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International Water and Sanitation Centre

Centre international de l'eau et l'assainissement

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REPORT

ON THE PROJECT

FOR A

WATER AND SANITATION INFORMATION NETWORK

(MAJIDOC)

IN

TANZANIA

by

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IRC INTERNATIONAL WATER AND SANITATION CENTRE

The Hague

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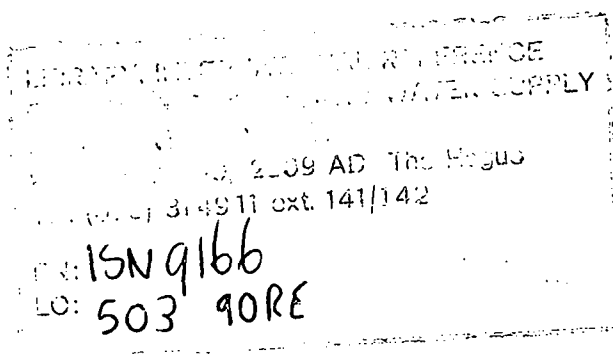
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INTRODUCTION

Background

This report has been prepared by the IRC International Water
and Sanitation Centre as a contribution to the development of
the water sector in Tanzania. It concentrates primarily on
making an assessment of the project proposals for Phase 1 of
the development of a national water and sanitation information
network (MAJIDOC) for Tanzania, together with recommendations
for their improvement, and includes some preliminary proposals
for Phase 2.

Information in the water and sanitation sector

The Steering Committee for Cooperative Action for the
International Drinking Water Supply and Sanitation Decade has
identified four major areas of information activities in the
sector, namely:

> Project and Sector Information
> Management Information Systems
> Technical Information Exchange
> Public Information and Promotion.

This report is concerned with one project in the area of
technical information exchange, but there are a number of
urgent problems in other areas, particularly that of
management information systems, which call for separate and
more detailed study at an early stage.

INFORMATION USERS AND THEIR NEEDS

Those who are expected to benefit from the network are: staff
and students of the WRI; professional and technical staff of
the Ministry; public health personnel involved in water supply
and sanitation projects; and occasional users from other
institutes. One of the activities to be carried out under the
project is an assessment of the needs of the network's main
users. The aim is to identify the kinds of information
products required.

It is essential to establish and maintain an accurate and up-
to-date profile of the estimated potential user population and
to carry out periodic assessments of its information needs.
Such assessments may also consider information-seeking and
information-using behaviour. They may be combined with a
survey of national sources of information supply, and a
methodology for carrying out such a combined exercise is
outlined.

The needs of the user community at the Water Resources Institute and those of users working in the Ministry and other public authorities in the sector are different, and will eventually require separate provision.

THE SUPPLY OF INFORMATION

An essential task of MAJIDOC should be to identify the various sources of information which already exist in the country. This task may be carried out in conjunction with the collection of information on the estimated potential user population and its information needs and also provide a basis for the compilation of the directory of water and sanitation professionals provided for under the project. The main stages in this activity are outlined.

ORGANIZATIONAL STRUCTURE

The organizational structure of the former Ministry of Water is now under review following its absorption into a new Ministry of Water, Energy and Minerals. The proposed information network will consist of documentation centres and reference units in various directorates and units of the Ministry. Provision is made for the establishment of a Project Advisory Committee to monitor project activities and provide guidance and advice to project staff.

There is no mention in the project document of the establishment of MAJIDOC as an administrative entity, its internal organizational structure or its place in the organizational structure of the Ministry.

It is essential, if the activities of MAJIDOC are to continue and to expand after the end of the present project, to create a permanent administrative structure for it at an appropriate location in the overall organizational structure of the Ministry (i.e. in the Planning Unit or at WRI).
It is proposed that the necessary steps be taken to establish MAJIDOC as an administrative entity within the Ministry, having its own budget and staff establishment.
The new MAJIDOC unit is proposed to continue, for the present, to be physically located at the Water Resources Institute.

The extension of MAJIDOC to include other water-related information units in Tanzania should be one of the main aims of phase 2 of the project.

LEGISLATION AND REGULATIONS

The proposed establishment of MAJIDOC as a separate unit of
the Ministry may involve specific directions from the Ministry
as to the transfer of the existing staff, records of the
collections, furniture and equipment of the documentation
centres to be incorporated in MAJIDOC, both now and in the
future. It may also be advisable to empower the Ministry to
make regulations regarding the establishment and operation of
MAJIDOC, including its relationships with other documentation
and information units.

MANPOWER

Most of the proposals relating to manpower are concerned with
training. Many of the training activities are to be
undertaken by consultants supplied by IDRC.

With the exception of the Technical Editor, none of the
project staff with higher educational qualifications has had
any kind of library or documentation training, while none of
those who have been trained in librarianship and documentation
has had any post-secondary general education. This is a most
serious situation.

If MAJIDOC is to be successfully established and extend its
activities, it must have an adequate staff complement of
fully-qualified information professionals. Expecting a
national water information system to be successfully managed
by staff with only technician-level training in information
work is like expecting a national rural water supply programme
to be successfully managed by a pump mechanic.

At least one new post, for the Director of the proposed
MAJIDOC unit, will be required. A post at the level of
Principal Librarian would appear to be appropriate.

All the library and documentation staff of the project should
be encouraged and helped to pursue such training to an
appropriate level.

The staff of the project will need a continuing relationship
with a a local consultant to provide regular advice and
assistance. The professional staff of the Tanzania Library
Service have considerable experience in providing consultancy
support for library and information systems in Tanzania, and
it is strongly recommended that their assistance be sought.

COLLECTIONS OF INFORMATION MATERIALS

Many of the books and documents in the existing documentation
centres are in poor physical condition.   The project document
proposes various actions in respect of the procurement and
processing of information materials in the future but nothing
in respect of the existing collections.

If MAJIDOC is to offer effective documentation services to its users, particularly in respect of national documents, it will not be sufficient to base these solely on documents to be acquired in the future; the existing collections must be sorted out, physically rehabilitated if necessary, properly recorded and stored in conditions which will not contribute to their further physical deterioration.

This is an urgent and essential task which should be started and completed as soon as possible. The main steps to be taken are summarized.

ACCOMMODATION

The project provides for the existing documentation building at WRI to be renovated, and this work is now in progress. The Ministry library is housed in appalling conditions. The WMPCU library is rather overcrowded, but in good physical condition. No proposals are made with regard to the renovation or furnishing of these two libraries.

The space to be made available in the renovated building at the WRI is adequate for the proposed national documentation centre, but not for the Institute's library, and certainly not for both. The building should be regarded as providing only a temporary home for the centre and the library.

The conditions under which the Ministry library is housed are so bad that it is proposed that, as soon as the renovated building at WRI is ready for use, the entire collection of the Ministry library should be transferred there for sorting. Fresh accommodation should be found in the Ministry building for a smaller working library intended to meet the day-to-day needs of Ministry officials.

FURNITURE AND EQUIPMENT

Two-thirds of the project budget is allocated to the purchase of furniture, equipment and supplies for MAJIDOC. The document states that some of the materials to be supplied under the project will be shared between the three units, but makes no specific proposals in this regard.

The project proposals regarding the supply of equipment are analyzed in detail. Proposals are made for additional items of equipment which may be useful and for savings to be made in the equipment budget by not aqcuiring unnecessary items.

Minor revisions to the layout of the renovated building at WRI are proposed and schedules, outline specifications and drawings of the main items of furniture required are provided.

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FINANCE

It seems clear that, apart from provision for staff salaries, the three documentation units receive negligible financial support from the Ministry at present.

No provision is made in the project proposals for continuing budgetary support on an adequate scale after the end of the project. This will be essential if MAJIDOC is to be established as a separate section within the Ministry.

It should be possible to make some savings on the existing project budget if some of the items of furniture and equipment are not required, and if better prices can be negotiated for others.

One way of obtaining a regular supply of funds would be to include, in all project proposals, contracts and agreements with donor agencies, consultants and contractors, mandatory provision for a proportion of the budget to be allocated to information and documentation.

TECHNICAL OPERATIONS AND ACCESS

It was not possible to study technical operations in the existing units in any detail during the assignment, but the level of activity in this respect appears to be very low. The units do not have adequate budgets to enable them to purchase new publications in any quantity. Arrangements for the acquisition of non-commercial documents produced in Tanzania do exist, but do not appear to be working very effectively. Despite the low volume of acquisitions, the catalogues of all three units appear to be considerably in arrears.

The project document makes various references to technical operations and access in its proposals for MAJIDOC activities.

Among the most difficult technical operations to carry out effectively will be the identification and collection of the "grey" literature produced within Tanzania. Suggestions are made as to how this might be done.

The main problem with regard to the acquisition of foreign literature is that of finance. It will be essential to provide adequate amounts in the regular budget of the proposed MAJIDOC unit for subscriptions to foreign periodicals and the purchase of foreign books. This implies also the provision of the necessary foreign exchange facility.

INFORMATION PRODUCTS AND SERVICES

It was not possible to investigate the existing situation in this respect in any detail during the assignment, but the generally poor condition of the existing collections and the lack of fully professionally-qualified staff, suitable accommodation and modern equipment make it virtually impossible for the existing documentation centres to offer even the most basic services at a satisfactory level.

The project document contains various proposals with regard to the provision of current awareness services, literature searches and publications which are analyzed in the report. With regard to all these proposals, the main comment is that the amounts of money provided in the project budget appear to be low - probably too low to enable the various documents to be produced in the quantities proposed. The unit costs appear to have been underestimated, and should be revised before the actual production of any item begins. It may be necessary, as a result, to revise the programme for the production of these publications.

0.	INTRODUCTION

0.1	Background

0.1.1   This report on the MAJIDOC project for the
          establishment and development of a national water and
          sanitation information network in Tanzania has been
          prepared by the IRC International Water and Sanitation
          Centre at the invitation of the Project Supervisor, as
          a contribution to the development of the water supply
          and sanitation sector in Tanzania.

0.1.2   The MAJIDOC project is a joint project of the
          Government of Tanzania and the International
          Development Research Centre (IDRC) of Canada. The
          objective of the project is

>   to enable the Ministry of Water (MAJI) of Tanzania
>   to establish a national water and sanitation
>   information network through the strengthening of
>   the documentation centre of the Water Resources
>   Institute in collaboration with the Water Master
>   Plan Coordinating Unit documentation centre and the
>   MAJI headquarters library.

          The Memorandum of Grant Conditions relating to the IDRC
          contribution to the project was signed on behalf of the
          former Ministry of Water of the Government of Tanzania
          on 29 December 1989. It appears that the IDRC grant
          has been transferred to the Tanzania authorities, but
          that no funds have been released to the project as yet.

0.1.3   It should be noted that, following recent government
          changes in Tanzania, the former Ministry of Water,
          under which the project was conceived and prepared, has
          now been absorbed into a new Ministry of Water, Energy
          and Minerals. The precise implications of this for the
          future of the project, particularly with regard to the
          place of MAJIDOC in the organizational structure of the
          new Ministry, are not yet clear. In this report, the
          term "the Ministry" is used to indicate either the
          former or the new Ministry, as appropriate.

0.1.4   The IRC consultant was originally invited to Tanzania
          to prepare a project proposal for a second phase of the
          development of MAJIDOC, in which it was envisaged that
          the network would be extended to the regional level
          within Tanzania. In preliminary discussions with the
          Project Leader and members of the project team at the
          beginning of his visit, however, the consultant pointed
          out certain weaknesses in the proposals for Phase 1 of
          the project which, if not corrected, would not only
          hinder the proposed expansion of the network in Phase
          2, but might also jeopardize the implementation of
          Phase 1 itself.

0.1.5   In view of this, and of the fact that the
         implementation of Phase 1 had barely begun, it was
         agreed that the consultant should concentrate primarily
         on making an assessment of the proposals for Phase 1,
         together with recommendations for their improvement,
         and only secondarily on the formulation of proposals
         for Phase 2.

0.1.5   This report therefore presents an analysis of the
         proposals for Phase 1 of the project, structured in
         accordance with <u>a Systematic framework for the
         description, analysis, planning and evaluation of
         information activities</u>, which is attached at Appendix
         A. Where appropriate, elements of the framework are
         reproduced in the body of the report.

0.1.6   This report may be said to have its origins in the
         Regional Tutors' Seminar organized by the African
         Medical and Research Foundation (AMREF) in Nairobi in
         December 1989. During the course of the seminar, IRC
         indicated its willingness to assist the countries
         represented there in formulating project proposals
         relating to information management. It was as a result
         of this that the invitation to undertake the present
         assignment was issued.

0.1.7   The AMREF Environmental Health Unit, which hosted the
         Nairobi seminar, also has responsibilities with regard
         to information development in the water supply and
         sanitation sector in East Africa, particularly in the
         area of technical information. AMREF's <u>Plan of
         Operation, 1990 to 1991</u> provides for it to assist
         member countries in establishing focal points for the
         dissemination of technical information on water supply
         and sanitation. In view of this, IRC indicated, at the
         Nairobi meeting, that any assistance which it might
         offer in this field would, wherever possible, be
         provided in close cooperation with AMREF.
         Unfortunately, it has not been possible, in the present
         case, to achieve the degree of cooperation envisaged.
         The Senior Information Officer of the AMREF
         Environmental Health Unit visited Tanzania, and the
         project, a few weeks before the present assignment, but
         the results of her visit are not yet known. A copy of
         the draft report on the present assignment was
         submitted to AMREF for comment, and any comments
         received have been taken into account in producing the
         final text. Any errors and omissions in the report,
         however, must be considered the responsibility of IRC.

0.2.   <u>Information in the Water and Sanitation Sector</u>

0.2.1   The importance of information as a key element in the
         success of activities in the water supply and
         sanitation sector has been recognized at the

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international level by the Steering Committee for Cooperative Action for the International Drinking Water Supply and Sanitation Decade, which has identified four major areas of information activity in the sector namely:

-Project and Sector Information

-Management Information Systems

-Technical Information Exchange

-Public Information and Promotion.

0.2.2   Project and Sector Information (PSI) embraces information and statistical data on the water supply and sanitation sector in the country as a whole, and information on completed, ongoing and proposed projects in the sector, at all levels. It is used primarily by planners and policy makers, both in the country and in external support agencies, international organizations and research institutions.

0.2.3   Management Information Systems (MIS) deal mainly with internally-generated information and data relating to the planning, administration, day-to-day operation, management, performance and evaluation of specific institutions, organizations, programmes and projects in the sector. They are concerned with:

(a) information needed to manage the resource (e.g. water, health)

information needed to manage the institution.

Every institution, organization, programme or project in the sector requires its own MIS designed to meet its own specific needs, though in some cases one MIS - for example, that for a specific project - may in practice be a sub-system of one or more large ones - for example, that of the institution managing the project, or that of the contractor responsible for implementing it.

0.2.4   Technical Information Exchange (TIE) involves the transfer between individuals and institutions of information capable of being applied - if necessary, after adaptation to local needs - in more than one situation. It thus deals with information relating to problems and solutions, methods and techniques, the results of research and field studies, sources of equipment, expertise and materials, and so on. Technical Information Exchange may be characterized by its aims, which are to transfer information, data, knowledge and experience from one location to another in which they may be applied according to local needs.

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Virtually every institution in the sector <u>needs</u> technical information to enable it to benefit from the experiences of others, and also <u>generates</u> technical information which would be of benefit to others.

0.2.5   <u>Public Information and Promotion (PIP)</u> is in a different category from the others outlined above, in that it is directed at the general public rather than other sector professionals, and aims to develop awareness, improve motivation and change behaviour in relation to water supply and sanitation rather than provide information for use as a tool in carrying out technical or managerial activities in the sector.

0.2.6   These four categories of information activity in the water supply and sanitation sector are not mutually exclusive. Thus, for example, data included in a PSI system may be derived, at least in part, from the processed outputs of several MIS in the sector; and national indicators and growth forecasts generated by a PSI system may be used as inputs to a MIS for planning purposes. Similarly, data derived from MIS may, after suitable repackaging (for example, in the form of a report or periodical article), be made available to others through TIE facilities, and information distributed in this way may be further repackaged (for example, as a radio broadcast or brochure) for use in PIP.

0.3   <u>CONCLUSION</u>

0.3.1   In submitting this report, IRC would like to express its thanks to the Project Leader, Mr. Washington Mutayoba, the Assistant Project Leader, Mr. Pius Mabuba (Principal and Vice Principal respectively of the Water Resources Institute) and other members of the project team, for the opportunity to carry out this assignment and for the help and support they provided. It is hoped that the report will help to provide a sound basis for the implementation and further development of a national water and sanitation information system in Tanzania.

1.   INFORMATION USERS AND THEIR NEEDS

1.1   Introduction

The potential users of information in specific fields are often widely scattered and sometimes difficult to identify, especially in interdisciplinary fields such as water supply and sanitation. A thorough knowledge of the characteristics, size and distribution of the estimated potential user population (EPUP) is, however, fundamental to the successful provision of information to meet its needs. Appendix A.2 discusses these questions in more detail.

1.2   Existing situation

1.2.1

The project document identifies the main groups of potential information users in the water supply and sanitation sector in Tanzania as:

> decision makers and technical personnel at all levels... planners, researchers, instructors, designers, constructors, operators and users of water supply and sanitation schemes in the ministries, regional development directorates, local authorities, industry, training/research institutions, etc. (para.10).

1.2.2

The users who are expected to benefit directly from the reference services of the network are identified (para.14) as:

(a) staff and students of the WRI (400)

(b) professional and technical staff of the Ministry of Water (500)

(c) public health personnel involved in water supply and sanitation projects;

(d) occasional users from other institutes (200).

1.2.3

No further information on the size, characteristics or distribution of the EPUP is provided in the project document. The figure of 500 expected beneficiaries in the Ministry of Water, quoted above, seems to refer only to users at Ministry headquarters. The total number of users in all branches of the Ministry in all parts of Tanzania is undoubtedly very much greater than this.

1.2.4

The information needs of the "decision makers and technical personnel at all levels" referred to above are identified in the project document in very general terms as being for:

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up-to-date information on the available knowledge and experiences applicable in the preparation and execution of development schemes.

In consequence there is a need for

disseminating the relevant technical information on various aspects, e.g. water supply technologies, sanitation options, community participation, human resources development, institutional building, financial analysis, and programme evaluation. (para.10)

1.3   Project proposals

1.3.1   The project document does not include any proposals for further study of the size, characteristics and distribution of the EPUP as such, but one of the specific activities to be carried out under the project is "an assessment of the needs of the network's main users" in the Ministry of Water and elsewhere.

