# FEEDBACK AS FACTOR FOR DETERMINING EFFECTIVENESS OF SDI SERVICES IN RESEARCH LIBRARY

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## ABSTRACT

The patterns of scientific communication among users of three research centres in Samaru, Kaduna, and Vom, all in the northern part of Nigeria were studied at various times between 1977 and 1979 Two types of questionnaire were distributed in the pursuit of the study. One set of the questionnaire was distributed to the Users i.e. the researchers of the three libraries while the second set of the questionnaire was given to the librarians of the three research libraries. Appropriate library records and files were studied; interviews were conducted with the librarians as well as the researchers.

Chapter II was devoted to the methodology of the study, while Chapter III was basically on the review of the related literature.

The history of some of the research libraries in the Northern part of the country was briefly traced in chapter,IV.

The analysis and interpretation of the data were done in chapters V, and VI„

It was observed that suitable records were not adequately kept in almost all the libraries as

regards to statistics in relation to selective Dissemination of information. Enough emphases were not placed on bibliographic citations activities in Kaduna and Vom research centres respectively. An overall observation was that researchers generally tend to shy away from the librarians and information scientists that are supposed to work closely with them in solving their individual research information problems.

The study concludes that methods by which the libraries; namely the Institute of Agricultural Research Samaru, the Nigerian Institute of Veterinary Research, Vom, and the Nigerian Institute for Trypanosomiasis Research, Kaduna, respectively provide the current awareness services need rectification if the services are to be effective in the individual research work.

On the basis of the above observations, suggestions are offered at the end of the study to facilitate better current awareness services

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# PREFACE

Literature review and the study of contemporary researches had indicated that little has been done so far in the field of librarian/user relations in the developing countries and principally in Nigeria.

If the so much talked about technological take-of is to be quickly achieved in the developing countries, there is a need to identify the different phases that are part of the technological problems. In this study the system of providing the researchers with adequate and accurate current awareness services was a phase that was considered. It was necessary to identify problems that were related to the free-flow of scientific information in research libraries, so that appropriate solutions might be obtained.

Some people have helped to make sure that this work came to completion. Prominent among the helpers was Dr. D. O. Bazimo who was my major supervisor, and who has spared sufficient time to read through the work and had offered many useful suggestions. I am also grateful to Professor R.C. Benge, Mr. A. H Khan and Mr. Zia who shared their wealth of experiences with me through systematic professional advice in all the research stages.

My gratitude also goes to all the librarians and information scientists of the various research centres, for sparing sufficient time in participating in the early stages of this work; finally I should say a word of thanks to all the scientists who had shared their thoughts and had also spared their time in completing the necessary questionnaire and also for participating in the interviews.

# CHAPTER I

## INTRODUCTION

Regular and significant contribution to the pool of universal knowledge are normally expected from members of research institutes. This goal appears to have become unattainable because the accelerated pace of scientific research has generated such a wealth of publications that it is becoming more and more difficult to keep abreast of scientific developments even in a narrow field.

If a scientific publication is to serve its purpose, it should find its audience quickly whereas the multitude of journals and the obsolescence of their contents make the need for an effective current awareness service most urgent. This is an age long problem for Librarians and Information scientists whose duties are para-mountly to make the contents of scientificpublications available to researchers in various research centres. For the purposes briefly stated above, a device for making current publications known to individual researchers through a well organized channel came into vogue among information scientists. This method of disseminating information on an interpersonal basis in which librarians and information workers scan incoming journals and thereby notify

journals and thereby notify patrons of documents or scientific publications of probable interest or relevance to their work has undoubtedly been an established practice in the history of information practice but the term, Selective Dissemination of Information, (SDI) as it is presently being used in modern librarianship came into prominence in the literature on scientific communication with a publication by P. Luhn.[1]

Luhn believed that scientific communication could be better approached, appreciated and effectively utilized by researchers, if information scientists actively participate in processing information more selectively, discriminatingly and promptly. The above objective of 'SDI' as was expressed by Luhn is up till today regarded among information processors as the first law of selective dissemination of information. It has also been widely acknowledged by researchers as a unique way of helping them.

But this well acclaimed service is yet to gain much popularity in Nigeria and indeed other developing nations of Africa. In some research establishments where 'SDI' is in practice it is not often without its teething problems.

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1/ Luhn, H.P. 'A business intilligence system'. IBM journal of research and development. 2 Oct. 1958, P. 314 - 319.

The problems take the form of either inadequate funds or lack of equipments such as mechanical, or automated retrieval systems to carry out this desirable obligation. What exists for the most part is a caricature of SDI. But yet researchers are expected to carry out meaningful researches.

To this end, this study aims at examining individual ways by which research libraries provide this important work of current awareness services; namely, selective dissemination of information (SDI). The effectiveness or ineffectiveness of this method will be judged by the satisfaction or lack of it by the people using the retrieval system. This is the crux of the research on the SDI problems. But before the actual research problem is categorically stated, it is deemed necessary to state briefly the problem areas. They are namely, the non-challant attitudes of library and information workers to specifically study the needs of their users in order to determine the ways by which they can help them (users). It appears also as if the research library is yet to be regarded by institutes authorities, as very paramount to successful research results.

Specifically stated the objectives of the study are:

1. To acquire data about the feedback method of the SDI system in order to determine readers' tastes. Here, an attempt will be made to identify problems affecting information services especially in the areas mentioned above.

2. To identify various factors contributing to the problems of SDI especially in the selected research libraries and to suggest measures for solving such problem.

3. To study the activities, behavioural patterns and reactions of users if any to information services within the individual research institutes.

4. To interview researchers and librarians as well as information scientists about the problems involved in providing research information in individual libraries.

## Justification for the Study

This study may be justified on a number of reasons. The first is that current awareness services appeared to be a neglected aspect of [illegible] especially in [illegible] research [illegible].

readers' services especially in the Nigerian research libraries. An in-depth study in this area will undoubtedly reveal some inadequacies which may need to be rectified.

The investigator believes that this type of survey could be the beginning of meaningful SDI services appraisal in some of the research libraries which have not got the apportunity of assessing the appropriateness of their services to users. On the basis of this work, it is hoped that subsequent periodic evaluation of individual librarians of current awareness services to users will increase.

## Scope and Limitations of the Study

### Scope

The work is designed to study means of providing current awareness services namely, dissemination of information (SDI), and also to evaluate its effectiveness in the selected libraries in the northern part of Nigeria.

In scope the evaluation shall focus attention on the mode of preparation of bibliographic informations or the lack of such provisions; the methods of collecting individual's area of interests that is,researchers' profiles; the frequencies of dissemination of research information to

individuals and the location of needs of such services.

The effectiveness of such services will determine the usefulness and the adequacy, if any, of current awareness on research work of individual scientists. Against the proposed evaluation of the methods of providing current awareness, suggestions will be given on how to improve the value of such methods so that researchers could be better helped to achieve greater results through the provision of adequate information services.

Limitations

The study has for some reasons been deliberately limited to libraries of the Institute for Agricultural Research (IAR) Samaru, the Nigeria Institute for Trypanosomiasis Research, (NITR) Kaduna, and the Nigeria Institute for Veterinary Research, (NIVR) Vom.

The reasons are as follows: that they are all major scientific research libraries in the northern part of Nigeria; are government sponsored; serve homogenious clients; have common objectives; and have some information workers and librarians to serve the information needs of the researchers.

The study is further limited by constraints of time and also of finance. It would have required more time and much more resources to cover all the research libraries in Nigeria.

It is hereby noted for acknowledgement that some other important libraries among [illegible] others that are in Nigeria doing similar research operations as the selected libraries above are:

1. Agricultural Research Council of Nigeria library Moore Plantation, Ibadan.
2. Cocoa Research Institute of Nigeria Library. Gambari Experimental Station, Oniyangi Village Ibadan.
3. Federal Department of Forest Research Library Jericho Reservation Area, Ibadan
4. International Institute of Tropical Agriculture Library, Oyo road, Ibadan.
5. Project Development Authority, 3 Independent Layout, Enugu.

Assumption of the Study

The study is based on the following assumptions:

1. That the value of scientific and technological researches and experiments depends on the timeliness of relevant current information.

2. That current awareness services in Nigerian Research institutes is not sufficiently based on the knowledge of individual subject profiles of the researchers.
3. That researchers in the Nigerian research institutes spend a large proportion of their time on searching for materials to read inorder to do successful and meaningful researches.

Definition of Key-terms

The term listed below are capable of various interpretations, but for the purpose of this study the meanings that these terms intend to convey are given below;

1. Research Library denotes in this study libraries that are attached to research institutes for the purposes of making current and relevant informations available to researchers.
2. Information Activity refers to the preparations processes of current awareness through mechanical, manual or automated systems for processing materials and journals and other documents that are stored in the library.

3. Users means readers and workers of the institutes who use the research library for the purpose of research.

4. Relevant materials are journals, documents and other library items which are judged to be relevant by a users.

5. Multi-stage SDI Communication means the systematic gradation of communication between the information scientists and the researchers into many stages for clearer understanding of what items are judged relevant by the user.

