tools (Mr. F. Inganji)
14:30 - 16:00	Paper 3: Agricultural Information Systems (Mr. J. Mugasha)
16:00 - 17:00	Meeting of Organizing Committee

Saturday, March 3:

09:00 - 15:30	Visit to National Archives in Entebbe (incl. Lunch at Entebbe Gardens)

Sunday, March 4: Free

Monday, March 5:

09:00 - 11:00	Paper 4: I & D Network in Kenya (Mrs. D. Rosenberg)
11:30 - 13:00	Paper 5: Science & Technology Information (Mr. Kigongo-B.)
14:30 - 16:00	Paper 6: Information Resources Sharing (Mr. Ogwang-A.)

Tuesday, March 6:

09:00 - 11:00	Paper 7: Community Information (Mr. S.A.H. Abidi)
11:30 - 13:00	Paper 8: Health Information (Miss M. Musoke)
14:30 - 16:00	Paper 9: Continuing Education (Mr. Kakaire-M.)
20:00 - 22:00	Instructional Videos (Mr. L. Hüttemann)

Wednesday, March 7:

09:00 - 11:00	Paper 10: Communication (Mr. Okullu-M.)
11:30 - 13:00	Paper 11: Management Information for Education (Mr. Q. Khan)
14:30 - 15:30	Paper 12: Network of Institutions - Uganda (Mr. P. Birungi)
15:30 - 16:30	Presentation of DSE Activities (Mr. L. Hüttemann)
20:00 - 21:00	Instructional Videos (Mr. L. Hüttemann)

Thursday, March 8:

09:00 - 11:00	Paper 13: Commerce & Industry Information (Mr. P. Songa)
11:30 - 13:00	Paper 14: I & D Network in Sudan (Mrs. C. Wesley)
14:30 - 17:00	a) Visits to Libraries in Kampala
	b) Meeting of Recommendations Drafting Committee

Friday, March 9:

09:00 - 11:00	Presentation and Discussion of Recommendations
11:30 - 12:30	Continuation
14:00 - 15:00	Evaluation
15:30 - 16:30	Official Closing Ceremony
16:30 - 18:00	Closing Reception

Saturday, March 10:

09:00 - 11:00	Meeting of Organizing Committee

DSE IN BRIEF

The German Foundation for International Development (DSE) was set up by the Land and Federal governments in 1959 on the initiative of the political parties represented in the German Parliament with the aim of fostering the relations between the Federal Republic of Germany and developing countries on the basis of mutual exchange of experience. The DSE fulfils this mandate by organising training programmes, seminars and conferences to support projects in countries of Africa, Asia and Latin America which serve economic and social development.

Since its creation, the DSE, in cooperation with national and international partner organisations, has provided more than 70,000 experts and leading personalities from over 100 countries with an opportunity to discuss issues of international development or undergo professional training.

In its work, the DSE attaches priority to rural development, food security and the promotion of industrial vocational training. It also supports efforts to improve organisation and planning in developing countries in the fields of health, public administration, development planning and education. Furthermore, the DSE prepares German experts for their assignments in developing countries, and provides a comprehensive information and documentation service to the German public.

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