1.3.2   The aim of this activity is to identify the kinds of information products required. It is to be carried out after the inauguration of the project, under the guidance of the first consultant (see 5.3.2 below), and will use a variety of methods, including interviews, questionnaires and meetings, to obtain the information required. A draft questionnaire for use in this survey has already been prepared by project staff.

1.4.   Comments and further proposals

1.4.1   If the potential users of the system are to become actual users, its information resources, products and services must be designed to meet their needs. It is therefore essential to establish and maintain an accurate and up-to-date profile of the EPUP and to carry out periodic assessments of its information needs. Such an assessment may also consider the information-seeking and information-using behaviour of the EPUP.

1.4.2   These activities may be carried out in conjunction, and should be repeated at regular intervals - say, once a year - to ensure that the system continues to respond to changes in the structure of the EPUP and in its information needs. These activities may also be combined with a survey of national sources of information supply, and a methodology for carrying out such a combined exercise is outlined in section 2.4 below, where reference is also made to a recently-completed human resources development survey understood to have been carried out by the Ministry, which might already provide some of the required data.

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1.4.3   The draft questionnaire prepared by project staff for use in carrying out the proposed information needs assessment focuses on the research activities of respondents and their use of libraries and published documents rather than on their information needs as such. An outline of the main points to be covered by such a questionnaire, which also deals with the generation of information by respondents and is designed for use in the combined survey exercise referred to above, is presented at Appendix B.

1.4.4   The decision to locate the headquarters of MAJIDOC, at least initially, at the WRI, gives rise to some questions with regard to the identity and location of the main target groups which MAJIDOC is intended to serve, particularly in Phase 1.

1.4.5   The planning and development of a system such as MAJIDOC and, in particular, decisions as to the location of the headquarters of the system, must be based on a realistic appraisal of the technical information needs of different groups of users within the organization. In this regard, it is clear that the needs of the user community at the Water Resources Institute on the one hand, and those of users working in the Ministry and other public authorities in the water and sanitation sector on the other, are substantially different and will eventually call for different responses in terms of the provision of information materials, facilities and services.

1.4.6   The main user groups at the WRI are students, academic staff, research workers and administrative staff. The needs of students are primarily for basic information on such topics as water supply, water quality, hydrology, hydrogeology, drilling techniques, irrigation, sanitation,etc. and the basic social and natural sciences. This information is presented in the form of textbooks, reference works, audio-visual aids and so on.

1.4.7   Academic staff and research workers have little need of textbooks, but also need reference materials and, for some purposes, audio-visual aids, as well as materials on teaching and research techniques. They have a much greater need for scientific and technical periodicals, conference proceedings and the like, mainly published abroad, and, particularly for research purposes, some need for technical documents - field studies, project reports, etc. - produced within the country, often as part of the operational activities of the Ministry and other public bodies working in the sector.

Administrative staff generally need technical information on their own fields of specialization, e.g. accounting, and not on water-related topics as such, and are best served by special provision within the general library collections.

1.4.8   The main user groups in the Ministry and other public bodies are policy makers and planners, administrators, engineers, technicians, trainers and support staff, many of whom need access mainly to project and sector information or management information. In terms of technical information, policy makers and planners need access to key international journals in the field, while administrators need access to foreign literature on management topics. Engineers need externally-generated technical information on new methods and techniques, experiences in other countries and so on, but have a much greater need for internally-generated information directly related to their operational activities, in the form of field study reports, project documentation, specifications, standards, manuals and so on. Technicians also need access to some of this documentation, particularly specifications, standards and manuals. Support staff require access to externally-generated technical information on their fields of work, such as office administration.

1.4.9   In summary, the main needs for technical information at the WRI are for externally-generated information (foreign books, journals, etc.), with an occasional need, mainly from research workers, for locally generated information (reports, studies, etc.). The main needs for technical information in the Ministry on the other hand, are for locally-generated information (reports, studies, etc.) with some degree of access to externally-generated information (foreign books, journals, etc.). The needs of the two institutions, though they overlap to some extent, are thus essentially different, and will eventually require separate provision. This question should receive more detailed attention when more detailed plans for Phase 2 are being prepared.

2.   THE SUPPLY OF INFORMATION

2.1   Introduction

2.1.1   It is impossible to meet the knowledge needs of a
            particular group of users unless the required knowledge
            -including a knowledge of any necessary skills -
            already exists and is available at the right levels of
            presentation and in the right formats and languages,
            and is appropriate, in terms of timeliness and of the
            means by which it is communicated, to the needs of the
            users.

2.2   Existing situation

2.2.1   The project document notes (para.10) that the kinds of
            information needed, which are identified in
            paragraph 1.2.4 above, may be generated and transferred
            locally within a project, or through national, regional
            or global activities.

2.2.2   Reference is also made (para. 20) to the unpublished
            ("grey") literature, such as project and ministerial
            reports, theses, etc. produced in Tanzania on water and
            sanitation and to the preparation of regional water
            master plans, which is coordinated by WMPCU but usually
            carried out by consultants with donor assistance.

2.2.3   No further references to the existing situation with
            regard to the supply of information appear in the
            project document.

2.3   Project proposals

2.3.1   There are no proposals in the project document for
            obtaining more information on the existing situation
            with regard to the supply of information, and the only
            proposals for improving the situation are those
            concerning MAJIDOC's own information products, which
            are dealt with in section 11 below.

2.4   Comments and further proposals

2.4.1   Apart from a passing mention of the generation and
            transfer of information "through regional or global
            activities", the brief references to the supply of
            information which are contained in the project document
            are concerned exclusively with information generated
            within Tanzania. While MAJIDOC will be particularly
            concerned with locally-produced information of this
            kind, it will also deal with information relevant to
            the needs of users in Tanzania which is generated or
            supplied from abroad. Some of this information is
            already available in libraries, documentation centres
            and other collections in Tanzania.

2.4.2   An essential task of MAJIDOC should be to identify the
         various sources of information which already exist in
         the country, to provide a firm basis for the
         development of its own collections of national
         information materials, for the compilation and
         publication of a national directory of information
         sources and for the eventual creation of national union
         lists and catalogues of relevant library holdings.

2.4.3   This task may be carried out in conjunction with the
         collection of information on the EPUP and its
         information needs and also provide a basis for the
         compilation of the proposed directory of water and
         sanitation professionals provided for under the project
         (para.16). The main stages in this activity would be:

         1. Inventory of institutions in the water sector

             This would aim to identify and locate the main
             institutions in the sector in Tanzania and obtain
             basic information on: their staffs; their
             involvement in generating and disseminating
             information, particularly in documentary form;
             whether or not they have a library or documentation
             centre. This information would provide the basis
             for the remaining three stages.

         2. Analysis of EPUP

             The information on the numbers and types of staff
             in the various institutions, collected in stage 1,
             would be collated to create a consolidated profile
             of the national EPUP. This would provide the basis
             for stage 3.

         3. Survey of information needs and information use

             This would involve the collection of detailed
             information on the information needs and
             information seeking and information-using behaviour
             of members of a stratified example of the EPUP,
             drawn from the consolidated records created in
             stage 2. Such a survey may be carried out through
             questionnaires, interviews, group techniques or a
             combination of any or all of these.

         4. Survey of information generation and dissemination

             This would be carried out by correspondence and
             would aim to obtain, from all institutions
             responding positively on this subject in stage 1,
             full details of their activities in respect of the
             generation and dissemination of information,
             including lists and copies of documents produced.

5. Survey of library and documentation units

This would be carried out by questionnaire and
interview, and would seek to obtain, from all
institutions responding positively on this topic in
stage 1, further details of their library or
documentation units and their resources and
services.

2.4.4   Further information on the conduct of these surveys is
provided in Appendix B. It is understood that a human
resources development survey of the water supply and
sanitation sector in Tanzania was recently carried out
by the WRI. The results of this survey may obviate the
need to carry out stages 1 and 2 above.

2.4.5   It should be emphasized that thorough pre-testing of
all questionnaires, interview schedules and other data
collection instruments is essential before each survey
is launched. It is strongly recommended also that the
advice and assistance of the Tanzania Library Service
be sought in this process. The General Information
Programme of Unesco has issued several guidelines on
the conduct of different kinds of surveys and
inventories in the information sector, and copies of
these should be available in Tanzania, either at TANDOC
or from the Unesco National Commission.

2.4.6   The identification of sources of information outside
Tanzania may be done through the use of published
directories, bibliographies and similar works, as well
as through the regular scanning of current periodicals,
newsletters and current awareness bulletins. Key
institutions in the field, such as IRC, WASH (Water and
Sanitation for Health), WEDC (Water, Engineering and
Development Centre -Loughborough University), and so
on, may also be approached direct, both for information
on their own publications and for suggestions as to
other possible sources.

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3.   ORGANIZATIONAL STRUCTURE

3.1   Introduction

            Any information system requires an appropriate
            organizational structure through which its
            resources can be applied in the performance of
            technical operations and the provision of services
            to users. The organizational structure of an
            information system is influenced by administrative
            and organizational background factors and by any
            existing organizational arrangements for the supply
            of information in the sector as a whole. It also
            overlaps and interacts with the internal
            organizational structures of individual information
            units which may participate in the system, and with
            those of various other systems, institutions and
            organizations. This gives rise to questions of
            centralization, coordination and cooperation.

3.2   Existing situation

3.2.1   The project document refers (para.11) to the existence
            of some small documentation or reference centres in
            some of the directorates or sections of the Ministry of
            Water, but gives no indication of the place of any of
            these centres in the organizational structures of their
            parent units or in that of the Ministry as a whole.

3.2.2   With reference to the three centres to be included in
            Phase 1 of the project:

            (a) the WRI library is a separate unit under the Vice-
                Principal Academic Affairs; the current holder of
                this position is also the MAJIDOC Assistant Project
                Leader;

            (b) the Ministry library is a section within the
                Directorate of Design and Construction (in the
                former Ministry);

            (c) the WMPCU library comes under the Planning Unit of
                the Ministry.

3.2.3   There are some other libraries or documentation centres
            in other branches of the Ministry, for example at the
            Hydrogeological Department in Dodoma and at some of the
            Regional Water Engineers' offices, of which there are
            eighteen in different parts of Tanzania. Other public
            institutions in the sector, for example RUBADA and the
            Dar es Salaam branch of the National Urban Water
            Authority (NUWA), also have library or documentation
            units or plans to establish them. The location of such
            units in the organizational structures of their parent
            bodies was not studied in any detail during the
            assignment.

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3.2.4   The organizational structure of the whole of the former
         Ministry of Water is now under review following its
         absorption into a new Ministry of Water, Energy and
         Minerals, and it has been suggested that any new
         proposals regarding the organization of library,
         documentation and information services within the
         Ministry should be put forward at this time.

3.3   Project proposals

3.3.1   The introduction to the project document states
         (para.1) that the proposed information network will
         consist of documentation centres and reference units in
         various directorates and units of the Ministry. The
         project aims at building well-coordinated documentation
         centres (para.13), its objective being

              " to enable the Ministry ... to establish a
              national water and sanitation information network
              through the strengthening of the documentation
              centre of the Water Resources Institute in
              collaboration with the Water Master Plan
              Coordinating Unit documentation centre and the MAJI
              Headquarters library" (para.15)

3.3.2   Provision is made (para.16) for the establishment of a
         Project Advisory Committee and the convening of four
         meetings. The Committee's task will be to monitor
         project activities and provide guidance and advice to
         project staff (para.19), and specific proposals are
         made (para. 40) as to who its five members should be.
         One of the members is the Head of TANDOC.

3.3.3   The project document provides no indication as to how
         the coordination and collaboration to which it refers
         are to be implemented.

3.4   Comments and further proposals

3.4.1   As noted in paragraph 3.2.2 above, each of the three
         main components of MAJIDOC falls at present under a
         different unit of the Ministry. The only unifying
         factors tending to draw these components together are
         the Project Advisory Committee and the project team,
         neither of which, in their present form, will have a
         life extending beyond the end of the project. The
         project document contains no proposals regarding the
         establishment of MAJIDOC as an administrative entity,
         its internal organizational structure or its place in
         the organizational structure of the Ministry.

3.4.2   It is <u>essential</u>, if the activities of MAJIDOC are to
        continue and to expand after the end of the present
        project, to create a permanent administrative structure
        for it at an appropriate location in the overall
        organizational structure of the Ministry.

3.4.3   In discussions with the project team, it was proposed
        and agreed that the necessary steps be taken as soon as
        possible to establish MAJIDOC as an administrative
        entity within the Ministry, having its own budget and
        staff establishment (comprising the existing staff of
        the three documentation units) within those of an
        appropriate higher level unit and headed by a director
        reporting directly to the head of that unit. The new
        MAJIDOC unit should continue, for the present, to be
        physically located at the Water Resources Institute.

3.4.4   It is difficult, at this stage, to identify the most
        appropriate location for the MAJIDOC unit within the
        organizational structure of the Ministry, since the
        latter is itself under review. Experience in other
        countries and other sectors suggests that the unit
        should be attached to a higher level unit whose staff
        are likely to make good use of MAJIDOC and thus to
        support its development. In discussions with the
        project team, it was suggested that, in the former
        Ministry of Water, an appropriate unit to which MAJIDOC
        could be attached would be the Planning Unit. It is
        not clear whether this unit will continue to exist in
        its present form when the reorganization of the
        Ministry is complete, but a unit of this kind would
        provide a more suitable home for MAJIDOC than, for
        example, one concerned purely with administration.

3.4.5   Within the framework of the new Ministry of Water,
        Energy and Minerals, consideration should also be given
        to the administrative location of the former Geological
        Survey Library at Dodoma. It may be appropriate for
        this library, and any others which may exist in other
        units of the new Ministry, to be brought together with
        MAJIDOC under one general Information Management Unit,
        possibly reporting directly to the Permanent Secretary.
        It is not proposed, however, that the water-related and
        non-water-related libraries should themselves be
        combined administratively at this stage, though they
        might very well begin to work towards the
        standardization of methods and systems for information
        management.

3.4.6   It is therefore proposed that the project team should
        initiate discussions as soon as possible with those
        responsible for the reorganization of the Ministry,
        with a view to agreeing on the creation of a MAJIDOC
        unit and deciding on the most appropriate location for
        it within the new Ministry structure.

3.4.7   Once the proposed MAJIDOC unit has been established within the Ministry (either alone or as part of an Information Management Unit of wider scope) and the three documentation centres forming part of the project have been fully integrated into it, consideration may be given to extending the organizational structure of MAJIDOC to include other water-related information units in Tanzania. This should be one of the main aims of phase 2 of the project.

3.4.8   It is suggested that a basic distinction should be made at the outset between units which are part of the Ministry, such as those at the Hydrogeological Department in Dodoma and the Regional Water Engineers' offices, and those belonging to other organizations. The former should be fully integrated into MAJIDOC in the same way as the existing units, to create a single, unified library and documentation system (MAJIDOS?) for the whole Ministry (or at least for those elements of it that are concerned with water supply and sanitation). The latter should be linked to MAJIDOC less formally, through cooperative arrangements for the exchange of bibliographic data, interlending of documents and so on. This broader structure would form an information network (MAJIDON?) in the true sense of the word.

4.   <u>LEGISLATION AND REGULATIONS</u>

4.1   <u>Introduction</u>

          The term "legislation" in this context, is taken to
          include all kinds of laws, decrees, regulations,
          administrative orders and instructions regulating or
          influencing the establishment and operation of
          information systems. It is through legislation of some
          kind that information systems obtain their authority to
          provide services to their users. Legislation provides
          formal recognition, by the authorities, of the need for
          information systems and of their general purposes and
          objectives. It also authorizes the pursuit of these
          objectives through the establishment of an appropriate
          organizational structure and the provision of
          infrastructural resources. The establishment and
          operation of an information system in any field is
          affected by legislation in other fields, such as
          employment, censorship, or copyright.

4.2   <u>Existing situation</u>

4.2.1   The project document makes no reference to this topic.

4.3   <u>Project proposals</u>

4.3.1   The project document does not include any proposals in
          this regard.

4.4   <u>Comments and further suggestions</u>

4.4.1   The proposed establishment of MAJIDOC as a separate
          unit of the Ministry, with its own staff establishment
          and head or subhead in the budget estimates, may
          require administrative action on the part of the
          Minister which will be formally executed through a
          notice in the <u>Government Gazette</u>. This may involve
          specific directions from the Minister as to the
          transfer of the existing staff, records of the
          collections, furniture and equipment of the
          documentation centres to be incorporated in MAJIDOC,
          both now and in the future. It may also be advisable,
          at the same time, to empower the Minister to make
          regulations regarding the establishment and operation
          of MAJIDOC, including its relationships with other
          documentation and information units.

4.4.2   Similar regulatory actions will be required to
          legitimize the extension of MAJIDOC to include other
          library and documentation units of the Ministry in
          phase 2, and, possibly on a less formal basis, to
          control cooperative arrangements with information units
          belonging to other organizations.

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TABLE 1: Education and Training of Project Staff. Existing Situation

Location	Position	Post-Secondary Education					Library and Documentation Training			
		DIP	ADV/DIP	DEG	PG/DIP	MAS	ELEM	IAC	HSC	Other
WRI Project	Project Leader	*		*	*					
	Asst.Project Leader			*		*				
	Technical Editor			*	*					ENSIC
	Data Entry Operator			*						
	Secretary									
WRI Library	Documentalist		*							
	Doc. Assistant 1							*		
	Doc. Assistant 2							*		
	Doc. Assistant 3						*			
MAJI Library	Lib. Assistant									BC
	Lib. Attendant 1						*			
	Lib. Attendant 2						*			
	Lib. Attendant 3						*			
WMPCU Library	Lib. Officer							*	*	
	Lib. Assistant						*			

KEY:
DIP = Non-graduate ordinary diploma
ADV/DIP = Non-graduate advanced diploma (recognized in Tanzania as equal to a degree)
DEG = University degree
PG/DIP = Post graduate diploma
MAS = Master's degree
ELEM = Elementary certificate
IAC = Library Assistant's Certificate
HSC = Higher Standard Certificate

NOTES:
1. Project duties account for 10% of working time
2. Project duties account for 50% of working time
3. Three months course at the Environmental Sanitation Information Centre, Asian Institute of Technology, Bangkok, Thailand, 1989
4. Two weeks in-service training at the British Council Library, Dar es Salaam
5. In progress

5.	MANPOWER

5.1	Introduction

5.1.1 No information system can function without an adequate supply of suitably-trained and qualified manpower. Creating and maintaining a cadre of competent, highly-motivated and well-qualified personnel is therefore one of the most crucial tasks to be undertaken in developing an efficient and effective information system.