6. Single-stage Communication means a non-gradated communication between the researchers and the information scientist. For example, articles or information deemed relevant to the profiles of individual researchers are usually dispatched to them without first giving them the photocopy or list of titles to allow them judge the relevance of the items individually.

7. Personalised SDI means a selective dissemination of materials based on the knowledge of individual researchers in the institutes.

8. Feedback is an interaction between the information personnel and the users in order

to determine the users satisfaction and possible reaction to the library services with the view to improve such systematically.

9. Subject Profiles refers to the key-terms of individual subject interests. Literatures are searched with the key-terms in focus, and where there are coincidences of key-terms and the literature, such items are deemed potentially relevant to the particular researcher.

10. Current Awareness Services refers to the services of the librarians or the information scientists in making the latest published and unpublished information available to researchers as a matter of urgency.

11. Selective Dissemination of Information (SDI) refers to information specially selected among the masses of other printed and unprinted information for the purposes of positively influencing the value of individual researches and his results.

12. Researchers are specialists that are hired to carry out researches for the purpose of positively influencing the efficiency of the project for which the institutes was established.

## REVIEW OF LITERATURE

The schorlarly journal developed as a vehicle for disseminating information in the form of articles and papers and as a repository of official records that formed a basis for generalization in science. As the size of a literature grows, the greater becomes the necessity of developing techniques for searching it. The earliest scientific journals, the "journal des Scavans (1665) and the Philosophical transactions of the Royal Society of London (1665), were in a sense abstract and review media that referred to primary publications in other forms.

One of the earliest examples of a periodical devoted exclusively to extracting parts of other publications was the "Aufrichtige and unpart. heyische Gedancken" ('Sincere and Unbiased thought'), Two volumes of which appeared between 1714 and 1717. During the course of the years a vast system of systems, national and international, has grown up to cope with the problem of indexing and abstracting the literature and of providing data, compilations, reviews and synthesis.

Traditionally, abstracts have been in two forms: the descriptive abstract, which provides an indication of the information contained in the original communication beyond that provided by the title of the article and the informative abstract, which usually tries to present all significant data in the original article. But Selective Dissemination of information" (SDI) is relatively a young and an emerging subject in the libraries of research institutes in Nigeria. The major aim for introducing SDI is to improve the quality of information services provided to scientists that do research work in various institutes.

Being a relatively young service in the Nigerian Research Libraries the practice of SDI is yet to find its feet as solidly as it should. The practice ofSDI is still haphazard in some of the libraries that use retrieval systems. The modern term "Selective Dissemination of Information (SDI) is most often used to describe systems based on H.P. Luhn's idea of using electronic data processing equipment as a means of matching the terms of user-interest "profiles" against document

descriptors and selecting those documents with a specific degree of similarity to the terms of the user interest profile. However this literature review intend to view SDI in a broader context as a type of information service. Any procedure, whether manual or automated that attempts to provide a personalized current awareness service, selecting for each individual served the current literature of probable relevance to his research interests, may be considered an SDI system.

Literature on the activities of SDI systems especially in Nigeria is very scanty if ever there are any. This is probably due to the fact that a very few research libraries in Nigeria use SDI systems. The writer has therefore decided to review literature that are universally relevant to the practice of SDI. The"Business Intelligence System" is probably the first published description of a system that uses electronic data processing equipment for the selective dissemination of information.

The relevance of the Luhn's system to the present study is that he included a communication facility as a means of obtaining a feedback from

users. Even though the actual system proposed by Luhn has not been implemented, yet it has served as a basis for planning a number of the computerized SDI systems - now in operation. A mechanized SDI system based on Luhn's design was first implemented in 1959 at the Advanced System Development Division of the IBM Corporation at Yorktown Heights, New York. This system referred to as SDI 1, used an IBM 650 Data Processing System, Card machines, reproduction equipment, and human operators to compare a small flow of documents with the interest profiles of about thirty users, (Hensley, Savage, Sowarby and Resnick 1961)[1]

In 1960, a second system, SD1 2, was designed based on the original pilot system (Brandenbergo, Fallon, Hensley Savage, and Sowarby, 1961)[2] and the announcement of a documented SDI system was made by IMB in July, 1961.

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1. Hensley, C.B., Savage, T.R., Sowarby, A. J., and Resnick, A. Selective Dissemination: Report on a Pilot Study, SDI 1 systems (Report No 17 - 039.) Yorktown Heights, N.Y.: IBM Corporation 1966.

2. Brandenberg, W., Fallon, H.C., Hensley, C.B., Savage, T.R., and Sowarby, A.J. Selective Dissemination of Information: SD2 System. Report No. 17 -031.) York heights, N.Y.: IBM Corporation, 1961.

Later SDI 3,4, and 5 systems were developed by IBM and tested in their research centres at Yorktown Heights, Owego, and Poughkeepsie, New York, and in Chicago. Governmental, Industrial and Academic Institutions began experimenting with SDI systems. These varied widely in scope, number of clients, type of data processing equipment, and cost of operation. However, the principle of a mechanized matching of document descriptors against user-interest profiles is common to all of them.

According to a recent review of SDI systems (Bivona, and Goldburm, 1966)[1], the four major sources of externally produced machine - readable data being used by operating SDI systems are: National Aeronantics and Space Administration (NASA)., National Library of Medicine, Defense Documentation centre, and Chemical Abstracts Service.

Several different types of match criteria are used by SDI systems to select relevant documents for each user, the most popular being weighted terms.

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1. Bivona, W.A., and Goldburm, E.J. SDI: Review of Selected Systems and a design for Army, Technical Libraries. (Report prepared for U.S. Army Technical Libraries by the Information Dynamics corporation, Reading Mass. 1966.

In this type of system, the user assigns a weight to each term in his interest profile according to its relative importance in the selection of relevant document. A document is selected if the sum of the weights of the terms that match the user profile is equal to or greater than a certain threshold[1]. Another type of match criterion commonly used by SDI systems is Boolean logic where user profiles consists of lists of terms related to each other by the logical connectives "and" and "or" and documents are selected if the document descriptors fulfil the conditions of the Boolean statement[2]. A third type of match criterion in use is one in which the terms in the user profile may be designated by "Must" or "Not". A document having a "Must" term is always selected unless overridden by a "Not" term. An undesignated term is considered a "May" term. A document having no "Must" or "Not" terms is selected if it has a certain number or percentage of "May" terms in common with the user profile[3].

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1. An example of a system that uses weighted terms is the SDI system operated by the NASA Scientific and Technical Information Facility. This system is described in Brandhorst and Eckert (1966).

2. An example of a system that uses Boolean logic is the SDI system at Eli Lilly (Rice, 1965).

3. An example of a system that uses "Must" and "Not" terms is the SDI 5 system developed by IBM (Barnes, Briggs, Gauss, and Resnick, 1964

Although most mechanized SDI systems collect statistics on user response to document notification, but apparently only the Ames system[1] has a fully automatic feedback process for modifying the user profile according to the user's response to document notifications. In the Ames system, the significance values of the terms of the user profile are incremented or docremented according to whether the user accepts or rejects a document. The system uses a mathematical function based on the sine curve so that significance values near the threshold value of 0.5000 receive the largest increments or decrements, and significance values of near the limits of 0 or 1 receive smaller modifications. It is assumed that for each user- profile ward, an equilibrum value exists, because false high values produce mostly negative responses and false low values produce mostly positive responses. The experience of the Ames system has proved this assumption to be true in most cases. More detailed description of individual mechanized systems can be found in Bivona and Goldblum (1966)[2].

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1. Dage, C.R., Anderson, R.R., and Fitzwater, DR. "Adaptive Information Dissemination," American Documentation (July, 1965), 16:185 - 200

2. Bivona, W.A., and Goldblum. Op. cit

SDI differs from other current awareness services, providing a specialized bibliography for each individual served, suited to his own research interest. It is basically different from other current awareness services such as KWIC indexes, announcement bulletins, lists of tables of contents and abstract journals.

Literature on SDI shows that SDI systems vary in their, structures and applications, but one common thing to all of them whether manual or automated is the provision of a personalized current awareness service, selecting for each individual served the current literature of probable relevance to his research interest.

In designing an SDI system some provision must be made for evalusting the effectiveness of the service. Information on the performance of the system and the degree of user satisfaction is necessary in order to adjust the system to operate most efficiently. The fundamental question to be asked in evaluating SDI as a service is: Given all available bibliographic tools and search techniques, both human and computer, how effective can any such service be in selecting from the mass of scientific literature those items which have the highest

probability of interest to each scientist served by the system? Is it possible for an external source (any source other than the scientist and his colleagues) to select the information the Scientist needs in his work? This is an important consideration in designing and evaluating an SDI system because it is necessary to know the degree of selectivity the system should exercise.

Evaluation of SDI as a service according to Connor (1967)[1] should take into consideration its role in meeting the information needs of scientists. The importance of the information need to a scientist can be summarised in the words of Orr and Leeds 1964[2] that

> For a scientist, the practical implication of the scatter of literature in his field are obvious. His ability to keep abreast of developments is undoubtedly influenced by how many periodicals he must scan to accomplish this end. Biomedical scientists in general operate under a greater handicap than chemists or physicists, but among biomedical subfield there is considerable variation.

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1. Connor, J.H. "SDI: a review of literature and the issues" Library Quarterly Vol.37 Oct. 1967 P. 371 - 391

2. Orr, R.H., and Leeds, A.A. "Biomedical literature: Volume, Growth, and other Characteristics," Federation Proceedings (Nov.-Dec. 1964), 23: 1310 - 31.

> In some narrow subfields one or two journals may contain most of the documents that interest some specialized workers: whereas, psycopharm-acology appears to be an example of a subfield with a relatively high dispersion of its literature. A high degree of scatter seems to be typical of new areas of research where several disciplines converge and the literature is not yet channeled into a relatively few "core journals" as in older research areas.

In contrast to the postulations by Connor and others many researchers in the research institutes in Nigeria are apparently working under the strain of inability to explore sufficiently, the literature in their fields of research because they are often combining search for literature with the actual laboratory research.

The Nigerian scientists' experience is at variance with the universal practice of providing user with a hard copy of any articles of interest to him and of shortening the "response time" of scientists (the length of response time may influence the user's attitude toward the retrieval system) The participation in the SDI system by scientist in the ideal situation should make a minimum demand on users time and should be an uncomplicated procedure. Finally, it would be desirable for the system itself to have a feedback provision that

would modify each user's statement of information requirements depending on his response to notification of documents.

In relation to the above, many conflicting views have been expressed by various authors about the best mode of evaluating both human and machine aspects of SDI systems as a way of creating an effective feedback system. Cooper (1973)[1] argued that a user's subjective evaluation of the personal utility of a retrieval system's output to him, if it could be properly quantified, would be a near - ideal measure of retrieval effectiveness. A hypothetical methodology is presented for measuring this utility by means of an elicitation procedure, but because the hypothetical methodology is impractical, compromise methods are outlined, and also their underlying simplifying assumptions are discussed. He concludes that "the more plansible the simplifying assumptions on which a performance measure is based, the better the measure".

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1. Cooper, W.S. "On selecting a Measure of Retrieval Effectiveness" Journal of the American Society for Information Science March - April 1973 P. 87 - 100

Resnick (1961)[1] asked individual who received documents through a selective dissemination of information system to determine the relevance of documents to their work interests on the basis of titles and of abstracts. The purpose of the experiment was to compare the effectiveness of titles with that of abstracts when they were used for the purpose of notifying research workers of the availability of documents which might be relevant to their work interests. The results indicate that there was no significant difference between the usefulness of titles and of abstracts for this purpose.

Still on modes of evaluation as means of creating an effective feedback, Cleverdon (1974)[2] sounded a note of warning on what he termed " "management Oriented" and "user oriented" evaluation methods.

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1. Resnick, A. "Relative Effectiveness of Document Totles and Abstracts for Determining Relevance of Documemts" Science Vol. 134, Oct.6, 1961 P.1004 - 6

2. Cleverdon, C.W. "User Evaluation of Information Retrieval Systems" Journal of Documentation 30 (2) June 1974 P. 171 - 179.

In management oriented evaluation, questions that usually feature to be answered are: How could performance be improved?; how could cost be reduced, but little about the requirements of the users, whether or not they are satisfied with the services being provided. In the light of the above warning, it should be emphasized therefore that modern objectives of evaluation should focus a great deal of attention on user-oriented type i.e. how to optimize performance in terms of recall and precision. But in recent two papers Cooper (1973)[1] proposes a new evaluation techniques, and condemns in general terms the measures of recall and precision. Cooper condemns them mainly because they do not reveal anything about the value of the system. Other authorities including Cleverdon however disagrees with Cooper on the ground that it is a mistake to confuse performance and value, that if it is desired to find the performance of a system then recall and precision are the measures to use, but if we wish to determine the value or the usefulness of a system to the actual users, or if

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1. Cooper, W.S. "On selecting a measure of Retrieval Effectiveness" Journal of the American Society for Information Science Vol.24, 1973, pp.87-100, 414 - 24.

we desire to find how the system can be made more useful, so as to attract new users, then the form of the evaluation must be changed to make it user - oriented rather than management oriented and in doing so it seems we will have to devise new measures.

Considering the views and counterviews of the above reviews, the writer is of the opinion that for the evaluation to be user-oriented, artificial environment has to be avoided. Evaluation, has to be done in a real environment with real users making real searches. The condition must be completely natural, which is to say that each user should make his own search with the absolute minimum of interference by any test observers; in fact, ideally the user should be unaware that he is assisting in an evaluation until his search is completed.

# CHAPTER III

## DEVELOPMENTAL HISTORY OF CURRENT AWARENESS SERVICE IN NORTHERN NIGERIA

### I.A.R. History of Current Awareness Services

The Institute of Agricultural Research (IAR) Samaru began around 1922 with the appointment of a Botanist serving the Research and Specialist Division of the former Northern Nigerian Ministry of Agriculture, Samaru. At about 1924 a collection of personal books, journal and documents were organised to support the botanist in his research.

It was the personal collection of the botanist of the earlier period that has been transformed into the present research library serving a community of agricultural experts, researchers, post-graduate and undergraduate students alike.

As the scope ofresearch grew and the library collections developed, the need for better organization in the library for a fuller exploitation of books and journals became urgently necessary. The degree of this urgency became more apparently clear in 1970 when the institute was planning to embark on an expansion of her agricultural research programmes.

On August 25, 1970, Miss P.M.J. Edwards, the librarian of the IAR library, Samaru, sent a memorandum to the Technical Agricultural meeting of the IAR emphasizing the urgency of reorganizing the library for adequate use before the general expansion of the research programmes. The memorandum partly reads:

> Before the expansion in Agricultural research goes any further, it is essential that the results of research already undertaken in Nigeria during the past 60 years, both published and unpublished should be assembled in a form available to research workers and administrators (1)

Two reasons were given by the librarian of the IAR library for the above memorandum sent to the technical agricultural meeting. The reasons were:

1. to prevent waste of money on repeating experiments which have already been carried out;
2. that the length of experiments may be cut by several years in the light of previous results.

This proposition was discussed and accepted by the Technical Agricultural meeting that retrospective and current collections of IAR be

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1. Memorandum for the Technological agricultural staff meeting of 25 August 1970. IAR Samaru, A.B.U. Zaria, 1970.

recorded and reorganized to facilitate easy access and better exploitation as proposed by the librarian of the institute. The same meeting mandated Miss P.J.M. Edwards to contact one Mr. Wills through a letter requesting him to carry out a feasibility study of the proposed project. Mr. Wills was nominated for this assignment because he had successfully carried out a similar assignment at the Crop Research Institute in Kumasi, Ghana around 1968. Part of Mr. Wills letter of invitation from Edwards reads

> For a long time I have been interested in setting up a current information retrieval system covering agriculture Nigeria, which will include agricultural literature as far back as 1930 (1).

But according to P.J.M. Edwards, two major obstacles had stood in her way of achieving this practical proposition. The obstacles were

1. The compilation of a thesaurus, and
2. Insufficient skilled personnel: this was because the volume of materials on the Nigerian agriculture could only be incorporated in a retrieval system by one or more people working full time for several months.

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1. Edwards, P.M.J. Background information on Baulkwills' visit to Samaru. In: Miscellaneous Report No. 100. Land resources Division, Directorate of overseas surveys. Tolswarth: England, 1971.

Mr. Wills was however unable to honour the invitation sent by the librarian of IAR Library, but he introduced one Mr. Baulkwill of the Land and Resources Division of the Directorate of overseas surveys, Tolsworth, England, who coincidentally was coming to Ghana by mid-November 1970 to visit Samaru and give the much needed advise concerning the establishment of a retrieval system.

Mr. Baulkwill came as arranged and recommended a feature card retrieval system for the IAR library. His recommending this retrieval system came after he had considered the cost, the capacity of the agricultural documents to be indexed, also the capacity of the equipment, the performances, efficiency and the maintenance cost of the system.

After the installation of the Feature card retrieval system as recommended by Baulkwill, the retrieval system began operation in 1976. Ben Oruma was the first Information scientist to operate the machine. It was named 'IAR System'. After a brief spell of operation of 'IAR System'.the efficiency of the system was evaluated both at the imput and the output levels by the operator, Ben Oruma. The report indicated one error in every 80 documents punched among other findings.

He expresses the hope that by the time the imput limit of 10,000 documents would have been reached a permanent solution to the teething problems of the IAR system would have been found also.