5.2	Existing situation

5.2.1 The project document refers (para.12) to "a general lack of trained expertise and personnel" in the existing documentation units, and gives the total numbers of staff in each unit and the position of the person responsible for its overall direction (paras.36-38 incl.) The names, present positions, higher educational qualifications and project positions of the project staff are listed (para.39). No information is provided on the educational, professional or technical qualifications of project staff below the higher education level, nor on any training in library or documentation work which they may have received.

5.2.2 The actual position in the various units involved in the project is summarized in Table 1.   . No information is available at present about the staffing situation in any other library or documentation units in the Ministry or in other institutions in the sector. It may be that such information could be obtained from the reults of the human resources development survey carried out recently by WRI.

5.3	Project proposals

5.3.1 As noted above, the project document provides some information on the individual members of the project team. It also (para.41) provides calculations of the salaries of project staff which show what proportion of each person's salary is to be charged to the project. This presumably reflects the proportion of each person's normal working time which is intended to be spent on the project. On this basis, only three documentalists (one in each unit), the data entry operator, the project secretary and one documentation assistant are expected to work full-time on the project. It would appear, however, that not all the staff of the three units are considered as project staff, and these persons will presumably continue to work their normal hours in future.

5.3.2   The project provides for three consultancy visits, the first of 21 days' duration and the second and third each of 14 days' duration. The budget for this component is to be administered by IDRC and provides for return air fares from Addis Ababa and consultancy fees of CAD 150 per day (US$ 125 per day approximately) (para.52). The consultancies are scheduled to take place at the beginning of the project, in the eighth month and the fifteenth month, and are to be mainly concerned with staff training.

5.3.3   Most of the proposals relating to manpower which appear in the project document are concerned with training. Reference is made, at various points in the document, to training in the following areas:

(a) the management of a documentation centre (para.16);

(b) the provision of user services (paras.16 and 20);

(c) the use of Mini-micro CDS/ISIS (paras.16 and 20)

(d) the computerization of collection listings (para.16)

(e) the organization and cataloguing of collections in general and of national grey literature in particular (para.20)

(f) basic indexing and abstracting (para.20);

(g) the use of the Interwater Thesaurus (para.20);

(h) how to collect grey literature (para.20);

(j) training for the network's information editor (para.29).

5.3.4   These training activities are to be directed at the documentation staff of the three units (para.20) and many of them are to be undertaken by consultants supplied by IDRC. To further reinforce this training, project staff will receive training through "appropriate workshops or seminars conducted in the region or elsewhere" (para.53) and the project budget includes provision for two air tickets and a total of twenty-eight days' subsistence to enable staff to obtain further training, or participate in meetings, in other countries.

5.4	Comments and further proposals

5.4.1   The initial staff establishment of the proposed new MAJIDOC unit in the Ministry should be created by transferring the existing posts for library and documentation personnel at WRI, the Ministry and WMPCU to the establishment of the new unit. The Project Supervisor, Project Leader and Technical Editor are all members of the academic staff of the WRI and are only expected to spend a proportion of their time on project activities. It is therefore proposed that these persons continue to occupy their existing posts on the WRI establishment. The person nominated as Documentalist for the WRI library is also a member of the academic staff of the WRI, but is expected to spend all his time on the project. To avoid the loss of this post to the WRI establishment, it is proposed that this person be either seconded to the project for an indefinite period, or transferred to a new post on the establishment of the MAJIDOC unit, thus leaving his existing post vacant.

5.4.2   The analysis of the qualifications of the existing staff presented in Table 1 shows clearly that, with the exception of the Technical Editor, none of the project staff with higher educational qualifications has had any kind of library or documentation training, while none of those who have been trained in librarianship and documentation has had any post-secondary general education. This is a most serious situation, exacerbated by the fact that three of those who do have higher educational qualifications (including the Technical Editor) are only expected to work on the project on a part-time basis.

5.4.3   It cannot be too strongly emphasized that, if this project is to succeed and, in particular, if MAJIDOC is to be successfully established as an administrative unit within the Ministry and to extend its activities to the regional level within Tanzania, it must have an adequate staff complement of fully-qualified information professionals. Expecting a national water information system to be successfully managed by staff with only technician-level training in information work is like expecting a national rural water supply programme to be successfully managed by a pump mechanic.

5.4.4   It is recognized that, in the existing economic situation in Tanzania, is not practical to seek substantial increases in the initial staff establishment of the proposed MAJIDOC unit at the present time. Nevertheless, it is considered that at least one additional post, that of Director of the unit, will be required from the outset. This may be created either as a completely new post, which could

doubtless take a long time under present conditions, or by transferring an existing vacant post to the unit's establishment. This post should be at a level appropriate to the position of Director of a service with national responsibilities, intended to be filled by a person with postgraduate qualifications. A post at the level of Principal Librarian would appear to be appropriate.

5.4.5   The person appointed as Director of the unit should have postgraduate qualifications, or their equivalent, in information science, educational or professional qualifications in a relevant scientific or technical discipline, substantial practical experience in planning, developing and directing library or information systems and, if possible, some knowledge of the water sector. If it is not possible to recruit a person with all these qualifications at the outset, a less-qualified person with the right personal qualities may be recruited and subsequently sent for appropriate training.

5.4.6   In order to develop successfully, MAJIDOC will need more than one person with professional qualifications in library or information science at the degree or postgraduate level. In view of the need to limit the creation of new posts and restrict recruitment, the necessary qualified personnel will have to be produced internally by providing opportunities for members of the existing staff to obtain professional qualifications.

5.4.7   The kinds of training required for project staff will include:

(a) general orientation to information work;

(b) basic technical training in library and documentation methods;

(c) specific orientation to water-related information;

(d) general training in the use of computers in information work;

(e) specific training in the use of the Mini-micro CDS/ISIS software and of databases on CD-ROM (Compact Disc--Read Only Memory);

(f) formal training for professional qualifications in information science;

(g) management training;

(h) development training (in interpersonal relationships, etc.).

5.4.8   The training proposals in the project document are
            concerned with technical training only, and make no
            reference to the need for staff to receive formal
            training for professional qualifications in library or
            information science. All the library and documentation
            staff of the project should be encouraged and helped to
            pursue such training to an appropriate level. Staff
            with the Elementary Certificate should be encouraged to
            pursue their studies to the Library Assistant's
            Certificate level, while those with the latter
            qualification should be encouraged to study for the
            Diploma in Library Studies.

5.4.9   The Library Assistant in charge of the Ministry library
            is eligible for admission to degree courses in
            librarianship at the University of Botswana, Makere
            University or (possibly) Addis Ababa University. The
            Library Officer in charge of the WMPCU library is also
            eligible for admission to these courses, but as she has
            already received a considerable amount of formal
            library training, it might be more appropriate for her
            to enrol for a degree course in another subject,
            possibly at a university in Tanzania. Both candidates
            require sponsorship from a funding agency in order to
            be admitted. It is strongly recommended that these two
            persons be given every encouragement to attend such
            courses, and that every effort be made to obtain the
            necessary sponsorship, either from government sources
            or from donors.

5.4.10   As noted above (para.5.3.2), the three consultancies
            provided for under the project are intended to be
            mainly concerned with staff training which, as also
            noted above (para. 5.4.8) is to be mainly technical in
            nature. The lack of fully-qualified professionals
            among the existing staff of the project, and the number
            and variety of the tasks which need to be carried out
            to make MAJIDOC a properly-functioning information
            system, suggest that the limited amount of consultancy
            advice provided for under the project will not be
            adequate. The project staff will need a longer-term,
            continuing relationship with a competent consultant who
            can be called upon as and when required. This suggests
            that a local consultant is needed to provide the
            backstopping advice and regular trouble-shooting
            assistance which the IDRC-funded consultant will not be
            in a position to offer. The professional staff of
            TANDOC, and possibly other members of the professional
            staff of the Tanzania Library Service, have already had
            considerable practical experience in providing
            consultancy support for the establishment of library
            and information systems in Tanzania, and it is strongly
            recommended that their assistance be sought in the
            present case. It should be possible to fund such a
            local consultancy from the existing project budget.

5.4.11   It will be important to make adequate provision for training when MAJIDOC is extended to include other units under Phase 2.

6.   COLLECTIONS OF INFORMATION MATERIALS

6.1   Introduction

6.1.1   The information resources of an information system
                      comprise both its internal resources - i.e. its own
                      document collections, etc. - and the external resources
                      -other library and information systems, etc. - to which
                      it can provide access. In the present case, and at
                      this stage, we are concerned only with the internal
                      information resources of the MAJIDOC system.

6.2   Existing situation

6.2.1   The project document notes (para.11) that the
                      documentation centres in the Ministry of Water contain

                              a small number of water programme reports, water
                              master plans, ministerial reports, maps, reference
                              books, etc.

                      More information on the collections of each of the
                      three centres included in the project is provided at a
                      later point in the document.

6.2.2   The WRI Reference Centre is reported (para.36) to
                      contain a small number of general textbooks for
                      trainees, standard reference books on water and
                      sanitation, technical reports, periodicals (of which
                      five titles are said to be received regularly) and IRC
                      publications. The WMPCU Reference Centre is reported
                      to have a collection of water master plan reports,
                      water sector project and schemes reports and some 500
                      standard reference books. The Ministry library is said
                      to contain about 1,500 ministerial and project reports,
                      1,000 books and copies of some periodicals.

6.2.3   These figures are very approximate, and cannot be
                      relied upon as providing a true indication of the size
                      of the collections. In the Ministry library, in
                      particular, there are piles of documents of all kinds,
                      including reports, maps and engineering drawings,which
                      have not been recorded, processed or even counted.

6.2.4   The project document gives no indication of the age or
                      physical condition of these collections. Only a small
                      part of the WRI collection is accessible at present,
                      most of it having been placed in storage while the
                      renovation of the library building is going on. There
                      appear to be few new titles among these which are on
                      display, and many of them are not in very good physical
                      condition.

6.2.5   The collection of water plans and related documents in
                      the WMPCU library appears to be up-to-date and
                      comprehensive, and in good physical condition. There

is also a separate collection of books donated by SIDA (Swedish International Development Authority) which contains mainly recent titles and is in good condition. The books in the library's own collection, however, appear to be mainly old and out-of-date and in poor physical condition.

6.2.6   This applies also to the books in the Ministry library, and most of the books and documents are in poor physical condition and deteriorating steadily due to the appalling conditions under which they are housed (see 7.2.3 below).

6.2.7   Only three libaries in other units of the Ministry were visited during the assignment. The library of the Hydrogeological Department in Dodoma has a small collection of material, mainly official reports and a few textbooks. That of the Regional Water Engineer In Dodoma was recently destroyed by fire, and nothing remains of its collections. The "library" of the Regional Water Engineer's office in Morogoro consists of one cupboard containing a few books, reports and back issues of periodicals.

6.2.8   The library of RUBADA has a reasonable collection of books and reports. The branch office of the National Urban Water Authority in Dar es Salaam, however, has iself no collection, nor does the office of the Capital Water Engineer in Dodoma.

6.3   Project proposals

6.3.1   The project document proposes various actions in respect of the procurement and processing of information materials in the future (see section 10 below), but nothing in respect of the existing collections.

6.4   Comments and further proposals

6.4.1   If MAJIDOC is to offer effective documentation services to its users, particularly in respect of national documents, it will not be sufficient to base these solely on documents to be acquired in the future; the existing collections must be sorted out, physically rehabilitated if necessary, properly recorded and stored in conditions which will not contribute to their further physical deterioration. This is an urgent and essential task which should be started and completed as soon as possible. It is not a difficult task, but one which should involve sustained effort by a willing team of workers, preferably under the supervision of a professionally-qualified and experienced librarian. It is suggested that TLS be asked to help in planning and carrying out this task.

6.4.2   Before starting on this task, it will be necessary to
         decide on the overall structure of the reorganized
         collections within the new organizational framework
         provided by MAJIDOC. It is suggested that, at this
         stage, the basic aim should be to create one "master
         collection" of national documents, supplemented by
         separate institutional collections containing
         duplicates of those national documents which are
         appropriate to institutional needs (where duplicates
         are available) and collections of books also designed
         to meet the needs of each institution. Each of the
         three collections should be sorted separately
         initially, until it is possible to compare them and
         identify duplicates.

6.4.3   It is not possible, at this stage, to foresee every
         action which may be necessary in the task of sorting
         out the existing collections. The main steps to be
         taken were discussed with the project team during the
         mission, and further advice may be sought from a local
         consultant as suggested above.

7	ACCOMMODATION

7.1 Introduction

7.1.1 An information system must provide adequate facilities to enable its staff to do their work properly and its users to make effective use of the information sources and services provided. This requires the provision of a certain minimum of furniture and equipment, which, together with the collections of information materials, the staff who maintain them and the users who consult them, must be physically accommodated in suitable premises. This section of the report is concerned only with the last-named of these elements: furniture and equipment are dealt with in Section 8 below.

7.2 Existing situation

7.2.1 According to the project document, one of the problems and constraints facing the existing documentation units is lack of space (para.12). No further reference is made to the existing situation with regard to accommodation.

7.2.2 At the WRI, work is now in progress on the renovation of the existing building proposed in the project document (para. 18). The building is being extended as well as renovated, and the total floor space available when the work is completed will be about 250 square metres.

7.2.3 The Ministry library is housed in appalling conditions on the top (10th) floor of the Ministry headquarters building in central Dar-Es-Salaam. The lift stops on the 8th floor and there is neither natural nor artificial lighting in the staircase from the 9th to the 10th floor. At the time of the consultant's visit, the 9th floor was flooded, and visitors had to pick their way on wooden planks laid in the water, and in semi-darkness. The main library room is very small and grossly overcrowded. When it rains, as it did during the consultant's visit, the rain drives into the room through broken windows. There is a separate small workroom at the other side of the building.

7.2.4 The WMPCU library is housed in four small rooms in the Unit's headquarters at Ubungo. The rooms are rather overcrowded, but in good physical condition.

7.2.5   Of the other libraries visited during the assignment, only those of the Hydrogeological Department in Dodoma and of the RUBADA headquarters in Dar es Salaam are housed in separate rooms and provided with some furniture. A new building at the Regional Water Engineer's office in Dodoma, built to replace that recently destroyed by fire, includes a good-sized room for a library, but construction work is not yet completed and the room is not in use.

7.3   Project proposals

7.3.1   As noted above, the project provides (paras.18 and 49) for the existing documentation building at WRI to be renovated, and this work is now in progress. No proposals are made with regard to the libraries of the Ministry or WMPCU.

7.4   Comments and further proposals

7.4.1   The space to be made available in the renovated building at the WRI (250m^2) is adequate for the proposed national documentation centre, but not for the Institute's library, and certainly not for both. The Institute intends to construct a larger, purpose-designed library building when adequate donor support can be found, and the Ministry headquarters is expected eventually to move to the new capital at Dodoma, possibly by 1992. It is likely that MAJIDOC would move there too at the same time as the Ministry. The renovated building should therefore be regarded as providing only a temporary home for the documentation centre and for the Institute's library. It should be noted that the plans for the renovated building do not make any provision for toilet facilities for either staff or users.

7.4.2   The conditions under which the Ministry library is housed are so bad that it is proposed that, as soon as the renovated building at WRI is ready for use, the entire collection of the Ministry library should be transferred there for sorting (see section 6.4.3 above) and that the library as such should be closed while the sorting is carried out. Before the sorting is completed, fresh accommodation should be found in the Ministry building for a smaller working library intended to meet the day-to-day needs of Ministry officials, with back-up as required from MAJIDOC at WRI. This accommodation (80-100m2) should be located on a middle level floor in the Ministry building and should be in a good state of repair and good decorative condition before the library moves back to the Ministry.

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8.   FURNITURE AND EQUIPMENT

8.1   Introduction

8.1.1   The need for adequate and appropriate furniture and
            equipment to enable an information system to function
            properly has already been referred to in paragraph
            7.1.1 above.

8.2   Existing situation

8.2.1   The project document notes that one of the problems or
            constraints facing the existing documentation units is
            the lack of proper facilities for storing, arranging or
            disseminating materials.

8.2.2   The storage facilities for the small part of the WRI
            library collection which is currently on display
            comprise two or three wooden bookcases in an office in
            the administration block, and an old card catalogue
            cabinet housing the library catalogue.

8.2.3   The Ministry library also has a card catalogue cabinet,
            two or three glass-fronted cupboards, a few tables and
            chairs, and other miscellaneous items of furniture.
            Most of the collection is housed on industrial shelving
            units which are so close together that only a very slim
            person can pass between them. All the furniture is
            very old and shabby.

8.2.4   The WMPCU library, by contrast, has been equipped with
            new steel library shelving of modern design, as well as
            new tables, chairs and other items, all of Danish
            manufacture and all supplied by a donor. About two-
            thirds of the shelving supplied is said by the library
            staff to be still in store because of lack of space and
            because it is not needed at present.

8.3   Project proposals

8.3.1   Two-thirds of the project budget is allocated to the
            purchase of furniture, equipment and supplies for
            MAJIDOC.

8.3.2   The main items of equipment provided for (para.50) are:

            (a) a microcomputer and peripherals, comprising:
                ICL DRS PWS model 12/45 with 1mb RAM, MS-DOS,
                monochrome screen, printer, voltage stabilizer;

            (b) an electric typewriter (Olivetti);

            (c) a photocopier (Mita DC 4085);

            (d) an electro-scanner and stencil duplicator;

(e) an air-conditioner;

(f) a motorcycle.

8.3.3   The main items of furniture provided for (para. 43 and budget statement) are:

(a) catalogue and file cabinets;

(b) reading desks, office desks and chairs;

(c) newspaper rack;

(d) periodical display and bookshelves.

8.3.4   Provision is also made (para.43) for the purchase of office supplies and computer supplies.

8.3.5   The project document proposes (para.17) that the WRI should submit a request to Unesco for the Mini-micro CDS/ISIS software, which is widely used for bibliographic and other databases and is available from Unesco free of charge.

8.3.6   Furniture layouts have been prepared by the project staff, showing the proposed locations of the furniture and equipment in the renovated building at WRI.

8.3.7   The project document states (para.44) that

Since ... the three reference units are part of the Ministry of Water, materials such as the filing cabinets, paper and display shelves will be shared.