The above hope was expressed in "the Information retrieval system on Nigerian Agriculture report covering June 1976 - June 1978" at the Institute for Agricultural Research (IAR) Samaru, Zaria. (See the appendix)

IAR Samaru, was therefore the first research library among the libraries studied, to establish a mechahical information retrieval system.

EXPECTATIONS OF THE IAR RETRIEVAL SYSTEM

1. The system was expected to be mainly for internal use but external enquiries will also be answered.
2. The system was expected to operate open access for all IAR research workers, but with IAR library staff handling external enquiries.
3. The ultimate product were to be a current awareness bulletin and also a retrospective search service backed up with hard copies from the main library for internal enquiries and also documents photocopies for external ones.

4. Records of all enquires were expected to be kept by the library staff.
5. The IAR system was expected to require at least one graduate, one clerical officer and typist for day to day operations.
6. The IAR system was expected to be operational on a day to day basis after the completion of the initial work.
7. Lastly, multiple copies of thesaurus are expected to be produced, and a description of the setting up and operation of the system published.

Effect of Information systems on IAR Library Services

Before the conclusion of the advisory assignment on the IAR information retrieval system a remark was made about the probable effects which the IAR information system might have on the general information service of the library. Such effects were normally to be expected as it was usual of such systems to change the previous systems which the users had been used to.

It was predicted that the introduction of the new IAR information system was going to cause some duplication of efforts in a few areas of an already

established library services. One area of such duplication was the IAR library's publication titled 'Periodical Literature on Nigeria Catalogue Entries'. It was anticipated that this service should be taken over by the IAR retrieval system to avoid such duplication of efforts. It was equally anticipated that with the new information retrieval system at IAR library working successfully there would be an increase in the demand for had copy materials to back up answers to queries. Thus with the introduction of the IAR retrieval system in 1976, a new chapter on current awareness service was opened.

NIVR: History of current awareness services

The Institute of Veterinary Service at Vom, like its counterpart at Samaru was established around 1924. Right from its inception it had a private collection of books and journals as a means of keeping the researchers aware of research developments in their individual fields.

The 1954/55 financial year saw the introduction of a formal library services based on reference books and periodicals. Gifts of books, journals and other valuable research reports which were

privately kept formerly by researchers were then donated to the library for joint consultation. These documents formed the neuclus of the present NIVR research institute library. During this period the library was being managed by a library assistant.

Miss A. Phelps, a Briton was the first library officer to be officially appointed to manage the affairs of the library. Her arrival around 1960 coincided with the proposed re-organization of the institutes library towards greater user-orientation. Incomplete as was this re-organization during 1960/61 period, it was a major step forward in this library's bid to give better current awareness service to researchers.

This state of library's affairs continued unchanged until 1970. It was in 1970 coincidentally, as a proposal was being made at IAR library at Samaru, for an expansion of the library services to incorporate a mechanized system to aid the quality of information given to the researchers, that similar efforts were being geared by the Nigerian Institute of Veterinary Service library in Vom, towards quality services in information also.

With the 1970 general re-organization, there was also a change in the name of the library. It was re-named 'Library and Information service' as against the former name 'Institutes Library'.

Presently, the main library, through its expansion and re-organizational programme incorporates 'the training division library' and the 'field laboratory libraries in its system'.

There was another forward march in 1973 with the official recognition given to these institutes libraries through the promulgation of decrees titled 'Agricultural Research Institutes decree of 1973, and also that of the National Veterinary Research Institute of 1975 which were subsequently published in the 'White paper' which is the Federal Government of Nigeria's official information organ.

It was this official recognition through a degree in 1975 which facilitated subsequent up-grading and reorganization which the library began to enjoy ever since then.

As of now there is no mechanized system to aid researchers in the field of current awareness.

However the librarians are making necessary efforts to keep researchers current through skeletal indexings and listing of new titles that are received in the library systems.

Objectives of NIVR library and Information Service

1. To support the research and training programmes of the research institute.
2. To serve both home and field staff and the students in their research areas.
3. To serve visiting veterinarians from the Nigerian Universities and that of international organizations.
4. To control and coordinate the activities of field laboratory libraries in the state.

NITR: History of Current Awareness Services

This Institute now known as Nigerian Institute for Trypanosomiasis Research (NITR) was formerly called West African Institute for Trypanosomiasis Research (WAITR) Kaduna. It was officially opened on January 31st 1951. This institute was opened under the auspices of the West African Research Organization, under the Colonial Development Welfare Act and the Nigerian Ordinances No. 36 of 1950.

The scheme to develop this research institute originated from recommendations made by Professqr T.H. Harvey of the Liverpool School of Medicine after he had made an extensive tour of West Africa in 1946 at the request of the Tsetse Fly and Trypanosomiasis Committee in London.

The primary function of this institute was to undertake research in the field and also in the laboratories on all aspects of human and animal trypanosomiasis. It was also to serve as a clearing house for information on the disease, and also to serve as an advisory bureau. This institute had however heen transfered to the National Science and Technology Development Agency (NTDA) which was established by Decree No. of 1977.

Like all other research institute libraries investigated, it is to see to the effective current awareness services of the research staff. This library presently has two librarians and some library assistants to satisfy the research information requirements of the fifteen man-team of researchers presently working in the research institute.

The library which presently occupies a medium size class-room has a sizeable collection of scientific journals, documents and reference books. The library has no mechanized information retrieval system, but there is a hope, as expressed by the librarian that in a near future this library will be equipped with a modern information retrieval system.

Objectives of the Research Institute

1. The primary funcrion of the institute is to undertake research in the field and in the laboratories on all aspects of human and animal trypanosomiasis and consequently serve as a clearing house for information on the diseases and as an advisory bureau.
2. To forge better tools for medical and veterinary workers who are mainly concerned with the cure of the diseases. Towards this objective area research efforts are directed toward the solution of problems experienced by those engaged in desease control on the field.

Current Awareness Activities in NITR Library Kaduna

Using the facilities available in the research library attached to this institute, as well as the

advice of the library staff, the research staff of the institute and those associated with it have published over 400 papers by 1980 in scientific journals published all over the world.

Within its resources the library has been vigorously supporting the information needs of the researchers of the institute. Twice in a year, the members of staff normally hold scientific seminars and meetings with the Research Committee of the governing board of NITR. After such meetings, the reports are published as NITR Research Bulletin by the office of the library and Public Information.

Although the objectives of the library has not been specifically written as had been done in other research institutes that were examined in the study, it is apparent that the library's objective is to see to the realization of the earlier on stated objectives of the institute; namely to provide relevant information to the researchers. This appears to be a justified reason in reviewing the historical trend of the current awareness services of the institute's library since its inception.

# CHAPTER IV

## METHODOLOGY OF STUDY

### Questionnaires I & II

For the purpose of this study it was necessary to collect data from three sources. The first source was from the librarians of three research libraries that were specifically selected for the study. Investigation was carried out to determine the individual librarians' approach in processing, administering, and transfering information to the researchers that use the libraries.

The second source of the investigation was the users. Information was collected from a majority of users to determine the value of current information services reaching them in their research libraries within the peculiarity of the institutes environment. With the users at the background, an assessment of appropriateness of service was made on the basis of researchers experiences, opinions and their present attitudes about the provision of current awareness services especially the SDI in individual libraries. Through the use of questionnaires it was possible to assess what exactly the librarians of the three research

institutes were doing to provide information to the users. It was equally possible through this method to reasonably appreciate the type of services the users expected of their libraries.

Merits and de-merits of Questionnaires and Interview

A combination of research methodologies is adopted. These combinations include interviews of the appropriate officials of the libraries and also that of the questionnaire method. The questionnaires drawn were later adapted for the purpose of using them as interview schedule.

Some argument either in favour or against one type of methodology or another has been advanced. For example argument for the use of questionnaire are that questionnaires often than not are never completely returned, neither are they truthfully answered. But, the questionnaires serve some other better purposes for example instead of restricting the respondent to a time schedule of interview method the respondent is free to answer the questions at his own time and rate. It is also noted that the art of both asking and answering questions becomes more crucial in an interview than in a questionnaire method and unless one is really good both in asking

and answering questions verbally, questionnaire method is not recommended.

However, interview method underscores that of questionnaires in at least one important way, in that in oral interview, many facts which might have escaped the scope of questionnaires may emerge. One question may easily lead to another which may not be a part of questions prepared in advance. Further more there are chances for further explanation of points - not - clear situation that does not exist in the questionnaire system.

Finally, observation method has often been criticized on the ground that the timing of the observation may not reflect the true situation but at least it does give an insight to the problem situation.

It is as a result of the above arguments both in favour and against the various methodologies that this research is based on a combination of all of them with the hope of maximizing as much as possible their various merits and at the same time reducing the demerits.

Interview and Observation

To check the reliability of the answers given by both groups of respondents namely, the librarians, and the researchers, to the questions on the inquiry forms, a personal visit was undertaken to further probe the views of the users and the information workers in each library.

Through verbal discussions, more information was abtained about the information provision to the researchers. Files and appropriate records were studied to further strengthen whatever conclusions and recommendations that may be made at the end of this study.

Research Population

The research population of the study were the researchers of the institutes at the three research centres, namely the Institute for Agricultural Research, (IAR) Samaru, the Nigerian Institute for Trypanosomiasis Research (NITR) Kaduna, and the Nigerian Veterinary Research Institute (NVRI) Vom.

There was a total of fifteen scientists at the Nigerian Institute for Trypanosomiasis Kaduna. All the fifteen scientists in the institute were registered members of institutes library, so they

were all included as part of the research population representing Kaduna centre.

The Institute for Agricultural Research, Samaru had a large number of registered users, but many of them do not fit in with the subject of the study. For example post graduate students and other casual users were not included because this study did not regard them as researchers yet. Strictly, a researcher as conceived in this study is in line with the definition given in the Websters' 3rd International Dictionary of the English Language, that is, 'a person who devotes himself to research'.

The librarian agreed with the writer that this definition can only be applicable to not more than fifty users at IAR Samaru and so fifty researchers were initially earmarked as the research population that represented IAR Samaru

Using the same parameters for selecting our research population at the Nigerian Veterinary Research Institute, Vom, only thirty users were regarded as typical researchers. This means that this study intended initially to examine the SDI services provided to ninety five researchers based at the three research centres.

Names and addresses of these researchers were collected from the librarians, and ninety-five questionnaires were distributed to all the researchers named by the librarians in the three research centres. But unfortunately only 74 questionnaires were useful for this study. The remaining 20 questionnaires did not contain enough information required for this study and for this reason they were eliminated. A breakdown of the questionnaires successfully completed and returned showed that 35 came from the IAR Samaru thus representing a total response of 75% for Samaru centre. 14 out of the 15 questionnaires were successfully completed and returned at NITR Kaduna thereby representing a total of about 93% response. At the NVRI, Vom a total of 25 questionnaires was returned. This represented a total of 83% response.

Data Collection Period

Materials and data used in this study were collected around June and November. Trips to the research centres for the purpose of interviewing the respondents were also done at this particular period.

Method for Analysing Data

Data for the study was collected from various sources as was earlier on stated. Briefly, the sources are as follows:

1. Questionnaires completed by the librarians and also the questionnaires completed by the individual scientists using the three libraries were analysed.
2. Interviews conducted among the users and the librarians were also analysed and incorporated in the study.
3. Records of information systems and information activities that were kept in the libraries were systematically scrutinized.
4. Casual observation of the behavioural patterns and activities of the researchers and that of the librarians were made.

All the data collected through the above method were analysed and used in the following ways:

a) items numbering up to about fifteen on the questionnaires were tabulated and subsequently analysed and compared for effective understanding of individual library's problems.

b) Matters that arose from the items earlier analysed in the questionnaires were

systematically compiled and reframed into a set of interview questions that was conducted orally later

c) Facts and figures that emerged from both the questionnaires and the interviews were compared with available records on files in the individual libraries for confirmation of truths.

d) The writers observations enabled him to judge as objectively as possible wherever there was any conflict of factual presentations.

# CHAPTER V

## F I N D I N G S

The aim of this chapter is to state the findings that have been obtained in the process of the study.

It was indicated in chapter II that only 74 researchers in the three research libraries successfully completed their questionnaires and participated in the interview out of the earlier 95 researchers that were ear-marked for the study.

An attempt had been made here to further break down this figure into a logical departmental representation. This was necessary because this study was designed to represent the general attitudes and feelings of each department within the individual institutes. The total of 35 researchers that were taken from the IAR Samaru represented 10 subject disciplines. The subjects are (a) Agricultural Economics (b) Entomology (c) Plant Pathology (d) Crop Physiology (e) Agronomy (f) Horticulture (g) Plant Breeding (h) Soil Science (i) Crop Protection and finally (j) Agricultural Extension. At the NITR Kaduna the 15 researchers chosen there represented 6 subject disciplines. The subjects are (a) Parasitology (b) Entomology (c) Microbiology (d) Biochemistry

(e) Veterinary Science and (f) Ecology. Similarly 5 subject disciplines were represented at NIVR Vom. The subjects are (a) Anatomy (b) Virology (c) Microbiology (d) Physiology and (e) Veterinary Science.

Question 2 on the researchers questionnaire was asked in order to find out if the librarians over obtained the description of individual subject disciplines in the research centres. The aim for asking this question is based on the assumption that adequate selective dissemination of information on personal basis needed a closer association between the information scientists and the researchers. It is equally based on the assumption that for information to be tailor-made for individual researchers, it is necessary that adequate information be known as to the nature of research subjects; research stages reached by individual researchers and problems they were encountering if any.

Table I: Researchers Subject Profiles.

| Name of Libraries | Total Number of Researchers | Total Number that successfully participated | Researchers Profiles obtained | % of Researchers whose Profiles were not known |
|---|---|---|---|---|
| IAR Samaru | 60 | 35 | 20 | 57 |
| NITR Kaduna | 15 | 14 | 8 | 57 |
| NIVR, Vom | 50 | 25 | 9 | 36 |

It could be seen from the above table that out of 74 researchers, only 37 acknowledged that their subject profile have been submitted in the individual libraries. This figures represented about 50% of the total number of researchers in these libraries.

Various reasons were discovered in the course of the study to have been responsible for this seemingly poor library performances. For example, in 1975 when the IAR retrieval system was at the developmental stage, every effort was made by the expatriate visitor and assessor in conjunction with the librarians in collecting the subjects profiles of all the researchers at the centre. The researchers profiles and the essential vocabularies or terminologies of their subjects were used as a base for the construction of the thesaurus at IAR. It was this thesaurus that was used for harmonizing the indexing of materials that were later fed into the retrieval system at the IAR Samaru. It was noted also that the phase I of this retrieval system had been completed; the retrieval system had been tested equally. But with the mobility of researchers through resignation and transfer coupled with the arrival of new ones, things got mixed up.

The effect of the mixing was that the earlier subject profiles.collected were not up-dated as the research stages moved upwards; so also the subject profiles of the new researchers were not adequately fed into the IAR retrieval system.

It was again discovered that the Thesaurus which should be revised and up dated was never revised and has not also been updated.

Similarly early researchers at NITR Kaduna were asked to submit their research interests to the librarian for the purpose of SDI. This, they did at that stage but those that came later were not given the opportunity, neither was the profiles updated.

It was discovered at NIVR Vom that researchers were never at anytime asked about their individual subject interests. The only apparent service that they were doing was that of circulating journals indiscriminately to all researchers.

It was also found out that Information workers found it extremely difficult to design any statement of interest form and profile.

The reason as was later revealed in the investigation was that the librarians appeared to be less vigorous in their professional duties.

Many of the library workers were not prepared to face the normal ordeal of users studies as should be.

It was discovered that some librarians even thought that it was not part of their job to introduce selective dissemination of information or to practise any form of current awareness services in their libraries. For this purpose, one was designed and recommended for use later in the study.

Data Dissemination

Item number 3 in the questionnaire was asked to determine the frequencies at which relevant materials were disseminated to the researchers. This question was asked as a follow up to the item two on the questionnaire. This was because the study assumed, and it was basically a common practice that materials should usually be indexed in anticipation for future dissemination. Having obtained the researchers subject interest in the usual coded terminologies, efforts are expected to be made by the information workers to compare the profiles with the indexed materials for probable coincidence of terms. It is a normal practice therefore for library and information workers to establish a policy as to the frequencies at which such materials are to be disseminated.

Below are stated the various intervals with which materials and relevant information are disseminated.

Table II

| Libraries | Total No. | Weekly | Fortnightly | Monthly | Irregularly | Never |
|---|---|---|---|---|---|---|
| IAR Samaru | 35 | 8 | 9 | 3 | 10 | 5 |
| NITR Kaduna | 14 | 5 | 5 | 1 | 3 | - |
| NIVR Vom | 25 | - | - | - | 9 | 16 |
| Total | 74 | 13 | 14 | 4 | 22 | 21 |

One glaring impression of the above statistics is that of basic irregularity of information dissemination in all the libraries. It could be notably seen under the column of the title 'Never' that at least 14% of the researchers at IAR have been denied of any dissemination of information except when they personally demand for it and that at NIVR Vom such facilities was not in existence at all. The only notable exception with an apparently fair dissemination of information is NITR Kaduna.

Since this study aims at investigating not only the quantity of materials and the frequencies at which they are disseminated but also with the degree of satisfaction that users derived from such services, follow up interviews with some of the research

clients, however, revealed some useful information. Users were asked to judge the usefulness or relevance of data disseminated at IAR Samaru, they indicate in general that a majority of data given out to them are often relevant to their interest, but they added that data are not always disseminated at the initiative of the librarians.

It was indicated that a large quantity of data are often given to them out of which they personally select whichever of the data are more appropriate to their research work. All the people that are being served through this method, however agreed that it has been helping them, but they wished that individuals could be sent relevant data without their requesting for it on all occassions as it is presently the case.