However, no specific proposals are made in this regard.

8.4   <u>Comments and further proposals</u>

8.4.1   The microcomputer to be supplied under the project will be used primarily for:

(a) creating and maintaining a bibliographic database of national documents, both retrospective and current;

(b) creating and maintaining a record of MAJIDOC's own document collections, equivalent to a collective library catalogue of the documentation centres forming part of the system;

(c) creating and maintaining a union list of periodical holdings in other libraries in the water sector in Tanzania;

(d) creating and maintaining a union catalogue of national documents held in various libraries in Tanzania;

(e) preparing input to external (national, regional and international) databases;

(f) providing access to records of foreign water-related literature;

(g) wordprocessing for the preparation of the various information products and reports generated by the project.

Some of these functions may, in certain circumstances, be combined.

8.4.2   In relation to tasks (a) to (d) inclusive on the above list, it will be important to safeguard against the loss of, or lack of access to, data recorded on magnetic media and accessible only through the computer, due to the unreliable electricity supply in Tanzania. It will therefore be necessary, not only to maintain duplicate back-up copies of all data files on magnetic media to be stored in a different location from the computer itself, but also to produce regularly up-dated copies of key files, such as the catalogue of MAJIDOC holdings, in hard copy (i.e. on paper) so that they can be used when there is a power failure. The latter would also be useful, if produced in multiple copies and distributed to users in various parts of Tanzania, as a means of letting users who do not have direct access to the computer find out what the collections contain.

8.4.3   In different circumstances, the microcomputer could be used to provide access to records of foreign water-related literature by being connected to foreign online databases through the telecommunications system. This is not feasible in Tanzania at present. Access to such sources can, however, now also be provided by attaching a CD-ROM (Compact Disc - Read Only Memory) drive to the microcomputer and subscribing to the same databases on CD-ROM. This provides unlimited access to the databases at no additional cost, unlike the use of online databases, for which the user must pay both telecommunications and database access charges based on the time spent connected to the database.

8.4.4   No provision has been made in the present project for a CD-ROM drive to be supplied, but it will certainly be desirable to include such a provision, and subscriptions to appropriate databases on CD-ROM, in any formal project proposals for Phase 2.

8.4.5   To operate the latest version of the Mini-micro
         CDS/ISIS software the microcomputer acquired should be
         equivalent to, and 100 percent compatible with, the IBM
         PS/2 Model, having a minimum of 640K RAM and a
         40-megabyte hard disk. A 12-inch enhanced colour
         monitor is preferable to a monochrome monitor. If the
         machine selected does not have built-in capacity to use
         both 5 1/4" and 3 1/2" floppy disks, a separate
         supplementary disk drive and adaptor, for the disk size
         not installed in the machine, will be required. A 132-
         column letter quality printer (e.g.Epson LQ 1050) or a
         laser printer (e.g. Hewlett Packard LaserJet III) is
         required. Although the latter would be slower in
         operation, and probably more expensive to buy and to
         run, than the letter quality printer, it would give
         very much better results in terms of print quality,
         variety of type styles and graphics capability, and
         make it possible to use the WordPerfect 5.0
         wordprocessing software to much better advantage in the
         production of the newsletter and other information
         products. In addition to the voltage stabilizer, an
         Uninterrupted Power Supply (UPS) is essential to enable
         the system to be shut down safely without loss of data
         in the event of a power failure.

8.4.6   The computer is intended for the purposes outlined
         above. For the project the only software required at
         this stage will be Mini-micro CDS/ISIS and a word
         processing package such as WordPerfect 5.0.
         To facilitate other requirements of the Institute's
         programme, however, the purchase of additional
         application software such as a spreadsheet programme
         (Lotus or SuperCalc 5) or a more numerically oriented
         database programme (dBase, Foxbase, Reflex) should be
         considered.

8.4.7   It should be noted that the installation of the Mini-
         micro CDS/ISIS software is quite a complicated task
         which must be carried out by someone with a good
         knowledge of the package. It is not known whether
         there is a national distributor for the software in
         Tanzania, or whether it is already in use elsewhere in
         the country. It should be noted that the regional
         distributor for the software is the Pan African
         Development Information System (PADIS), UNECA, PO Box
         3001, Addis Ababa, Ethiopia.

8.4.8   In Phase 2 of the project, each of the main
         documentation units participating in MAJIDOC will need
         a microcomputer, printer and ancillary equipment. The
         headquarters unit itself will require a second
         microcomputer in Phase 2, to enable one machine to be
         used for data input at the same time as the other is
         being used to output information to users in response
         to requests for literature searches, etc.

8.4.9   The photocopier should be a robust model suitable for
          use in a documentation centre which will eventually be
          producing relatively large quantities of photocopies
          for distribution to users. A standard desk-top machine
          is not adequate; on the other hand, a highly-
          sophisticated, high-speed machine with a very large
          capacity is not required. A model similar to the Xerox
          model 1040 with automatic document feed and collator is
          suitable.

8.4.10   The project staff consider that it may be possible to
          use existing photocopying equipment at WRI and WMPCU
          during the present project. If adequate photocopying
          facilities are available, the electro-scanner and
          stencil duplicator will not be required.

8.4.11   A microfiche reader would be a useful additional item
          of equipment for each of the three units, possibly in
          Phase 2.

8.4.12   Following discussions with the project team, some minor
          revisions to the layout of the renovated building at
          WRI are proposed. The suggested layouts, which are
          based on the principle of physical separation of the
          WRI library paper from MAJIDOC, are shown in Figures 1
          to 3, Appendix D. Schedules, outline specifications
          and diagrams of the main items of furniture required
          are also provided at Appendix D. These may be used as
          a basis for obtaining quotations from local
          manufacturers. They do not include items of office
          furniture for use in the offices and workrooms of the
          library or the documentation centre.

8.4.13   It should be noted that, since the catalogues of the
          system are to be computerized, the purchase of new
          catalogue cabinets will not be necessary. Each of the
          three documentation units already has a card catalogue
          cabinet. It is proposed that these cabinets be
          renovated and used to house the catalogues of the
          existing collections after these have been revised as
          described above (6.4 above) and until retrospective
          computerization of these records is complete.

8.4.14   To reduce the amount of new library shelving to be
          purchased, it is proposed that the unused Danish steel
          shelving supplied to the WMPCU library be used for the
          project. Depending on the quantities available, and on
          the amount of new shelving which can be bought from the
          project budget, this shelving could be installed either
          in the renovated building or, when the reorganization
          of the Ministry library is complete and adequate
          accommodation for it has been provided, in the
          Ministry. If installed at WRI, it may be used either
          for the WRI library staff itself, or for the
          documentation centre.

8.4.15   The office supplies required will include:

            -    desk trays, paper punch, file folders and guides,
                 paper clips, rubber bands, drawing pins, liquid
                 paper and thinner, pencils, pens sharpeners,
                 typewriter ribbons and lift-off tapes, typing
                 paper, etc.;

            -    toner, spares kits, paper for photocopier.

8.4.16   Computer supplies required will include:

            -    floppy disks (5¼" and 3½"), disk storage, cleaning
                 kits, security cables, printer ribbons, acoustic
                 printer cushion, listing paper, etc.

8.4.17   In addition, supplies designed specifically for library
            use will be required. These will include:

            -    pamphlet boxes, periodical binders, book supports,
                 label holders, book labels, book order forms, index
                 cards, book cards, date stamps, date slips, book
                 pockets, spine marker, book repair materials, etc.

8.4.18   The TLS may be able to advise on suitable suppliers for
            these items.

8.4.19   In discussions with the project team it transspired
            that the motor cycle provided for under Phase 1 of the
            project was unlikely to be purchased. Transport was
            certainly needed but as only two members of the project
            team are able or willing to ride a motor cycle, neither
            of whom is to be employed on the project full-time, the
            acquisition of a motor cycle was not thought opportune.
            If it would be possible to get some additional funding
            in Phase 2, a small motor vehicle, e.g. Suzuki Samurai
            4 x 4 or similar, could be bought.
            If not, the project would still purchase the motor
            cycle due to lack of a better alternative.

9.	**FINANCE**

| 9.1 | Introduction |

9.1.1   The provision of the other resources described above, the creation and maintenance of the organizational structure of the system and the provision of information services to users, all cost money. Adequate provision for both capital and recurrent expenditure, (including an appropriate foreign exchange component) from both local and foreign sources must be made if an information system is to be able to function effectively.

| 9.2 | Existing situation |

9.2.1   The project document refers to shortage of funds for procurement of required books/periodicals as one of the problems and constraints facing the existing documentation units, but otherwise makes no reference to the existing financial situation.

9.2.2   A quick examination of the existing financial situation of the three documentation units reveals that all three libraries have a budget allocation for the purchase of books, newspapers ,etc. But it seems clear that, apart from provision for staff salaries, they receive too meagre an allocation to buy the books and periodicals - even in local currency - they would need. Furthermore a lack of foreign exchange entitlement does not permit them to acquire foreign publications.

| 9.3 | Project proposals |

9.3.1   A detailed project budget, expressed both in Tanzanian shillings and in Canadian dollars, is annexed to the project document. This distinguishes between the portion administered by the recipient, totalling CAD 123,560 (US$ 102,967 or TzSh. 12,356,000 approximately) and that administered by IDRC, totalling CAD 26,870 (=US$ 22,392). The total project budget is therefore CAD 150,430, of which CAD 129,480 (86 percent) is provided by IDRC and CAD 20,950 (TzSh. 2,094,800) (14 percent) by the recipient. The portion of the budget administered by IDRC is that provided for consultancies and international training for project staff.

| 9.4 | Comments and further proposals |

9.4.1   The project budget as summarized above understates the government contribution because not all the existing staff of the three documentation units are included, and because the modest amounts currently being spent on local newspapers are omitted.

9.4.2   This consideration is less important than the fact that
         no provision is made for continuing budgetary support
         on an adequate scale after the end of the project.
         Whilst it is hoped to obtain donor support for a
         further project to continue the development of MAJIDOC
         and extend it to include documentation centres in other
         units of the Ministry including the Regional Water
         Engineers' offices, it is also vitally important that
         the Ministry itself make a proper contribution, under
         its regular budget, for the continued operation and
         maintenance of the system. This will be essential if
         the proposal to establish MAJIDOC as a separate section
         within the Ministry is proceeded with. The budget for
         this section should include an item for the purchase of
         books and periodicals from foreign sources. It should
         distinguish, where appropriate, between recurrent and
         development expenditure.

9.4.3   It should be possible to make some savings on the
         existing project budget if some of the items of
         furniture and equipment are not required, and if better
         prices can be negotiated for others. As noted in
         section 8.4 above, the following items of furniture and
         equipment may be dispensed with. Allocations for these
         items in the project budget are as shown; that for both
         catalogue cabinets represents 50 percent of the total
         provided for catalogue and filing cabinets.

		TZSh
(a)	electro-scanner	260,000
(b)	stencil duplicator	150,000
(c)	motorcycle	462,000
(d)	catalogue cabinets	192,000
Total		1,064,000

         The total possible saving is equivalent to CAD 10,640
         (US$ 8,867)

9.4.4   If the spare steel shelving from the WMPCU can be
         installed either in the renovated building at WRI or in
         the rehabilitated Ministry library, as suggested in
         section 8.4.14 above, the total amount of shelving
         needing to be purchased can be reduced accordingly.
         This will not necessarily make possible a corresponding
         reduction in the project budget, however, as the amount
         provided for the purchase of all types of shelving
         (TZSh 650,000 or CAD 6,500 = US$ 5,417) is not large,
         particularly if it is also intended to cover the
         purchase of new shelving for the Ministry library, as
         seems to be suggested in the project document
         (para.44).

9.4.5   The prices quoted in the project document for the microcomputer configuration and the photocopier appear rather high, and it is strongly recommended that at least three quotations for these items be obtained from different suppliers. The additional costs of an enhanced colour monitor, alternative disk drive, UPS and letter quality or laser printer (see para.8.4.5 above) may be at least partly offset by the savings on non-essential software (see para.8.4.6 above), furniture and equipment.

9.4.6   One way of obtaining a reasonably regular and adequate supply of funds for MAJIDOC would be to include, in all project proposals, contracts and agreements with donor agencies, consultants and contractors, mandatory provision for a specific proportion of the project budget to be allocated to information and documentation. Part of the stated amount could be allocated specifically to the production and organization of documentation relating to the project itself, and part to the expenses of developing and maintaining MAJIDOC. The first of these components could involve provision for payments to MAJIDOC (and other information systems) for information products and services offered on a commercial basis.

10.	TECHNICAL OPERATIONS AND ACCESS

10.1   Introduction

10.1.1 The main functions of an information and documentation system are to:

(a)   identify, locate, select, procure, record and prepare for use both national and foreign documents of various kinds;

(b)   provide access to these documents, both:

(i)   indirectly, by means of lists of new acquisitions, catalogues, indexes, etc.; and

(ii) directly, through various arrangements for access to the system (opening hours, etc.) and its collections;

(c)   provide the following types of services to users, among others;

(i)   answering enquiries, referral to other sources of information;

(ii) literature searching services;

(iii) current awareness services;

(iv) document delivery services.

10.1.2 Services to users are discussed in section 11 below.

10.2   Existing situation

10.2.1 The project document refers briefly (para.12) to the

insufficient/improper facilities for storing, arranging or disseminating materials

in the existing documentation units. No specific reference is made to the existing situation with regard to access.

10.2.2 It was not possible to study technical operations in the existing units in any detail during the assignment, but the level of activity in this respect appears to be very low. As noted above (sections 9), the existing units do not have adequate budgets to enable them to purchase new publications in any quantity. Arrangements for the acquisition of non-commercial documents produced in Tanzania (e.g. government reports, project documents, etc.) do exist, but do not appear to be working very effectively. Despite the low volume of acquisitions, the catalogues of all three

units appear to be considerably in arrears - i.e. the units have a lot of material which has not yet been catalogued. The only up-to-date listings of the contents of the three units appear to be their accessions registers, in which documents are entered in order of their receipt. These are of no use as aids to finding specific documents in the collections.

10.3   Project proposals

10.3.1   The project document makes various references to technical operations and access in its proposals for MAJIDOC activities.

10.3.2   Among the specific activities to be undertaken under the project are the procurement of reference materials and the training of staff in the use of Mini-micro CDS/ISIS and the computerization of collection listings (para.16) The first three months of the project are to spent, in part, in ordering and acquiring reference books, journals, etc. to strengthen the WRI documentation centre. These are to be identified in consultation with AMREF, Water and Sanitation for Health (WASH) and IRC (para. 17). Staff training in technical operations is to include the organization of the collections, cataloguing, basic indexing and abstracting procedures, and the use of the Interwater Thesaurus. This training will be one of the main tasks of the first consultancy mission, which will also provide specific guidance on collecting, organizing and cataloguing unpublished "grey" literature produced in Tanzania (para.20).

10.3.3   The project document proposes (para.22) that, after the inauguration of the project, the centres should continue to acquire relevant documents and "catalogue them towards eventual computerization". During the second consultancy mission, the consultant will help the staff to computerize these catalogue records (para.24). Subsequently, the staff will continue to develop the national water and sanitation bibliographic database (para.25).

10.3.4   With regard to direct access, the project document proposes (para.42) that staff be asked to work overtime to help establish the WRI documentation centre and offer services possibly to 8.30 pm. Provision for indirect access is implied in the proposals for the creation of a computerized catalogue, the production of bibliographies and the publication of a newsletter (para.16).

10.4   Comments and further proposals

10.4.1   Among the most difficult technical operations to carry out effectively will be the identification and

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collection of the "grey" literature produced within
Tanzania. As far as documents produced by the Ministry
itself (including its various regional offices and
other constituent units) are concerned, it is suggested
that a directive should be issued under the authority
of the Minister requiring every Ministry unit concerned
with water supply and sanitation to designate one
officer to be responsible for collecting and supplying
to MAJIDOC, not less frequently than once a month, a
specified number of copies of all documents in certain
specific categories (for example, annual reports or
technical reports, but not correspondence or financial
records) issued by that unit during the preceding
month. An alternative method of achieving the desired
result might be to issue a directive under the
authority of the minister requiring all units of the
Ministry to add MAJIDOC to their distribution lists for
specific categories of documents. In either case, the
Director of MAJIDOC should be empowered to check at
regular intervals to ensure that all documents issued
are being supplied, and should report cases of non-
compliance to the Minister or a designated senior
official of the ministry.

10.4.2   The chosen method might be extended to other ministries
          and public bodies with the cooperation of the ministers
          concerned. Donor agencies, consultants and contractors
          might also be required, through appropriate clauses in
          official agreements and contracts, to supply copies of
          suitable documents to MAJIDOC.

10.4.3   The main problem with regard to the acquisition of
          foreign literature is simply that of finance. It will
          be essential to provide adequate amounts in the regular
          budget of the proposed MAJIDOC unit for subscriptions
          to foreign periodicals and the purchase of foreign
          books. This implies also the provision of the
          necessary foreign exchange facility. The total amount
          of CAD 20,000 included in the project budget for the
          purchase of reference materials will be sufficient to
          purchase only about 500 books at today's prices. Given
          the poor condition of the existing collections, this
          number of new books would barely begin to meet the
          needs even of the initial users of MAJIDOC, let alone
          be adequate to support its proper development up to the
          end of Phase 1.

10.4.4   Since at least one member of the project team has
          received training in the use of Mini-micro CDS/ISIS, it
          would seem advisable to establish the MAJIDOC database
          and begin preparing and inputting bibliographic records
          as soon as possible. The use of an input sheet
          modelled on that used by ENSICNET is being considered.
          However, in view of criticisms of this format which it
          is understood have been made in the Philippines (a
          member country of ENSICNET), it is recommended that the

advice of IDRC, PADIS, or any national institution
which may already be using a standardized input format
should be sought before making a final decision. A
possible alternative model would be the input format
used by the WHO Centre for Environmental Health
Activities (CEHA) in Amman, Jordan (copy attached at
Appendix D)

11	INFORMATION PRODUCTS AND SERVICES

11.1 Introduction

11.1.1 The ultimate objective of any documentary information system must be to provide products and services that will satisfy the information needs of its users (and could also satisfy those of potential users, in terms of:

(a) current awareness

- of general developments in the sector, organized events, research and development projects and their results, new technical products and services and new information sources, products and services;

(b) literature searching

- of published and unpublished records of documentary production to identify specific documents or sets of documents, with specific characteristics;

(c) document provision

- of originals or copies of complete documents or parts of documents held by the information system or available from elsewhere;

(d) answering enquiries

- ranging from quick reference services designed to provide immediate answers to simple enquiries, to research services designed to investigate complex problems, often in conjunction with technical assistance from subject specialists.

11.1.2 In certain circumstances, other services, such as translation services, may need to be provided also.

11.2 Existing situation

11.2.1 The project document refers (para.10) to the

necessity for an effective means of disseminating the relevant technical information ...

and the "insufficient/improper facilities" for doing this in the existing documentation unit.

11.2.2 It was not possible to investigate the existing situation in this respect in any detail during the assignment, but the generally poor condition of the existing collections and the lack of fully

professionally-qualified staff, suitable accommodation and modern equipment make it virtually impossible for the existing documentation centres to offer even the most basic services at a satisfactory level.

11.3   <u>Project Proposals</u>

11.3.1   One of the basic activities of the MAJIDOC network, as stated in the Introduction to the project document (para.1), will be to disseminate technical information to users. One of the specific activities envisaged is the training of staff in the provision of user services (para.16), which is to be done during the first consultancy assignment (para.20). After the inauguration of the system, an assessment of the information needs of users will be carried out with the express purpose of identifying the kinds of information products required (para.22). Subsequently, staff will continue to provide services to users (para.25).

11.3.2   With regard to current awareness services, it is proposed to publish four issues of a <u>Water and Sanitation Newsletter</u> (para.16), the first of which will be issued about eight months after the inauguration of the project, with subsequent issues appearing at three-monthly intervals (para.23). Provision is made for the Technical Editor to be trained to edit the newsletter and other information products (para.29), and the project budget provides the sum of TZS 60,000 (CAD 600 = US$ 500 approximately). For the production of 500 copies of each issue at an estimated unit cost of TZSh 30 (CAD 0.30 = US$ 0.25) per copy. The Technical Editor has produced a document, <u>Planning for the establishment of the MAJIDOC Newsletter</u> which states that the objectives of the newsletter will be:

(a)   To disseminate current technical information related to water and sanitation aspects within and outside Tanzania;

(b)   To serve as a forum for discussions on matters of professional significance in the fields of water and sanitation;

(c)   To serve as a complementary medium of communication between MAJIDOC and its clientele;

(d)   To publish summaries of the latest research findings in the fields of water and sanitation;

(e)   To publish the current development activities of MAJIDOC's documentation centres;

(f)   To serve as MAJIDOC's mouthpiece for promotion of the project's information services.

11.3.4   The proposed time schedule for the publication of the
          first two issues indicates that the first issue will
          take seven months from the preparation of the first
          draft articles to publication, while the second issue
          will appear in the tenth month after the collection of
          news items for inclusion has begun. It is proposed
          that the newsletter should include photographs and be
          printed by a commercial printer.

11.3.5   As regards literature searches, the project document
          indicates (para.24) that one of the tasks of the second
          consultant, to be undertaken in about the eighth month
          of the project, will be to assist staff to conduct
          searches and produce bibliographies.

11.3.6   One of the specific activities to be carried out under
          the project is the production of two national water and
          sanitation bibliographies (para.16). The first of
          these is to be produced, with the help of a third
          consultant, after fifteen months, and distributed to
          users in the Ministry (para.26). The project budget
          provides (para.46) for a total of TZSh 200,000 (CAD
          2,000 = US$ 1.667) to be made available for the
          production of 500 copies of each of the two
          bibliographies at an estimated cost of TZSh 200 (CAD
          2.00 = US$ 1.67) per copy.

11.3.7   The project document makes no specific reference either
          to document provision or enquiry services.

11.3.8   Other information products provided for under the
          project are:

          (a)   the translation of four practical working manuals
                into Kiswahili for technicians working in the
                field (para.16), to be done in the second year of
                the project (para.27) at an estimated cost of TZS
                160,000 (CAD 1,600 = US$ 1,333) for 200 copies of
                each title at TZS 200 (CAD 2.00 = US$ 1.67) per
                copy.

          (b)   a directory of professionals working the area of
                water and sanitation in Tanzania (para.16), to be
                compiled using Mini-micro CDS/ISIS (para.28) at an
                estimated total cost of TZS 40,000 (CAD 400 = US$
                333,33) for 200 copies at TZS 200 (CAD 2.00 = US$
                1.67) per copy.

11.4   Comments and further proposals

          The stated objectives of the proposed newsletter appear
          to be more appropriate to a full-scale technical
          journal than the newsletter of a documentation system.
          It is suggested that the content of the newsletter
          should be based more directly on the information
          resources, products and services of the system, rather

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than aiming to disseminate current technical information and serve as a professional forum. It might include, for example:

(a) information about new and forthcoming publications;

(b) information about publications recently acquired by MAJIDOC (including, for example, abstracts, photocopies of the contents pages of current periodicals, etc.);

(c) information about new products and services for the water sector, especially information products and services;

(d) extracts from the text of publications recently acquired by MAJIDOC, (including, for example, photocopies of press clippings);

(e) news of forthcoming events, including training courses;

(f) information about current research projects;

(g) general news about MAJIDOC, the Ministry and water supply and sanitation sector in Tanzania

The newsletter of the IRC Documentation Centre, IRC News, provides an example of the kind of product required. A sample of the latest issue is attached at Appendix F.

11.4.2   The proposed schedule for the production of the newsletter appears to allow far too much time for the production of each issue. The essence of a newsletter is that it should disseminate news, - i.e. recent, up-to-date information. This will not be the case if between seven and ten months are allowed to elapse between beginning work on an issue and publishing it. The first issue may require more time that subsequent ones, but once the procedures have been set up, two months should be ample time for all stages in the preparation and production of each issue.

11.4.3   With regard to all the information products referred to in the project document, the main comment is that the amounts of money provided in the project budget appear to be very low - probably too low to enable the various documents to be produced in the quantities proposed. The unit costs appear to have been seriously underestimated, and should be revised before the actual production of any item begins. It may be necessary, as a result, to revise the programme for the production of these publications. •

A SYSTEMATIC FRAMEWORK
FOR THE DESCRIPTION, ANALYSIS, PLANNING AND EVALUATION
OF INFORMATION ACTIVITIES

1.   Introduction

1.1   The framework outlined below provides a systematic approach to the description, analysis, planning and evaluation of information activities which attempts to place the various aspects of information provision in logical relation to each other and so help to identify strengths and weaknesses and ensure that important elements of the information transfer process are not overlooked.

1.2   This framework embodies the essential features of the TIE framework for technical information exchange (TIE) developed by IRC in consultation with representatives from developing countries and sector agencies as part of the INFO-IMPACT programme. The TIE framework provides a fresh approach to the implementation of information exchange activities in water supply and sanitation, bringing together four essential elements: the assessment of needs and resources; product development; capacity building; and promotion. The systematic framework expands upon and extends the provisions of the TIE framework.

2.   Background factors

2.1   Every information system is an open system which interacts constantly with the environment in which it operates. This environment generally comprises a number of factors which affect the need for, and the development and operation of, such a system. These include, for example, geographical and climatic factors, administrative and political factors, economic factors and so on. The diagnosis of such factors (described here as "background" factors rather than "environmental" factors to avoid confusion with factors relating to the environment as such) will involve a study of those found to be most influential in the situation under review. The scope for proposals for action in this respect is usually limited, as the background factors are often outside the control of the authorities in the sector concerned.

3. **Essential preconditions**

3.1   Two background factors, or groups of factors, are of
       such fundamental importance in relation to the need for
       information systems and to the possibility of
       establishing and operating them, that they may be
       regarded as essential preconditions which must exist
       before an information system can operate effectively in
       any community. They are:

       (a)   the existence of a population of actual or
              potential information users, with information
              needs which can be satisfied, at least in part, by
              an information system;

       (b)   the existence and availability of a supply of
              information appropriate to the needs of the actual
              or potential users of the system.

4. **Information users**

4.1   The potential users of information in specific fields
       are often widely scattered and sometimes difficult to
       identify, especially in interdisciplinary fields such
       as water supply and sanitation. A thorough knowledge
       of the characteristics, size and distribution of the
       estimated potential user population (EPUP) is, however,
       fundamental to the successful provision of information
       to meet its needs. It is therefore important to devote
       adequate time and resources to this aspect of the
       study.

4.2   The study of the EPUP and its needs may be facilitated
       through the systematic analysis of the different roles
       performed by individuals at different times, the duties
       and tasks associated with each role, and the knowledge
       and skills required to perform these duties and tasks
       effectively. The analysis should also consider the
       substance (subject content, orientation and level of
       treatment) (language, currency or timeliness) and form
       of the knowledge and skills required, and the
       appropriateness of the various means whereby they may
       be acquired, including documentary records of various
       kinds, mass communications or broadcasting, formal
       training and related activities (e.g. conferences), and
       informal personal contacts (e.g. extension work). The
       analysis should also consider the attitudes of
       individuals towards the acquisition and application of
       the knowledge and skills they need to perform their
       roles effectively.

4.3   Such an analysis, embracing both the content of the
        knowledge and skills required and the means by which
        they can be transferred, involves the assessment of
        both information needs and training needs, and may
        therefore best be described as an assessment of
        knowledge needs.

4.4   An assessment of the knowledge needs of the
        participants in a water supply project might show, for
        example, that while for some of them the best way of
        meeting their needs would be to provide better access
        to documentary information, for others the best way
        would be to provide a training course -- perhaps to
        develop the skills and attitudes to enable them to
        participate effectively in the project.

4.5   A methodology for the conduct of such knowledge needs
        assessments, which is being continuously refined
        through field testing and discussion, is described in
        more detail in the IRC document Information users and
        their needs (refer to page 63 - 68).

5.   The supply of information

5.1   It is impossible to meet the knowledge needs of a
        particular group of users unless the required knowledge
        - including a knowledge of any necessary skills -
        already exists and is available at the right levels of
        presentation and in the right formats and languages,
        and is appropriate, in terms of timeliness and of the
        means by which it is communicated, to the needs of the
        users.

5.2   A thorough study of the existing situation with regard
        to the existence and availability of the knowledge
        required to meet the needs of the EPUP in a particular
        environment is essential. Such a study should be based
        on the findings of a knowledge needs assessment and
        should apply similar criteria in an analysis of the
        generation of information, particularly locally, of
        both local and foreign production of information
        materials -- including training materials -- of
        appropriate kinds, of factors affecting access to
        information, including official policies with regard to
        freedom of information, exchange controls,
        telecommunications channels, access to training, and
        the facilities available for the communication of
        knowledge through the various media, including
        documentary information, mass communications, training
        programmes and courses, extension services, etc.

6. **Matching knowledge provision with knowledge needs**

6.1 A comparison of the results of an analysis of knowledge provision with those of the knowledge needs assessment on which it is based should make it possible to identify needs which are not being met by the existing arrangements for knowledge provision. This may be because the required knowledge does not exist, because it does not exist in an appropriate form, or because, even though it exists in an appropriate form, it is not accessible to those who need it.

6.2 If the required knowledge does not exist, further investigation will be needed to establish whether this is because it is not possible to collect the raw data on which such knowledge could be based; because although the data could be collected, they are not being; or because data which are being collected are not being processed to produce the necessary knowledge. If it is not possible to collect the required data, the results of the knowledge needs assessment will have to be re-examined to see if the particular needs in question could be met in some other way - for example, by knowledge based on different - perhaps partial, as opposed to comprehensive - data. If data which could be collected are not being, or data which are being collected are not being processed in a manner which will produce the knowledge required, the costs of doing so must be weighed against the benefits to be obtained, which may again call for a re-examination of the results of the knowledge needs assessment to determine whether the need for the knowledge justifies the costs of providing it.

6.3 If the required knowledge does not exist in an appropriate form, further investigation will be needed to determine whether or not it can be put into the form required, and if so, whether the costs of doing so would be justified by the benefits received. If not, the results of the knowledge needs assessment will have to be re-examined to see if the knowledge could me made available in some other form, or if the need for the form originally specified could be modified - for example, by providing some item of equipment to enable knowledge in a different form - e.g. microfiche - to be used, or by teaching some skill - for example, reading - to users who previously lacked it, to enable them to use knowledge presented in a different form from that which they originally specified.

6.4 Where the required knowledge exists in a suitable form, but is not available to the users whose need for it has been established, the institutional and organizational arrangements for making the knowledge available must be investigated in greater depth. The elements described

in the remainder of this document provide a basis for carrying out such an investigation.

7. Infrastructural elements

7.1 There are a number of elements of the overall structure of an information system which do not, themselves, form part of the technical operations or services to users which constitute the essential functions of the system, but without which these functions cannot be performed. These elements constitute the infrastructure of the system, and comprise the basic resources of manpower, information, physical facilities and finance. The diagnosis of the existing situation with regard to the infrastructural elements will generally involve the identification of inadequacies in existing resources - for example, a lack of trained manpower or a disparity between the kinds of information resources provided and the information needs of potential users -while proposals for action will be concerned with the steps which must be taken to rectify such weaknesses - for example, through the organization of training courses or the acquisition of different kinds of information materials.

8. Organizational structure

8.1 Any information system requires an appropriate organizational structure through which its resources can be applied in the performance of technical operations and the provision of services to users. The organizational structure of an information system is influenced by administrative and organizational background factors and by any existing organizational arrangements for the supply of information in the sector as a whole. It also overlaps and interacts with the internal organizational structures of individual information units which may participate in the system, and with those of various other systems, institutions and organizations. This gives rise to questions of centralization, coordination and cooperation. Diagnosis of the organizational structure may lead to the identification of obstacles to the effective operation of the information system - for example, its subordination to an inappropriate administrative unit within the parent organization - while recommendations for action may, for example, propose changes in the machinery for cooperation with other information units.

9. __Legislation and regulations__

9.1   The term "legislation" in this context, is taken to
       include all kinds of laws, decrees, regulations,
       administrative orders and instructions regulating or
       influencing the establishment and operation of
       information systems. It is through legislation of some
       kind that information systems obtain their authority to
       provide services to their users. Legislation provides
       formal recognition, by the authorities, of the need for
       information systems and of their general purposes and
       objectives. It also authorizes the pursuit of these
       objectives through the establishment of an appropriate
       organizational structure and the provision of
       infrastructural resources. The establishment and
       operation of an information system in any field is
       affected by legislation in other fields, such as
       employment, censorship, or copyright. Diagnosis of the
       existing situation with regard to legislation and
       regulations may identify restrictions on the
       development and operation of the information system,
       such as, for example, government regulations regarding
       the confidentiality of official documents, which must
       be the subject of recommendations for their
       modification if the system is to be able to operate
       effectively.

10.   __Technical operations__

10.1   The activities of an information system which relate to
       its basic functions of collecting and presenting
       records of human knowledge and experience in a
       particular field may be described as the technical
       operations of the system. The purpose of these
       operations is to make it possible for the system to
       perform its third basic function of making these
       records available for use. The basic function of
       collection involves the identification, selection and
       acquisition of information sources, while that of
       preservation involves their physical conservation,
       protection and storage. Diagnosis of the existing
       situation with regard to technical operations will
       involve detailed observation and analysis of the way in
       which they are performed in the system under review,
       and may, for example, reveal that the system's ability
       to provide information to meet the needs of its users
       is severely handicapped by lack of access to up-to-
       date bibliographical records of what information is
       available. Recommendations for action in respect of
       technical operations will relate to specific methods
       and techniques for improving their effectiveness and
       may, for example, deal with the need to obtain access
       to external bibliographic databases as a means of
       identifying documents relevant to the needs of users.

11. **Access**

11.1 Before users can make use of the information sources which have been acquired by an information system, they must be able to gain <u>access</u> to a knowledge of the existence of the system and its contents, to the services provided by the system and to specific information sources. The system must therefore publicize its existence, its resources and its services, produce comprehensive records of the information sources it can provide, and make satisfactory arrangements for users to gain physical access to is services, its records and its information sources. A diagnosis of the existing situation with regard to access may therefore involve a review of publicity materials, an examination of the catalogue or other record of the collection of information materials and an analysis of opening hours and regulations for the use of the system, including the effects of any charges made for its services. Proposals for action may concern, for example, the production and distribution of a new publicity brochure, the computerization of the catalogue of the document collections or an extension of opening hours.

12 **Information products and services**

12.1 Some information products and services - for example, a list of newly-acquired documents or an online public access catalogue - aim to provide information <u>about</u> the information sources available, and constitute aspects of the element of access. Others - for example, a press cuttings bulletin, a photocopying service for periodical articles or an enquiry service - aim to provide <u>substantive</u> information, often, but not always, in documentary form. In some areas, both approaches may be combined in a single product such as a general bulletin introducing press cuttings and listing new acquisitions. Such products and services are generally classified as dealing with:

(a) current awareness

- of general developments in the sector, organized events, research and development projects and their results, new technical products and services and new information sources, products and services;

(b) literature searching

- of published and unpublished records of documentary production to identify specific documents or sets of documents, with specific characteristics;

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(c)   document provision

- of originals or copies of complete documents
or parts of documents held by the information
system or available from elsewhere;

(d)   answering enquiries

- ranging from quick reference services
designed to provide immediate answers to
simple enquiries, to research services
designed to investigate complex problems,
often in conjunction with technical
assistance from subject specialists.

12.2   A diagnosis of the existing situation with regard to
the information products and services provided by an
information system will involve a study of the products
and services themselves and of their acceptance and use
by information users. Recommendations for action may,
for example, concern the introduction of a new type of
current awareness service, the training of staff to
improve the effectiveness of literature searching, the
introduction of new methods of recovering the cost of
document provision, or the recruitment of more staff
with technical qualifications to improve the quality of
the enquiry service.

13   **Other services**

13.1   The need for, or the existing situation of, other
services such as translation services, should also be
considered.

14.   **Education and training of information users**

14.1   In order to make the most effective use of the
information products and services provided by an
information system, its users need to be educated in
the importance of information and the nature of
information provision in general, and to receive
training in the use of specific information products
and services and guides to information sources. The
user education and training facilities available, not
only within the information system being studied, but
also elsewhere (for example, in universities and other
educational institutions), need to be identified and
evaluated, and the extent to which the users of the
system have made use of such facilities needs to be
determined. Proposals for action in this regard may
deal with the organization of inhouse orientation and
training courses within the information system, or with
the need to include course elements dealing with the
nature and importance of information into general
sectoral education and training programmes.