Apart from the selective dissemination of information via retrieval system at IAR, other current awareness services include the supplying of weekly list of principal journals that are currently being received and the circulation of the 'current content journal' which is usually published weekly.

It is observed that dissemination of published materials and data at NITR library, Kaduna are made

effectively possible because of the small number of researchers and not as a matter of any deliberate or any genuine plan. It is to be remembered that the library principally serves only fifteen researchers. No serious indexing is being done in this library but because of the small number of researchers the librarian found it easy to interact with the clients easily, thereby facilitating quick dissemination of data. Despite the above described services, about half of the users in this library expressed indifference to such services when they are being interviewed. It was however later gathered from the researchers that almost all of them maintain regular contacts with similar sister in institutions as theirs, both at home in Nigeria and abroad especially in Europe and East Africa. Through this means current and relevant literature as well as new research reports and new research techniques are being received personally by individual scientists. The later is found to be directly responsible for the researchers' indifference attitude towards the library's information service at NITR Kaduna. However, most of the researchers opined that they will be happy if a modern information retrieval system is

introduced at the research centre and more so if more money can be voted to improve the library generally.

PATTERN OF LITERATURE SEARCHING BY RESEARCHERS

Some of the expectations of the efficient SDI services are:

(a) to provide a personalized current awareness service to the scientist by keeping them informed of all researches that are relevant to their interest and

(b) to conserve the time of the scientist by screening out irrelevant informations thereby making the so called information explosion a manageable problem.

It is again assumed that scientist often should make their problems known to librarians or information scientists that are attached to their research centres if they are to enjoy the privileges of true information services. It needs to be reiterated, however that scientists are expected to participate less in literature search once their profiles have been given to the information scientists, of course in the true atmosphere of SDI services.

To establish how exhaustive this opportunity had been utilized by the scientists in the research libraries they were asked to indicate the extent to which they participated in the literature searching for documents partaining to their research interests and their reasons for doing so. The search itself have again been divided into two, viz: current and retrospective searching.

Table III

| Type of searching | IAR,Samaru | NITR Kaduna | NIVR Vom |
|---|---|---|---|
| Current | 72% | 53% | 76% |
| Retrospective | 14% | 35% | 24% |
| None | 14% | 7% | - |

As indicated at the above table a majority of IAR Samaru researchers still carry on searching for current materials despite the information retrieval systems that have being installed in this library some years ago. The same trend could be seen in the table as related to NITR Kaduna and NIVR Vom libraries. It could be deduced therefore from this analysis that there seemed not to have been much satisfaction from the researchers that use the research libraries.

That a faily large percentage of researchers still do supplementary searching for current and retrospective research materials in the research centres is an indication that the early objectives of the SDI services earlier on expressed have not been fully realized. This study does not pretend that researchers are not expected to do some supplementary searching for research materials but rather that the researchers should participate less.

The useful deduction which one can make from the above is that the trust and confidence which the researchers reposed in the information scientists/ librarian appears to have been betrayed by the librarians. A lot of work will be needed to put into the system of furnishing the researchers with latest publications and accurate bibliographic citations if the confidence is to be restored into the minds of scientists.

It is observed that records are not adequately kept in all the three libraries. The lack of such records makes it impossible for these libraries to study the pattern of biliographic citations and the behaviour pattern of the clients over a period of time.

It is only the IAR Samaru that some sparse records are being kept about the individuals research activities and their area of interests. Some of the researchers subject profiles in this library are already outdated, while some newer ones have not even been documented at all.

Feedback information records from users as a way of determining the constant growth and changes in individual research area is not at all kept in NITR Kaduna and NIVR Vom.

Over 50% of the users at Institute for Agricultural Research Samaru spent about half of their working period on browsing books on the shelves and also in searching for abstracts indexes, or bibliographies, while about 30% of the remaining users acknowledged that they, often spend not less than 8 hours per week in other libraries especially the Kashim Ibrahim Library (K.I.L) within the Ahmadu Bello University, searching for research information.

Over 70% of the scientists in both the Nigerian Institute for Trypanosomiasis Research (NITR) Kaduna and the Nigerian Institute for Veterinary Research (NIVR) Vom spend over half of their daily working time engaging in correspondences with colleagues at home and abroad. Correspondences in this case

include ordering of relevant documents from the British lending Library, from the Faculty of Veterinary Science of the Ahmadu Bello University, Zaria, and other parts of the world.

Apart from the time spent in ordering materials for the purpose of current awareness as reported above, it is also noted that much efforts are being exerted by the scientists of the Nigerian Institute for Trypanosomiasis Research (NITR) Kaduna and also of the Nigerian Institute for Veterinary Research (NIVR) Vom in contacting colleagues in similar institutions as theirs in East African countries and in Europe.

# CHAPTER VI

## SUMMARY OF FINDINGS

Briefly stated this study aims to study individual methods through which research libraries provide current awareness services, namely, selective dissemination of information (SDI) to the researchers. Major emphasis is placed on the application of user-evaluation method as a means of determining the appropriateness and satisfaction derived by users through SDI services.

In chapter IV the history of the development of current awareness services in the three research libraries are examined. The earliest libraries that was established to aid research work in the Northern Nigeria did not come until 1924. The libraries were those of the Institute for Agricultural Research, Samaru and the Nigerian Institute for Veterinary Research, Vom, They were followed by that of the Nigerian Institute for Trypanosomiasis Research library in Kaduna which was established on January 31st under the Colonial Development Welfare Act and the Nigerian Ordinances No.36 of 1950. It was interesting to note that these libraries all started as the private collection of a few researchers that pionered research work in these

research centres.

On literature searching pattern in the research libraries, it was discovered that about 38 scientists or over 50% of the users at the Institute for Agricultural Research, Samaru spend about half of their working time browsing book shelves and in reading abstracts, indexes or bibliographies, while about 18 scientists or 30% of the remaining users usually spend about 8 hours per week in other libraries, especially Kashim Ibrahim Library and other faculty libraries within the Ahmadu Bello University campus, searching for relevant materials.

Over 70% of the scientists in both the Nigerian Institute for Trypanosomiasis Research (NITR) Kaduna and the Nigerian Institute for Veterinary Research, Vom spend over half of their working time engaging in correspondences; this includes the ordering of relevant documents from the British Lending Library and the Veterinary Library of the Faculty of Veterinary Science of the Ahmadu Bello University, Zaria. Note that the ordering of materials from the British Lending Library is a service rendered by the serials section of the Kashim Ibrahim Library at the University campus communities.

One starting revelation from this study is that scientists in all the libraries tend to shy away from the librarians. From the questionnaire analysis and subsequent interviews, it is discovered that about 70% of all the scientists prefer to search abstracts, indexes and bibliographical tools rather than meet librarians for such needs. Only 30% agrees that meeting with librarians for such needs have been solving their problems. It is clear that such practices of bibliographic searching result in a great loss of time for scientists.

An over-all impression of this study is that despite the apparent time wasting exercises and procedures in locating materials for reading, the scientists feel strongly that they must continue to have such services which they can use themselves. They feel that such services have a unique advantage which no mechanical system could provide, namely; that of the possibility of finding relevant materials which the scientists do not even know that he is looking for and would never have thought of asking for in a mechanical system.

Except the IAR library Samaru that collects the subject profiles of some of the scientists,

albeit inadequately too, the two other libraries maintained no suitable records of researchers subject interests. At IAR Samaru, the last recorded subject interest of individual users was 1975.

Since there are no records of user's profiles, dissemination of information, as is later discovered, is quite arbitrary especially at NITR Kaduna and the NIVR Vom.

Dissemination of documents in all the libraries is not regular. This could be seen from table II. In this table about 14% of the researchers at IAR have never had information disseminated selectively to them, while 64% of those at NIVR Vom, never enjoys such services at all. The only notable exception, with an apparently fair dissemination of information are IAR Samaru and NITR Kaduna. It is discovered in the course of the study that the small number of users at NITR library Kaduna accounts for the seemingly high performance and not because that library possessed any any special skill in indexing, abstracting and storing of documents.

Feedback from users as a way of determining the constant growth and changes in individual research interests is non-existent in NITR Kaduna

and also in NIVR Vom. Only IAR Samaru has a device for a feedback, but his device is discovered to be rarely used.

Solicitation for documents by users is the 'modus operandi' in all the libraries, instead of the usual method of disseminating documents as selectively as possible.

The librarians confirmed that occasional requests for translations are often made but unfortunately no translation services are available despite the fact that some journals in French, German and Russian Languages are on the library shelves.

Despite the installation of information retrieval system in the library at IAR Samaru, it is found out that there is no specially trained information scientist to handle the information requests of the scientists. The writer discovered that the only man trained for the job had left the services of the IAR Samaru and nobody has been employed to replace him.