INFORMATION USERS AND THEIR NEEDS

1.   Introduction

1.1   This document presents a preliminary outline of an
        approach to identifying actual or potential users of
        information and their knowledge needs. The ideas put
        forward below are still being developed and tested by
        IRC in discussions with information professionals and
        through practical application in field studies. They
        should not, therefore, be regarded as in any way
        definitive at this stage.

2.   The estimated potential user population

2.1   The potential users of information in specific fields
        are often widely scattered and sometimes difficult to
        identify, especially in interdisciplinary fields such
        as water supply and sanitation. It is, however,
        essential to have a thorough knowledge of the
        characteristics, size and distribution of the estimated
        potential user population in order to be able to
        provide the information which is required to meet its
        needs. It is therefore important to devote adequate
        time and resources to a study of these matters before
        planning or implementing measures to provide
        information.

2.2   The main categories of information about the potential
        user population which are needed are:

        (a) total numbers

        (b) distribution by principal significant
             characteristics

        (c) geographical distribution.

        A number of significant characteristics which
        facilitate the systematic study of the needs of
        information users are outlined below.

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3.   Life roles

3.1   We may identify four major groups of roles performed by most individuals in their lives at different times:

(a)   domestic

- relating to family life and domestic matters; e.g. role as a father, mother, houseowner, etc.

(b)   social or community

- relating to the performance of various social responsibilities within the community; e.g. member of local council, village headman, member of water committee, etc.

(c)   recreational

- relating to leisure-time activities and cultural pursuits;

(d)   occupational

- relating to the functions and responsibilities of working life in one or more occupations, e.g. water engineer, public health inspector, farmer.

3.2   The distinction between these major groups of roles among people living in rural areas in developing countries is likely to be very weak. In particular, most of them may have little opportunity to adopt recreational roles. Whereas someone living in an urban or peri-urban area, even in a developing country, may separate his work, family and community lives into largely separate compartments - going out to work, coming home to the family, going out to attend a town council meeting - this is much less true among rural people, for whom the various activities are much closely integrated.

3.3   While a water supply and sanitation project will mainly involve people in their occupational roles - e.g. as water engineers, public health officials, etc. - it is important to note that, especially at the village level, some of the key actors may be involved with the project in their domestic or community roles and not in an occupational role.

3.4   In such a situation, our concern may at times be with actors whose major role in relation to the water supply and sanitation project is a minor role in terms of their life in general. Thus, for example, a village headman or water committee member may be involved with

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the project mainly in his social or community role as a representative of the community; but for him, his major role in life may be his occupational role as a farmer. Similarly, a project may be concerned with women in the village mainly in terms of their domestic roles, as mothers; or with the headman or water committee chairman in minor occupational roles as <u>communicator</u> or <u>policy maker</u>, rather than in their major roles as farmers, fishermen or whatever.

3.5   What are the implications of this for the assessment of the knowledge needs of such people? If an actor's major role in life is in some field outside the water supply and sanitation sector, he is likely to be accustomed already to use other sources of information designed to meet the needs of that role. For example, community representatives may already be regular readers of newsletters produced by local government agencies and addressed to them in that role; farmers may habitually listen to regular radio broadcasts on agricultural matters; village women may meet regularly with extension workers from women's organizations, family planning units and so on.

3.6   Such existing channels of communication, even though they are not primarily concerned with water supply and sanitation as such, may be more effective means of disseminating information about the project than other methods designed specifically for that purpose, simply because people are already accustomed to using them and regard them as reliable sources of information. This may also apply to training as a means of knowledge dissemination; courses for farmers, women, etc. may be more effective in disseminating knowledge on water supply and sanitation than courses dealing exclusively with that subject.

3.7   The "overload factor" may also come into play in such a situation. People may have neither the time nor the inclination to pay attention to information coming from many sources, but prefer instead to rely on one or two regular or well-known sources. In the same way, someone might rely on one weekly news magazine to keep him informed about world developments, rather than subscribe to, or go to the library to read, ten or fifteen magazines dealing with specific subjects.

4.   Occupational roles

4.1   Although the significance of other life roles must be
      taken into account in certain situations, most of those
      involved with a water supply and sanitation project
      will relate to it in an occupational role. The group
      of occupational roles generally comprises five separate
      basic roles, namely:

      (a)   learning

            -   a role performed mainly by students,
                trainees, apprentices and the like;

      (b)   practice

            -   a role performed by the basic practitioners -
                workers or producers - in the sector;

      (c)   communication

            -   the tasks of generating and communicating
                information related to the sector, performed
                by researchers, teachers, advisers,
                consultants, information specialists, etc.;

      (d)   management and administration

            -   the role of managing and administering
                institutions, organizations and programmes in
                the sector;

      (e)   policy-making and planning

            -   the role of defining policies applicable to
                the sector and preparing plans for their
                implementation.

4.2   These roles are neither mutually exclusive nor
      permanent. Managers and policy-makers may become
      involved in learning about new aspects of their
      subject; practitioners may become involved with policy
      formulation; administrators may be involved also with
      teaching or research.

4.3   The fact that one individual may perform different
      roles at different times -- or even at the same time -
      - does not invalidate the principle of distinguishing
      between the characteristics -- and hence, the
      knowledge needs -- of the various roles. Indeed, it
      reinforces the point that the knowledge needs of a
      given individual may change constantly both during the
      working day and throughout his working life. In most
      cases, and at most times, however, an individual
      performs one dominant or primary role for most of the
      time.

4.4   Within a given sector, such as water supply and sanitation, the knowledge needs of different types of workers, corresponding broadly to their dominant or primary roles, will be different; and they may also change over time. Thus, a village craftsman's needs will be different from those of a senior official in the Ministry of Water Resources; and the needs of a group comprising different types of workers -- for example, village craftsmen, local administrators, rural health workers -- and involved in a particular activity -- for example, a new project -- may change much more rapidly than those of similar workers in other areas where no new projects are being undertaken.

5.   **Assessing knowledge needs**

5.1   In any occupational role, at any given time, an individual needs to know certain facts and how to perform certain tasks. These knowledge needs may be assessed in relation to three basic characteristics:

(a)   substance

-   what the knowledge required is about;

(b)   form

-   how the knowledge should be presented, in intellectual terms, in order to be understood;

(c)   medium

-   in what format or by what means the knowledge should be communicated, in order to be used.

5.2   The means by which the identified knowledge needs are to be met must therefore themselves be assessed in terms of:

(a)   subject content

e.g. about slow sand filtration techniques

(b)   purpose

e.g. whether designed to communicate facts, change attitudes or inculcate skills

(c)   orientation

e.g. whether practical or theoretical

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(d) <u>level</u>

e.g. whether elementary or advanced, designed for students or for research workers

(e) <u>language</u>

e.g. whether the language in which the information is presented can be understood by its intended users

(f) <u>currency or timeliness</u>

e.g. how up-to-date the information is in relation to how up-to-date it needs to be

(g) <u>medium of communication</u>

The four basic media through which knowledge may be transferred are:

(i) <u>documentary records</u>

- including written and printed documents (correspondence, reports, books, etc.) and audiovisual media (sound recordings, films, slides, etc.)

(ii) <u>mass media</u>

- including radio and television broadcasts

(iii) <u>formal personal contacts</u>

- including training courses, conferences, seminars, etc.

(iv) <u>informal personal contacts</u>

- including extension work, community meetings, individual conversations, etc.

5.3 An analysis of the knowledge needs of an individual or group in a particular situation should thus make it possible to identify one or more of these channels as appropriate and effective means of meeting those needs according to the role or roles being performed in that situation. Such an analysis might show, for example, that while the best way of meeting the needs of some of the participants in a water supply project was to provide better access to documentary information, while for others the best way would be to provide a training course -- perhaps to develop the skills and attitudes to enable them to participate effectively in the project.

OUTLINE METHODOLOGY FOR A COMPREHENSIVE INFORMATION SURVEY

1.   INTRODUCTION

1.1   Basic methods of data collection for any kind of survey
      include:

      (a)   a review of existing sources

      (b)   the conduct of original investigations

2.   REVIEW OF EXISTING SOURCES

2.1. Existing sources of data may include:

             published statistics
             unpublished records
             reports on previous studies and surveys
             books and periodical articles
             maps, charts, plans
             audio-visual materials, etc.

2.2   A review of existing sources can be very time consuming and
      unproductive unless sources are carefully selected on the
      basis of the accuracy, reliability, relevance and date.

2.3   Data provided by the selected sources must be carefully
      checked:

      (a)   internally -   for arithmetical errors and other
                           inconsistencies

      (b)   externally -   against other selected sources for
                           reliability.

2.4   Data from various sources may be combined to give a more
      comprehensive picture of the existing situation provided that
      they have been checked, internally and externally verified and
      assessed for compatibility and consistency.

2.5   The existing presentation of some data elements may have to be
      revised in order to ensure overall consistency.

3.   ORIGINAL INVESTIGATIONS

3.1   A review of existing sources should be undertaken before any
      decision is made with regard to the conduct of original
      investigations. Such investigations are expensive, time-
      consuming and difficult to organize and carry out, and it is
      important to ensure that they are not undertaken in order to
      obtain data which is already available from existing sources.

3.2 The basic steps in planning and carrying out any kind of investigations are:

(a) determine its objectives and scope;

(b) select data collection methods;

(c) assess the resources available for carrying out the investigation;

(d) prepare the design of the investigation;

(e) test design;

(f) carry out investigation;

(g) collate data;

(h) analyze data;

(i) publish results.

4. INVENTORY OF INSTITUTIONS IN THE WATER SECTOR

4.1 This should aim to identify and locate the main institutions in the sector in Tanzania and obtain basic information on: their staffs; on their involvement in generating and disseminating information, particularly in documentary form; and on whether or not they have a library or documentation centre. This information would provide the basis for the remaining stages of the survey, which are described below.

4.2 In view of the present condition of the postal and telephone services in Tanzania, the most reliable way of collecting data on these institutions will be through personal visits. It will therefore be necessary to impose some limitations on the coverage of the inventory to ensure that all institutions which it is decided to include can be visited in a reasonable period of time.

4.3 One of the main difficulties in deciding on what institutions should be included is that many of them, including the Ministry itself, are only partly concerned with the water sector; they are also active in other areas. It will be necessary to organize the inventory so as to focus only on those elements which are concerned with the water sector.

4.4 It is suggested that, at this stage, the inventory be restricted to appropriate elements of central government ministries and major parastatals and non-governmental organizations, rather than attempting to cover every institution, no matter how small, with responsibilities in the water sector. The inventory should aim to include regional and local offices of these bodies, though it will probably not be possible to collect data on all these organizations through personal visits.

4.5 The principal actions involved in the conduct of the inventory are:

(a) identify and obtain copies of existing lists of the names and addresses of units of the ministries and parastatals to be covered by the directory;

(b) identify the specific units to be included;

(c) define the categories of data to be collected, these might include:

   (i) name of unit, street address, postal address, telephone, telex, fax numbers;

   (ii) institutional affiliation (to ministry, parastatals, etc);

   (iii) data founded;

   (iv) changes of name since foundation;

   (v) nature of governing body, if any;

   (vi) internal organization (principal departments, substations, etc, including existence or otherwise of a library or documentation unit and basic information on its holdings);

   (vii) numbers and types of professional and technical staff, (including library and documentation staff);

   (viii) summary of objectives and activities, including details of any products or services available, publications issues, regular events (conferences, seminars, etc.) and training activities;

   (ix) formal links with other organizations in Tanzania and abroad;

(d) design data collection instrument (interview schedule/questionnaire);

(e) test data collection instrument and revise as necessary;

(f) reproduce final version of data collection instrument in quantities required;

(g) plan conduct of inventory, including:

    (i)   proposed programme of visits;

    (ii)   arrangements for informing intended interviewees in advance about the inventory and the types of data to be collected, and for confirming dates and times of interviews;

    (iii)   arrangements for travelling to interviews;

    (iv)   arrangements for recruiting, briefing, supervising and paying any assistants required;

    (v)   arrangements for return visits or other follow-up in case of difficulties or queries;

(h) carry out inventory;

(j) check data and initiate follow-up procedures in case of queries;

(k) compile and edit individual entries, including assignment of subject descriptors, if appropriate;

(l) input edited entries to computer.

If it is desired to publish the results as a directory, it will also be necessary to:

(a) compile and edit complete text and indexes;

(b) proofread and correct text and indexes as required;

5. **ANALYSIS OF EPUP**

5.1 The data on number and types of professional and technical staff collected in the course of the inventory should be collated to create a consolidated profile of the EPUP showing the numbers of staff of different types working in different organizations and different geographical locations. This will:

(a) provide a basis for the selection of a stratified sample of potential information users for further study under stage 3 below;

(b) provide a first source of information on the professional expertise available in the country for use in compiling the proposed directory of water and sanitation professionals;

(c) make it possible to identify the main concentrations of potential users of different types, as an aid in planning the future development of the system and the various kinds of information services to be provided.

6. SURVEY OF INFORMATION NEEDS AND INFORMATION USE

6.1 This involves the collection of detailed information on the
    information needs and information-seeking and information-
    using behaviour of a members of a stratified sample of the
    EPUP, drawn from the consolidated records. Such a survey may
    be carried out through questionnaires, interviews, group
    techniques or a combination of any or all of these.

6.2 The use of questionnaires alone, however, is not recommended
    as it rarely produces satisfactory results. It is preferable
    to distribute questionnaires in advance, together with an
    explanatory covering letter, so that respondents may be
    forewarned about the kind of information required. This should
    be followed up by an interview in which the questionnaire is
    completed by the interviewer and the respondent working
    together. If it is not possible to interview all members of
    the sample, an attempt must be made to interview at least a
    representative sample of the sample.

6.3 The main features of a suitable questionnaire are outlined
    below. The actual design of the questionnaire should be done
    by the project team with advice from the TLS and, if
    necessary, from social scientists with experience in
    questionnaire design.

6.4 Where appropriate, respondents may be asked to rank certain
    items in order of importance.

    Outline of questionnaire

    A.   Personal details of respondents

         -    name, title, etc.

    B.   Work

         -    place of work, address, main function of the
              organization and the nature and extent of its
              involvement in the water sector;

         -    respondent's job title, profession, nature and
              extent of involvement in the water sector. This may
              be assessed in terms of the primary roles see
              Appendix A.2., sections 4) - learning, practice,
              communication, management, policy making/planning -
              and their relative importance in the respondent's
              work, and in terms of the main technical areas in
              which these roles are performed - e.g. hydrology,
              drilling, water quality, etc.

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C. Information needs

-   the respondent's needs for information related to
    his primary work roles and in terms of :

(a) subject content

         e.g. about slow sand filtration techniques

(b) purpose

         e.g. whether designed to communicate facts,
         change attitudes or inculcate skills

(c) orientation

         e.g. whether practical or theoretical

(d) level

         e.g. whether elementary or advanced, designed
         for students or for research workers

(e) language

         e.g. whether the language in which the
         information is presented can be understood by
         its intended users

(f) currency or timeliness

         e.g. how up-to-date the information is in
         relation to how up-to-date it needs to be.

D. Information use

-   the main kinds of sources from which the respondent
    obtains - or tries to obtain - the information he
    needs, i.e.

(a) documentary records

-   including written and printed documents
    (correspondence, reports, books, etc.) and
    audiovisual media (sound recordings, films, slides,
    etc.)

(b) mass media

-   including radio and television broadcasts

(c) formal personal contacts

-   including training courses, conferences, seminars,
    etc.

(d)   <u>informal personal contacts</u>

-      including extension work, community meetings, individual conversations, etc.

-      the main <u>specific</u> sources which the respondent uses to obtain information e.g.

      (a)   private purchase of books or periodicals;

      (b)   specific libraries documentation centres or information systems in Tanzania or elsewhere;

      (c)   specific radio or television programmes;

      (d)   recent or regular attendance at specific courses, conferences, etc.

      (e)   specific examples of the use of personal contacts, e.g. membership of professional societies, correspondence with other specialists in Tanzania or elsewhere, etc.

         -    relative success of the respondent's efforts to obtain the information he needs.

E.   <u>Information generation and dissemination</u>

-      the extent and nature of the respondent's involvement in generating and disseminating information both in Tanzania and elsewhere, through

(a)   <u>documentary records</u>

-      including production of regular reports, periodical articles, conference papers, books, slides, films, etc. (with bibliographic details or actual copies, if possible);

(b)   <u>mass media</u>

-      including appearances on writing for or producing radio or television broadcasts;

(c)   <u>formal personal contacts</u>

-      including regular or occasional participation in, or organization of training courses, conferences, etc.

(d)   <u>informal personal contacts</u>

-      including participation in extension work, etc.

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This information could be used to supplement the survey of institutional activities in this regard which is outlined below.

F.   General comments

-    Respondents should be given an opportunity to make general comments and suggestions with regard to their need for information and the problems they experience in obtaining, using and generating it.

7.   SURVEY OF INFORMATION GENERATION AND DISSEMINATION

7.1 This survey will be carried out by correspondence and would aim to obtain, from all the institutions responding positively on this subject at the inventory stage, full details of their activities in respect of the generation and dissemination of information, including lists and copies of any documents produced. It will be supplemented by information on the activities of a sample of individual users collected under the survey of information needs and information use, above.

7.2 Since institutions will be asked, in the course of the inventory, to supply details of any publications issued, the present survey will have to be carried out on an institution-by-institution basis, seeking further information, checking bibliographical details, requesting copies of the publications listed, etc. The survey will provide information both for general planning purposes and as an aid to building the MAJIDOC collections and database.

8.   SURVEY OF LIBRARY AND DOCUMENTATION UNITS

8.1 This would be carried out by questionnaires and interviews and would seek to obtain, from all institutions responding positively on this topic at the inventory stage, further details of their library or documentation units and their resources and services.

8.2 An important aim of this activity will be to collect water-related data on holdings of national documents, including:

(a) documents published in Tanzania;

(b) documents by Tanzanians published abroad;

(c) documents about the Tanzanian water sector by non-Tanzanians, published abroad.

8.3 The main actions to be taken are:

(a) identify libraries, documentation centres and other document collections in the institutions included in the inventory; this will be done in the course of the inventory;

(b) collect general data on the contents of these collections, including:

(i) numbers of bound volumes of books, periodicals, etc.

(ii) number of current periodical titles received;

(iii) quantities of other types of material held (audiovisual aids, maps, etc);

(iv) nature of the records of the collections (catalogues, etc.);

(v) numbers and types of staff employed;

(vi) equipment;

(vii) special collections;

(viii) information products and services available.

When MAJIDOC itself is functioning properly and ready to develop the national database to include items in other libraries in the sector, the nature and extent of the holdings of national literature in the other libraries should be assessed as far as possible, with a view to determining whether they are sufficient to justify recording in detail. If so, it will be necessary to visit these libraries and collect data on their national collections for inclusion in the national database.

9. CONCLUSION

It will be evident, from the above, that the conduct of these various surveys is a major task which must be carefully planned and allocated adequate human, material and financial resources if it is to be successfully carried out.

FURNITURE LAYOUTS, SCHEDULES, DESCRIPTIONS AND DRAWINGS

D.1.   Layouts

D.2.   Schedules

D.3.   Descriptions

D.4.   Drawings

N.B.   This appendix is concerned only with the public
           rooms in the WRI library and documentation centre.
           Staff offices and workrooms are not included.
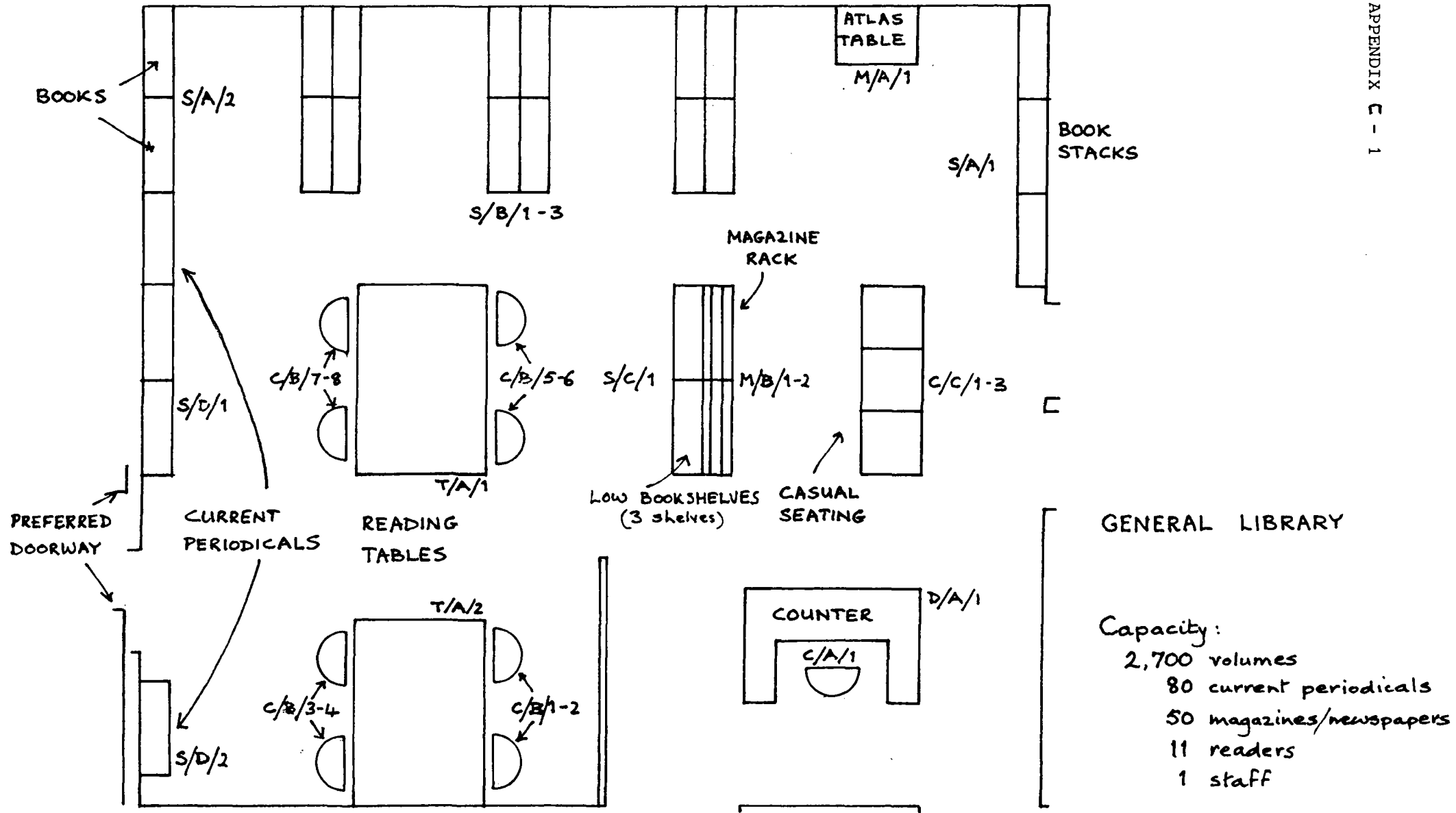
79

BOOKSTACKS (6 shelves)

ATLAS TABLE
M/A/1

BOOKS
S/A/2

BOOK STACKS
S/A/1

S/B/1-3

MAGAZINE RACK

S/D/1

C/B/7-8
C/B/5-6
S/C/1
M/B/1-2
C/C/1-3

T/A/1

PREFERRED DOORWAY

CURRENT PERIODICALS

READING TABLES

LOW BOOKSHELVES (3 shelves)

CASUAL SEATING

T/A/2

C/B/3-4
C/B/1-2

COUNTER
C/A/1
D/A/1

S/D/2

GENERAL LIBRARY

Capacity:
2,700 volumes
80 current periodicals
50 magazines/newspapers
11 readers
1 staff

Figure 1.   Furniture Layout :   General Library

BOOK STACKS
(6 shelves)

LIBRARY:
STACK/READING ROOM

Capacity :
3,900 volumes
8 readers

S/A/3   S/B/4-5   S/A/4

PREFERRED
DOORWAY

PREFERRED
DOORWAY

T/A/3   T/A/4

C/B/9-10   C/B/11-14   C/B/15-16

READING TABLES

Scale: 1:50
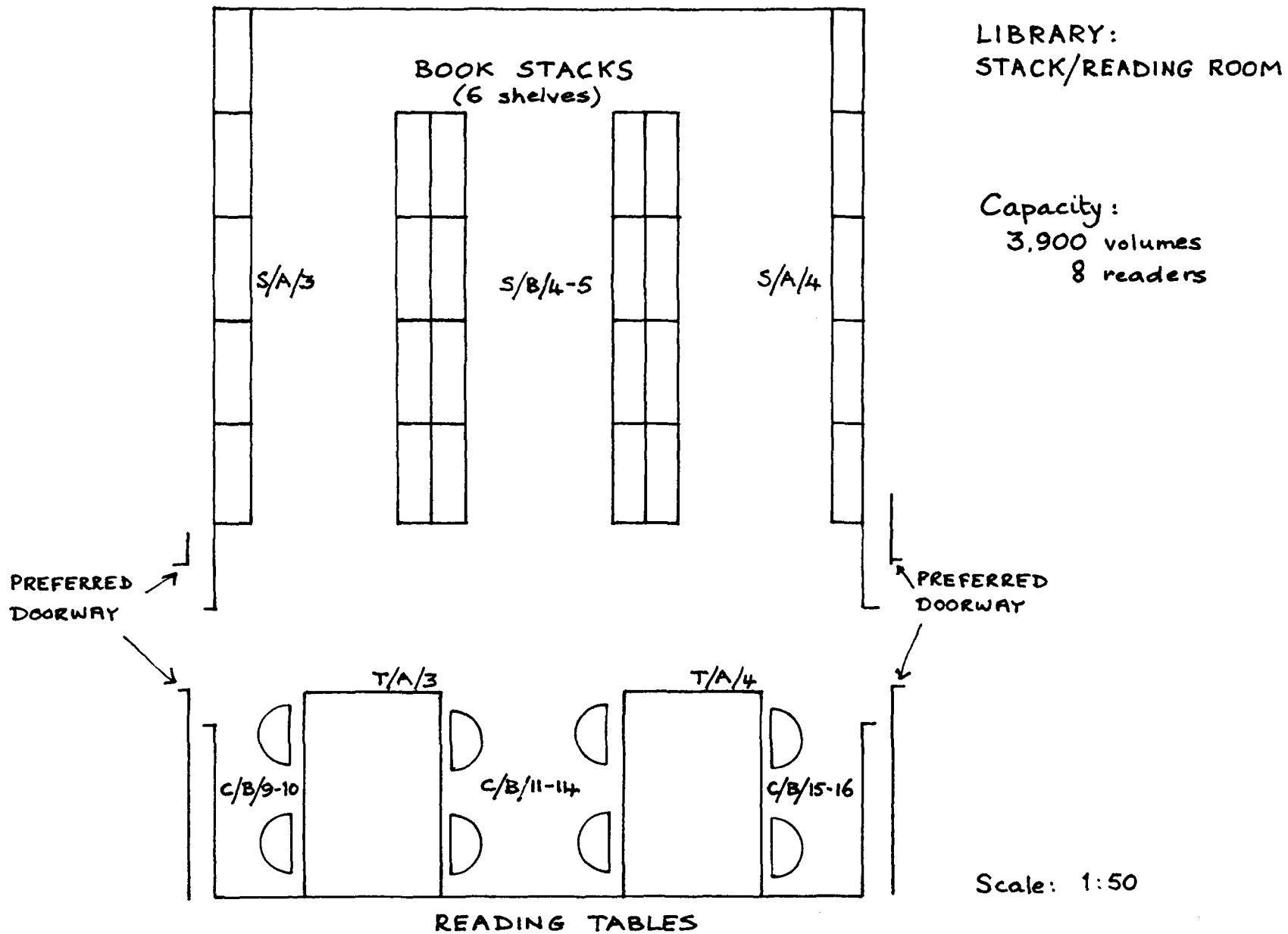
Figure 2. Furniture Layout : Library Stack/Reading Room

CUPBOARDS
M/B/1-2
RETURN
C/A/2
D/B/1
ENQUIRY DESK
C/B/17-18

BOOK STACKS (7 shelves)

S/A/5

DOCUMENTATION CENTRE

S/B/6-9

PREFERRED DOORWAY

M/C/1

Capacity:
5,000 documents
8 readers
1 staff

MAPS

C/B/19-20   C/B/21-22   C/B/23-24   C/B/25-26

Scale: 1:50

STUDY CARRELS (T/B 1-8)
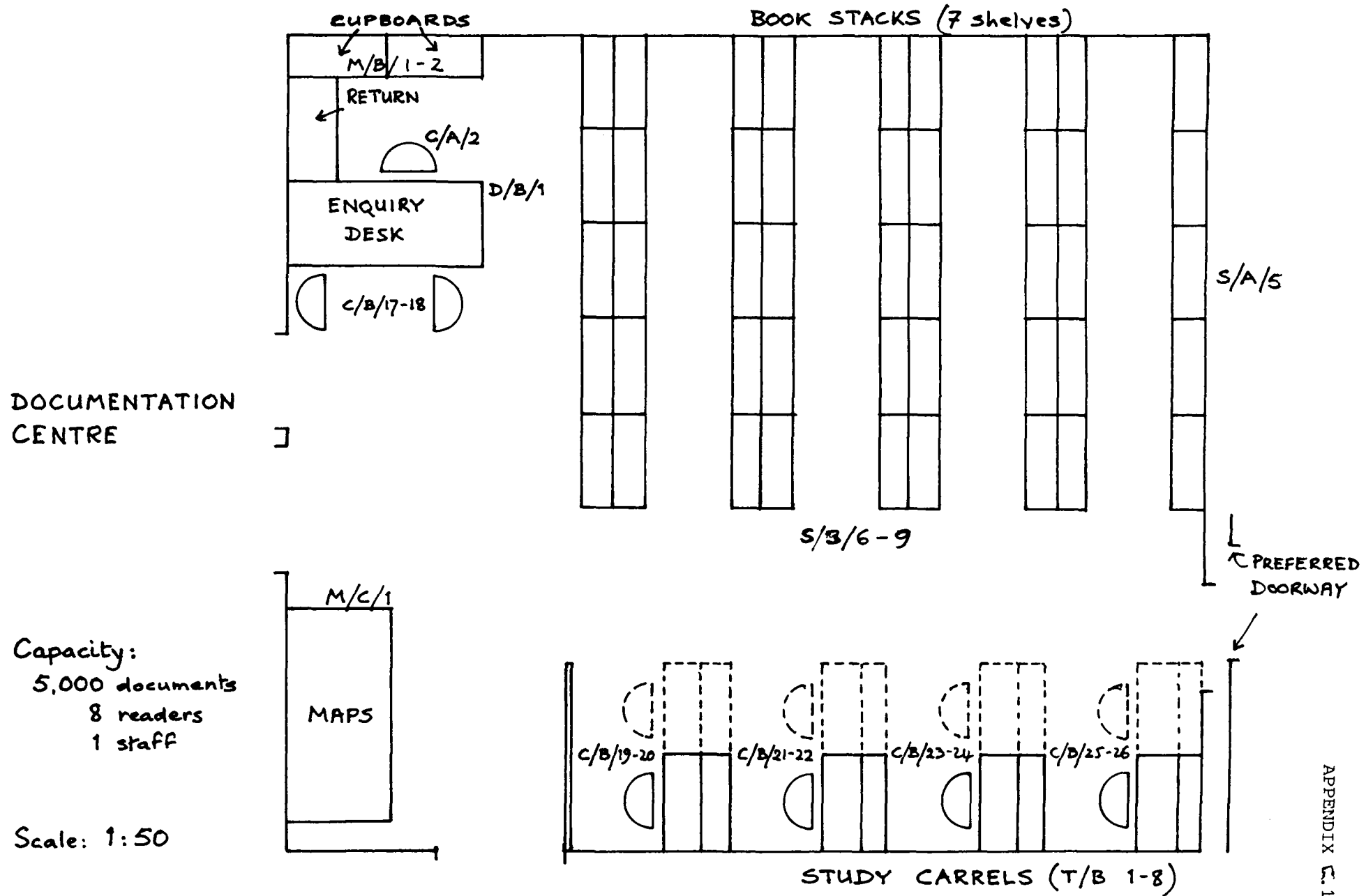
Figure 3. Furniture Layout : Documentation Centre

APPENDIX C.2. FURNITURE SCHEDULES

N.B Item numbers refer to the drawings and descriptions at Appendix.

Location	Qty	Item no.	
GENERAL LIBRARY	1	counter	D/A/1
	1	secretarial swivel chair	C/A/1
	2	4-seater readings tables	T/A/1-2
	8	upright chairs	C/B/1-8
	3	casual seating units	C/C/1-3
	1	row of 3 units single-sided open-fronted bookshelves (6 shelves/unit)	S/A/1
	1	combined row of 3 units single-sided periodical display shelves (4 shelves/unit) + 2 units single-sided bookshelves (6 shelves/unit)	S/D/1 S/A/2
	1	row of 1 unit single-sided periodical display shelves (4 shelves/unit)	S/D/2
	2	magazine racks	M/E/1 + 2
	1	atlas table	M/G/1
	1	row of 2 units single-sided open-fronted bookshelves (3 shelves/unit)	S/C/1
	3	rows of 2 units double-sided open-fronted bookshelves (6 shelves/unit)	S/B/1 - 3

LIBRARY STACK/ READING ROOM	2	rows of 5 units single-sided open-fronted bookshelves (6 shelves/unit)	S/A/4 - 5
	2	rows of 4 units double-sided open-fronted bookshelves (6 shelves/unit)	S/B/4 - 5
	2	4-seater reading tables	T/A/3 - 4
	8	upright chairs	C/B/9 - 16
DOCUMENTATION CENTRE	1	row of 5 units single-sided open-fronted bookshelves (7 shelves/unit)	S/A/6
	4	rows of 5 units double-sided open-fronted bookshelves (7 shelves/unit)	S/B/6 - 7
	1	secretarial (enquiry) desk with RH return	D/B/1
	2	cupboards, sliding doors	M/B/1 - 2
	1	map cabinet (horizontal storage)	M/C/1
	8	single study carrels	T/B/1 - 8
	1	secretarial swivel chair	C/A/2
	10	upright chairs	C/B/17-26

APPENDIX C.3. DESCRIPTIONS OF FURNITURE

The descriptions which follow are based on those prepared by the consultant for an agricultural documentation centre in Ghana in 1989. All dimensions are given in UK (imperial) units.