Essential preparations associated with modern information services in research libraries such as adequate indexing and abstracting services, information retrieval systems and capable information

workers were not available at NITR Kaduna and NIVR, Vom, respectively. These, in the view of this study have made the information services in these libraries no more than an ordinary reference service.

The study summarily finds out that scientists in various research centres could have been more productive if they have been adequately supported by a well organized information bank with adequately trained and competent information scientists and able assistants.

# CHAPTER VII

## OBSERVATIONS, RECOMMENDATIONS AND CONCLUSIONS

One basic observation made in the course of the study is that documentation or information science as it is otherwise known is relatively a new and emerging profession in Africa and especially in Nigeria. The history of research activities especially in the northern part of Nigeria revealed the oldest research centre to be precisely thirty six years old to date. To expect a flawless information service in these young libraries is to expect a miracle, since research even in libraries of the advanced countries are still battling without much success to provide perfect information services. This, of course does not mean that one is trying to excuse these libraries from performing much better than is the case in some libraries that have been examined.

It has been observed also that in Nigerian research centres, librarians were expected to be precisely encyclopaedic. That is it is expected that librarians should be able to give all informations necessary to all researches once the library had been filled up with all sorts of books, journals and manuscripts without any basic aid

from information retrieval systems. It has however, not been realized that collected and stored knowledge furnish as little information as a fat telephone book which does not ensure any connection. The person really responsible for information is not the one informs but the one who is informed. For research workers in universities and research centres, special additional measures are essential to make the mass of literature transparent and worth reading. There is a great difference between the presentation of titles and literature lists and their utilization by scientific clients. Therefore, it is essential to establish, use and apply one procedure - talk and discussion - not offering catalogues, title lists and bibliographies, but rather opportunity should be taken to display literature itself on any occassion of a visit or a discussion. It is mainly the talk and discussion which discover, determine and overcome the difference between literature, its readers and users. In this way, the gap between literature and library on the one hand and the user on the other can be decreased.

Observation is made that one of the greatest problems for most scientists in Nigeria today is keeping up with the progress in their fields.

Much efforts should be put into designing methods to assist in solving this problem. Apparently all special libraries have always considered it a major area of essential service to their researh groups but unfortunately the majority of scientists do not appear to have such services available to them.

This study considers it as a problem which can be solved only partially on a regional basis. Cooperative efforts between similar scientific research stations which provides current services will result in improving much services and at the same time create useful retrospective services where they might not have been existing. Such services as this could easily provide a unique advantage, namely that of the possibility of providing relevant materials which the scientists do not even know that he is looking for and would never have thought of asking for.

Finally, it is observed that all libraries have common problems in information dissemination. These problems are discernible in the areas of (1) staff - user interaction (2) dissemination of information and (3) feedback system.

## RECOMMENDATIONS

Since the problems are common to all the research libraries, the recommendations given here shall also be applied generally to all the libraries.

### 1. Staff - User Relations

It is fouhd out that scientists in all the libraries where the research is conducted tend to shy away from the librarians. This is found out to be as a result of loss of confidence which must have been caused by the luke-warm attitudes of librarians in providing adequate information services.

To restore the confidence of the scientists a way of communication between the librarians and the scientists is necessary. Every user is a processor performing a creative function on the information he receives. In practice, the mechanics of information handling between supplier and user is critical if any system is to succeed. It is therefore necessary to carry out user studies at local levels in every field of library services from time to time. Unlike in some advanced countries, sufficient importance has not been felt of user-studies in developing countries. Closely related to this topic is that of statement of subject profiles of scientists.

Since the basic rudiment of any user studies is the knowledge of scientists subject - needs, it is recommended that a better means of collecting such needs be devised by each library. For the purpose of maintaining a standard profile, a proposed statement of interest form is recommended for adoption by the writer.

As part of the study a form for collecting area of interest of the scientists has been designed and given to the librarians in charge of each institute for studying. Having studied the form, each librarian agreed that it will be very useful for adoption in future. They also express their willingness to use it as it is wholly designed to make necessary adjustment on the form to suit individual's library information requirements.

2. Dissemination of Information

Dissemination of information is not only irregular, but it is also arbitrary in all the libraries. A considerable proportion of scientists' time is spent on seeking for materials to read, it is discovered also that solicitation for materials to read by scientists is the 'modus operandi'. All the above are signs of inadequate dissemination of information based on the knowledge of individual scientists' interests.

The poor dissemination of information as noted above is further aggravated by (a) lack of trained personnel in the handling of scientific information in all the libraries and (b) lack of scientific information retrieval equipments. It is noted also with much concern that only the Institute for Agricultural Research (IAR) Samaru has an information retrieval system among all the scientific research centres in the northern part of Nigeria. It is even more pathetic to note that there is nobody to operate this retrieval system in the IAR Sararu as at the period of this study. It is recommended therefore that a special appeal be made to the Federal Ministry of Science and Technology (a) to grant special fund which will be used in recruiting and training of capable men to man the information units of each research centre and (b) to make funds available also for purchasing scientific information retrieval equipments for processing information.

3. Feedback System

This study reveals that feedback from users as a way of determining constant growth and changes in individual research interests is non existent in the Nigerian Institute for Trypanosomiasis

Research, Kaduna and also at the Nigerian Institute for Veterinary Research Vom. Only the Institute for Agricultural Research Samaru has a device for collecting a feedback from users in form of accompanying slips but it is even no more in use.

Some of the advantages to be derived from an adequate feedback are its suitability to furnish data concerning number of documents disseminated over a period of time and the number of documents that are relevant to scientists interests within this period. Of principal interest also to the librarians and the scientists especially is the mechanics of involving the user in the process of information dissemination services thereby reducing considerable noise in the information retrieval system.

Authentic and viable statistics are the end products of such feedback systems. Effective feedback systems are also known to be useful for formulating policies and for projecting future needs.

Because of the lack of such feedback form in almost all the libraries, the author has devised one which is recommended for use in research ilbraries before documents are disseminated to scientists. (See the appendix)

## CONCLUSION

In terms of chronological age, information services especially the selective dissemination of information (SDI) is relatively a very young and an emerging profession in the developing countries of Africa and especially in Nigeria. Much care and patience are necessary when such services are been avaluated. Like all other young services oriented organizations of the developing countries, library information services has its own peculiar problems. Among the peculiar problems are (1) lack of adequate funds to run the essential services (2) lack of sufficient personnel and (3) lack of enthusiasm by the authorities to develop library as part of essential tools that contribute in no small measure to research successes. Optimistically, the problems are not insurmountable. With the recent creation of Federal Ministry of Science and technology, a deliberate attempt appears to have been made by the Federal Government of Nigeria to conquer the problems associated with the institutes libraries. A further probe into the policy formulation and action of the Ministry in this regard is necessary inorder to justify the above statement.

The Federal Ministry of Science and Technology is divided into four departments: They are :-

1. Department of Industrial Sciences and Energy
2. Department of Medical and Natural Sciences
3. Department of Agricultural Sciences and
4. Department of Technology Transfer and Education.

While all the departments have various assignments and policies, the most relevant of them all to the topic being considered here is that of the Department of Technology Transfer and Education which is assigned the role of training and disseminating of research findings through a standard library. The roles of this departments are: to promote, administer and coordinate Technology Transfer and disseminate Research findings at all levels; to develop and maintain Reference Library, Documentation and Information centres, Science and technology museum and to publish Scientific Research journals; to liaise with National Office of Industrial Property, and Technology Transfer, Federal and States Ministries of Education and other relevant agencies on matters relating to Technology Transfer and Education.

While the above appears very brillant and laudable, a note of warning may be sounded that

unless pressure is exerted on the ministry of Science and Technology to implement without delay such policies as have been formulated here, especially as it relates to library development, its execution may be no more than a daydream. No country in quest of appropriate technology or transfer of technology can afford to play with industrial education and appropriate information services such that library and documentation centres provide. It is hoped that in not too distant future, library services, will effectively contribute its quota to the promotion of science and technology in Nigeria.

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## APPENDIX I

### QUESTIONNAIRE FOR RESEARCHERS

1. Write in the space provided below your subject discipline

   ---

2. Was the description of your present research interest obtained by the librarian for the purpose of sending relevant documents about your research work to you?

   Yes .....

   No .....

3. Are documents of interest to your research sent to you voluntarily by the librarian?

   Yes .....

   No .....

4. If your answer to question 3 is yes, how regularly are you receiving such documents? (Please choose one of the suggested frequencies listed below)

   (a) Weekly .....

   (b) Forthightly .....

   (c) Monthly .....

   (d) Irregularly .....

5. Are you aware of the availability of selective information services in the library to the researchers of the

Yes .....

No .....

If your answer to 3 is Yes please answer question 6.

6. Do you still carry on private literature searching for relevant documents for your research work?

Yes .....

No .....

7. Do you think that such services in 3 above has enabled you to do more reading than when you personally did the literature searching?

Yes .....

No .....

8. If the answer to 7 is No what do you think was responsible

.....

.....

9. Do you wish that the number of document disseminated to you presently be reduced?

Yes .....

No .....

10. How would you judge the timeliness of current documents arriving at your desk (Note that timeliness here refers to documents received within four months of their publication)

    Timely .....

    Untimely .....

11. Which of the representations listed helps you fastest to determine the probable relevance of documents before the actual documents are seen (Choose one of the followings)

    (a) Titles alone .....

    (b) Titles and abstracts .....

    (c) Photocopy of the first page.....

12. Among other possible factors is inadequate supply of current information from this library hampering your effectiveness as a researcher?

    Yes .....

    No .....

13. Is photocopy service available to you in the library?

    Yes .....

    No .....

14. Which of the following category of people do you find convenient to contract first when you have a problem in the library?

    (a) Librarian ......

    (b) Professional Colleagues.....

    (c) None of the above.....

15. Are the following services available to you in the Library?

    a) Abstracting and indexing services.....

    b) Compilation of bibliographic items and notes.....

    c) Regular list of recent library acquisitions .....

    d) Photocopying services;;;.....

    e) Translation services .....

## APPENDIX II

## INTERVIEW QUESTIONS

Dear Sir/Madam,

These interview questions are a follow to the previous finding questionnaire sent to the researchers that use this library.

This is an opinion sampling interview and for this reason, individual opinions shall be treated in confidence.

1. What is your general attitudes towards the periodic supply of relevant journal articles and information in this library?
2. What do you expect of a good personalized information service otherwise known as SDI?
3. So far, this last 6 months what is your subjective judgement of the quality of the articles disseminated to you?
4. Are too many or too few articles or citations being sent to you?
5. Have you any specific incidents of becoming aware of important information through the supply of current contents or SDI services?
6. Are there any significant articles located by another means which were not contained in the current content or SDI services?

   (Please substantiate)

## APPENDIX III

## THE INFORMATION RETRIEVAL SYSTEM ON NIGERIA AGRICULTURE REPORT COVERING JUNE, 1976-JUNE 1978

### IMPUT FIGURES

The Information Retrieval Unit had its first open day in May 1976 to introduce users to its services. The retrieval input at that time was 1,030 current documents from the backlog. From June 1976 to June 1978 a total input of 1,639 was recorded. This comprised of 1470 current input and 169 inputs from the backlog. The input recorded in the backlog represents 5? of the total backlog on Nigerian agriculture housed in the agricultural library. The current inputs are up to date, particularly inputs of I.A.R. Publications.

### USE

15 people attended the first open day for six months following that on 11 enquiries were received. As this responses was unsatisfactory another open week was held to re-introduce the system to the public and to assess the general performance of the system. Total attendance was 67, from various departments within and outside the I.A.R. An average 50% success rate was recorded (see Table 1 below).

Table I: Report on Open Week 14th-18th Feb. 1977

| Days and Dates | No. of people in Attendance | No. of actual operation performed | No of successful searches performed | % of successful searches performed. |
|---|---|---|---|---|
| Mon. 14th Feb. | 10 | 4 | 2 | 50% |
| Tues.15th Feb. | 10 | 9 | 4 | 44% |
| Wed. 16th Feb. | 14 | 10 | 5 | 50% |
| Thurs. 17th Feb. | 16 | 12 | 6 | 50% |
| Fri. 18th Feb. | 17 | 10 | 5 | 50% |
| Total | 67 | 45 | 23 | |

1. Success of search was judged from the degree of user satisfaction attained.

From February 1977 to June 1978 (16 months) a total of 89 readers consulted the system. These were made of 4 outside (Jos, Kaduna, Kano), 9 post-graduate students queries, 12 queries from (non-IAR) ABU staff and 62 from research workers within the agricultural complex. Apart from a few queries that were not satisfactorily answered most queries put to the system were adequately handled. In almost all cases photo-copies of references retrieved were made for enquirers.

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THESAURUS

An attempt was made early in 1977 to revise the thesaurus (i.e. the first draft of August 1975) but the excercise was abandoned mainly due to differences in opinion. Since then the thesaurus has been used unaltered except for minor changes. In the later part of this period a new list of potential indexing terms have been built up. A few of these are already being incorporated,ie.

FOOD PROCESSING: [illegible] Was droped to made room for more specific word that would embrace food preparation. Thus traditional or small scale food processing is indexed as food preparation with industrialised or large-scale food processing is food Technology.

FOOD PRODUCTION UF accelerated food production
NT NAFPP
RT Food supply

GREEN REVOLUTION RT Agricultural development

HUMAN NUTRITION was added as a general term becuase non of the existing 11 general terms seems to accommodate human nutrition, health, (human) diet, food science etc.

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PLANT COMPOSITION becoming increasingly frequent in

PROGRESS REPORT UP project report

feasibility report

BT reports

RT annual report

Project appraisal.

Beside these there are a few other suggested alterations to be considered.

CORRECTION OF ERRORS

Corrections of wrongly punched numbers were made until January 1978 by blocking the wrong hole with a piece of gummed paper and then applying a little Snowpake to help hold it in place. A record of the blocked numbers are kept in a file. In January 1978 this file was reviewed and the blocked holes checked. It was discovered that the correction measure was not always effective; some of them either got dry and fell off or they simply came off with much handling. A new device for correction had to be employed. At the present a temporary device is being used. If a number is wrongly punched or duplicated the wrong number is assigned a yellow blank 4" x 6" card.

| 1990 | |
|---|---|
| Number Intended | Number punched |

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|---|---|
| Number Intended | Number punched |

A yellow card in the document file is therefore an indication of a corrected error. It is hoped that by the time the input limit of 10,000 documents is reached a permanent solution to the problem I have been reached and the yellow cards can then be removed and the numbers reassigned. On the average there is only about one error in every 80 documents punched. This rate decreases steadily with time and constancy of staff.

STAFFING

For the 2 year period covered by this report the retrieval librarian has had to be away for approximately 8 months (June - September 1977 on course, and another four months on leave). During these periods work in the Information Retrieval Unit had to cease. This certainly re-echoose the need for assistant retrieval staff with some H. Sc. or D.L.S. and a science background.

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## APPENDIX IV

### STATEMENT OF INTEREST FORM

1. Name .....Date.....
2. Position.....Telephone.....
3. Organization/Department.....
4. Address.....
5. Type of search requested:.....Current Awareness (SDI).....Retrospective from..... to.....
6. Profile title (short descriptive phrase).....
7. Please describe in your own words the subject in which you are interested and on which you want references. Be specific, and define terms which have special meaning in your request. If certain facets of the subject are not of interest to you, explicitly state that they are to be excluded.

(for example): "I am interested in information related to the design and/or evaluation of programmes for "Disadvantaged" children in their early childhood education.

.....

.....

.....

8. List the important terms (words and word phrases) in your statement of interest and any synonyms of special uses you wish to exclude. Be sure to include both scientific and common terms. Your careful completion of this table will help to refine the profile.

| TERMS | SYNONYMS, CLOSELY RELATED TERMS | FOR OFFICE ONLY |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

9. List any particular authors whose writing always interest you. (specify first and middle names if possible. For example:

   1. ARTANDI, Suzan.....
   2. GARFIELD, Eugene.....
   .....

10. List any journals or other periodicals which you regularly read of whose contents you do not need to be informed.

   .....

11. Check any of the following types of references that you do not want to receive.

Patents.....Technical papers.....

Dissertations.....Books.....

Conference

Proceedings.....Periodical Articles.....

12. Do you wish to receive references to documents written in

.....English.....any language

.....other language(specify.....

13. Do you wish to receive

.....nearly all possible relevant references.

.....fewer,very probably relevant references

14. What is the maximum number of reference you would wish to receive in any one weekly run?.....

15. List one or two references in your area of interest that you have recently found useful.

.....

APPENDIX V

The recipient would be asked to make one of the following response to each citation:

- Article of interest: please send full copy
- Article of possible interest: please bring abstract
- Article of possible interest; please bring first page
- Article of possible interest; will keep citation on file
- Article of interest; but have already seem (please specify).....
- Article is not relevant to my interest
- Cannot judge relevance but do not send a copy.

The user would return these forms to the SDI staff and the abstracts, first pages or full articles would be obtained and delivered to him. With each items, the receipient would be given a second form to fill out and return. The second form would have the same bibliographic information as the first but one of the following response would be required.

SECOND RESPONSE MODEL TO ABSTRACTS OR FIRST PAGES OR ARTICLES

- Article of interest, please send full copy
- Article of possible interest, will keep on file
- Article of interest, but already known to me (please specify how).....
- Article not relevant to my interest.
- Cannot judge relevance, please do not send

THIRD RESPONSE MODEL TO FULL ARTICLE

- Article important to my research interest.
- Article relevant, but of minor importance to me (Please state reasons)
- Article of interest, but already known to me (Please specify how)
- Article may be of interest in the future, will keep in file
- Article is in a language I cannot read. Will you have it translated?
- Article is not relevant to my interests
- This article would probably be of interest to Mr.....