Item no.	Details
C	CHAIRS (wood or steel tube + upholstered construction
C/A	Secretarial swivel chair
	Quantity required
C/A/1-2	2
	Details
	Upholstered swivel chair with arms and castors adjustable for height and tilt
	Location
	1 unit (C/A/1) in General Library 1 unit (C/A/2) in Documentation Centre
C/B	Upright chair
	Quantity required
C/B/1-26	26
	Details
	Upholstered chair with arms (NB arms must be designed to permit chair to be drawn up close to table)
	Location
	8 units (C/B/1-8) in General Library 8 units (C/B/9-16) in Library Stack/Reading Room 10 units (C/B17-26) in Documentation Centre

C/C	Casual seating units
	Quantity required
C/C/1-3	3
	Details
	Upholstered casual lounge seating units. May be supplied either as 3 x individual units capable of being attached to each other, or as 1 x 3 seater unit
	Location
	3 units (C/C/1-3) in General Library
D	DESKS (All wood construction)
D/A	Counter
	Quantity required
D/A/1	1
	Details
	As per design already prepared by project team
	Location
	1 unit (D/A/1) in General Library
D/B	Secretarial desk (enquiry desk with RH return)
	Quantity required
D/B/1	1
	Details
	Desk: 29" H x 72" W x 30" D, pedestals, 3 x locking drawers, modesty panel
Return: 26" H x 45" W x 18" D, pedestal with stationery trays and tambour door, modesty panel
	Location
	Documentation Centre
M	MISCELLANEOUS ITEMS
M/A	Atlas table
	Quantity required

M/A/1   1

<u>Details</u>

Wooden table with sloping top and lip, sliding shelves
beneath for atlases and other large volumes

<u>Location</u>

General Library

M/B	<u>Magazine rack</u>
	<u>Quantity required</u>
M/B/1+2	2
	<u>Details</u>
	Wooden rack 36" W x 18" D to hold magazines upright in 3-4 rows Overall height: 39" approximately
	<u>Location</u>
	General Library
M/C	<u>Map cabinet</u>
	<u>Quantity required</u>
M/C/1	1
	<u>Details</u>
	Standard map storage cabinet for horizontal storage of maps in drawers, flat top for consulting maps
	<u>Location</u>
	Documentation Centre
S	<u>SHELVING UNITS</u>
<u>S/A</u>	<u>Single-sided, open-fronted bookshelf unit</u>
	<u>Quantity required</u>
S/A/1 S/A/2 S/A/3-5	1 row of 3 units each 1 row of 2 units (combined with S/C/1) 3 rows of 5 units each
	<u>Details</u> (for wooden shelving)
	S/A/1-4: Each unit has 3" deep plinth, 1 x fixed bottom shelf, 5 x movable shelves (adjustable at 1" intervals), 2" deep canopy, solid back panel Overall height 82" approximately Units are 36" wide on centres Shelves and uprights are 7/8" thick Units are free-standing, but attached to wall for greater stability S/A/5: as above, but with 6 movable shelves. Overall height 72" approximately

Location

2 units (S/A/1-2) in General Library
2 units (S/A/3-4) in Library Stack/Reading Room
1 unit   (S/A/5)   in Documentation Centre

S/B   Double-sided, open-fronted bookshelf unit

               Quantity required

S/B/1-3   3 rows of 2 units each
S/B/4-5   2 rows of 4 units each
S/B/6-9   4 rows of 5 units each

               Details

               S/B/1-5: Same as S/A1-4 above, but each unit double-sided
               S/B/6-9: same as S/A/5 above, but each unit double-sided

               Location

               S/B/1-3 General Library
               S/B/4-5 Library Stack/Reading Room
               S/B/6-9 Documentation Centre

S/C   Single-sided, open-fronted bookshelf unit

               Quantity required

S/C/1   1 row of 2 units

               Details

               Same as S/A/1 above, but with 2 movable shelves, free-
               standing. Overall height 39" approximately

S/D   Single-sided, open-fronted periodical display shelf unit

               Quantity required
S/D/1   1 row of 3 units, combined with S/A/2
S/D/2   1 row of 1 unit

               Details (for wooden shelving)

               Each unit has 3" deep plinth, 1 x fixed bottom shelf, 3 x
               fixed horizontal shelves + 4 x fixed sloping shelves with
               lip, 2" deep canopy, solid back panel. Overall height 72"
               approximately
               Units are 36" wide on centres
               Shelves and uprights are 7/8" thick
               Units are free-standing, but attached to wall for greater
               stability

               Location

               General Library

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T	<u>TABLES (all wood construction)</u>
T/A	<u>Reading table</u>
	<u>Quantity required</u>
T/A/1-4	4 x (72" x 48")
	<u>Details</u>
	Table tops are 29" from floor, 1" thick with rails 3" maximum depth. Tapered legs, adjustable feet
	<u>Location</u>
	T/A/1-2 General Library T/A/3-4 Library Stack/Reading Room
T/B	<u>Study Carrel</u>
	<u>Quantity required</u>
T/B/1-8	8 x (36" x 24")
	<u>Details</u>
	As reading table T/A with screen, side panels and shelf unit above, 22" high x 8" deep
	<u>Location</u>
	Documentation Centre

APPENDIX C.4. DRAWINGS OF FURNITURE

NB: The drawings presented in this Appendix are intended to illustrate the essential features and basic dimensions of the basic shelf units required for the library. They are intended as a guide to the chosen manufacturer in the preparation of his own designs, not as a substitute for such designs. The drawings are of units made of wood: the appearance of steel units would be different, but the basic dimensions would remain similar.

It should be the responsibility of the manufacturer to check all dimensions shown, and the dimensions of the building, to ensure that the furniture supplied will fit in the desired locations.

These drawings have been taken from a report on the development of an agricultural documentation centre in Ghana prepared by the consultant in 1989, and all dimensions are shown in UK (imperial) units

adjustable shelves

2"

3"

solid
back

144"

12"

82"
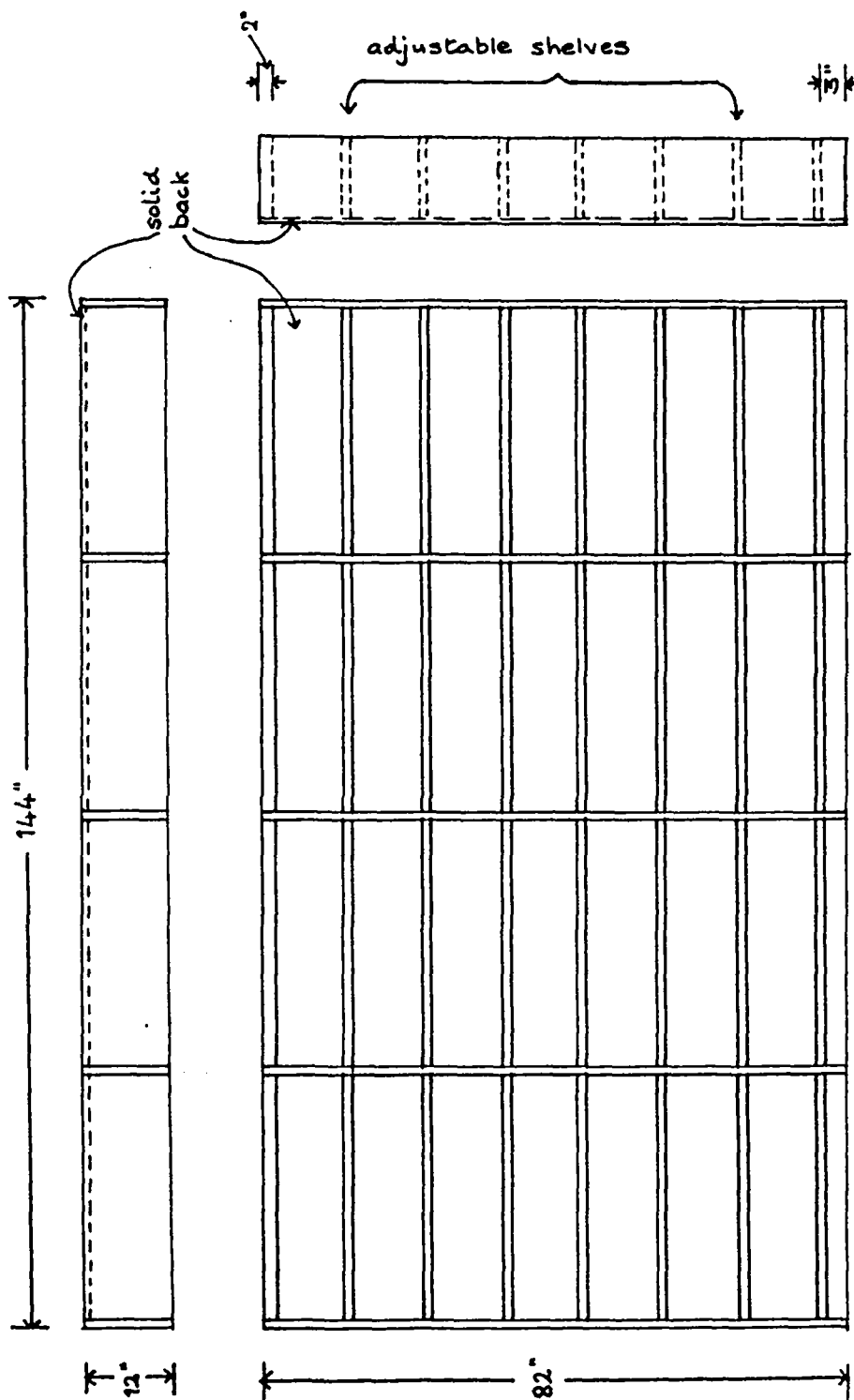
Scale: 1 mm = 1 inch

DIAGRAM S/A. BOOKSHELF UNIT (OPEN, SINGLE-SIDED)

72"

24"

82"
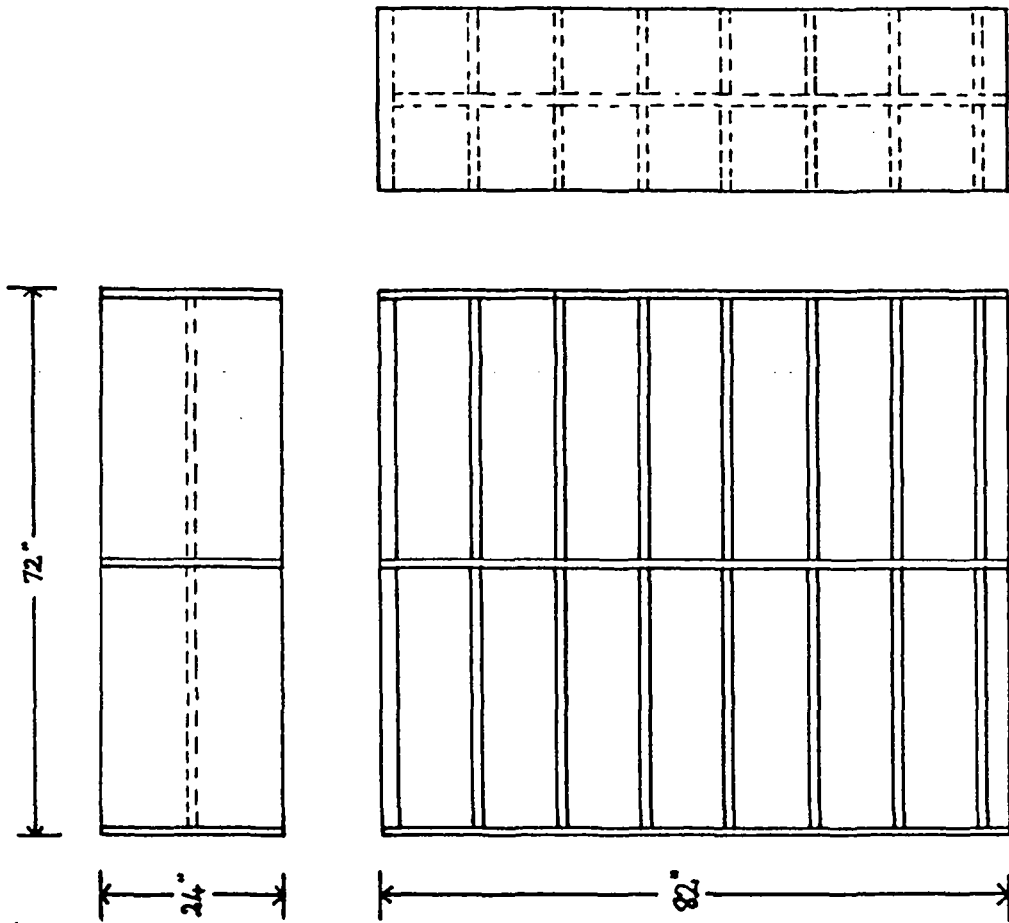
Scale: 1 mm = 1 inch

DIAGRAM S/   BOOKSHELF UNIT (OPEN,DOUBLE-SIDED)

space
sloping shelf
lip
space
horizontal shelf

15°

12"

lip

144"

82"

15.4"
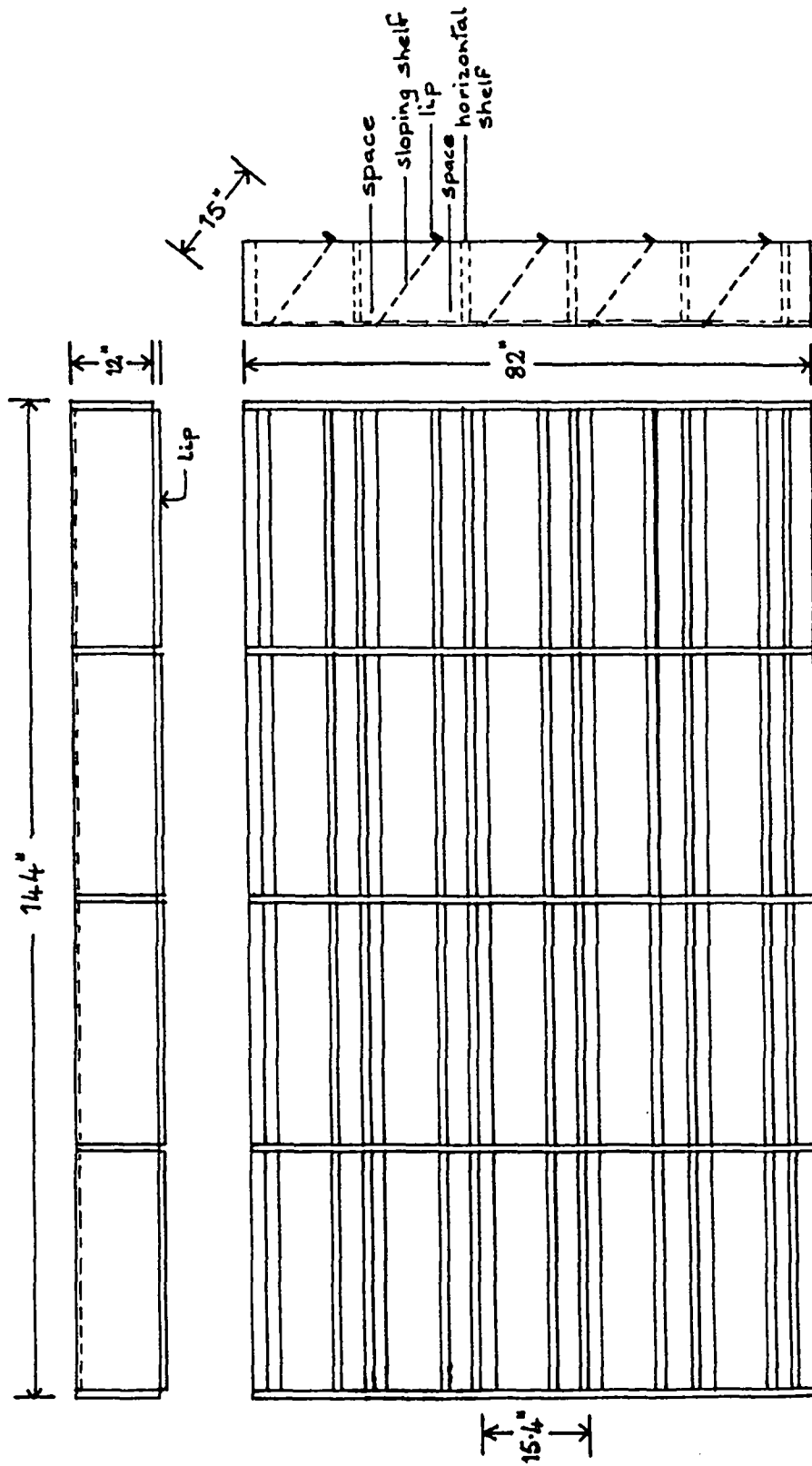
Scale: 1 mm = 1 inch

DIAGRAM S/   PERIODICALS DISPLAY

CEHANET BIBLIOGRAPHIC DATABASE
INPUT SHEET

CEHA —

001	RECORD ID	

HEADER

005	ACCESSION No.		010	REC ID 2ND LVL	
012	RELATED RECORD		022	RECORD DATE	
025	RECORD STATUS & DATE		031	RECORD LANGUAGE		060 TYPE OF MATERIAL
040	TEXT LANGUAGE		041	SUMMARY LANGUAGE	
070	BIBLIOG. LEVEL		100	ISBN	
101	ISSN		120	DOCUMENT NO	

BIBLIOGRAPHIC DESCRIPTION

200	TITLE & STATEMENT OF RESPONSIBILITY	
201	KEY TITLE	
210	PARALLEL TITLE & STATEMENT OF RESPONSIBILITY	
213	TRANSLATED TITLE ARABIC	
214	TRANSLATED TITLE ENGLISH	
215	TRANSLATED TITLE FRENCH	
230	OTHER TITLE	
240	UNIFORM TITLE	

BIBLIOGRAPHIC DESCRIPTION

260	EDITION				
270	CARTOGRAPHIC MATERIALS				
300	PERSONAL AUTHOR (S)				
310	CORPORATE AUTHOR (S)				
320	MEETING				
330	AFFILIATION				
250	MONO. TITLE 2ND LEVEL				
255	SERIAL TITLE 2ND LEVEL				
350	PERSONAL AUTHOR 2ND LEVEL				
360	CORPRATE AUTHOR 2ND LEVEL				
400	PUBLISHER				
460	PHYSICAL DESCRIPTION		440	PUBLICATION DATE	
480	MONO. SERIES				
450	SEIRAL No & DATE				
490	PART STATEMENT				
500	NOTES				

Appendix D

600	ABSTRACT			

SUBJECT

610	CLASSIFICATION No.		615	SUBJECT CATEGORY	
620	PRIMARY DESCRIPTORS				
621	GEOGRAPHIC DESCRIPTORS				
623	LOCAL DESCRIPTORS				
624	PRPOSED DESCRIPTORS				

LOCAL

801	MATERIAL LOCATION		802	NO. OF COPIES	
803	MICROFORM		804	DISTRIBUTION	
805	ACQUISITION		806	ORDER DATE	
807	DATE RECEIVED		808	PRICE	

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
001	Record Identifier	N	M	6	
005	Accession Number	N	M	10	if used
010	Record Identifier - 2nd level	R	M	12	when there are levels
A	Parent Record Identifier		M	6	
B	Individual Record Identifier		M	6	
011	Alternative Record Identifier	R	O	76	if the system contributes to cooperative system
A	Alternative Identifier		M	6	
B	Centre Coded Identification		O	10	
C	Centre Name		O	60	
013	Related Record	N	O	8	
A	Relatedness		M	2	
B	Related Record Identifier		M	6	
020	Source of Record	N	M	133	if the centre contributes to cooperative system
A	Centre Coded Identification		M	10	
B	Centre Name		M	60	
C	Coding System		O	10	
D	Bibliographic Description Rules		O	50	
L	Language of Centre Name		O	3	
021	Completeness of Record	N	O	2	for exchange
022	Date Record Entered	N	M	10	
025	Record Status History	R	M	15	
A	Record Status	N	M	5	
B	Status Date	N	M	10	
030	Character Set Used	N	M	20	for exchange only
031	Language of Record	N	M	3	
040	Language of Text	R	M	3	
041	Language of Summary	R	O	3	

R= Repeatable   N= Non-Repeatable   M= Mandatory   O= Optional

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
060	Type of Material	R	O	3	
070	Bibliographic Level	N	M	6	
A	First Level	N	M	2	
B	Second Level	N	M	4	
100	ISBN	R	M	33	
A	ISBN		M	13	
B	Qualifications		O	20	
101	ISSN	N	M	9	
120	Document Number	R	M	50	
200	Title and Statement of Responsibility	N	M	600	
A	Title		M	300	
B	Statement of Responsibility		O	297	
L	Language of Title		O	3	
201	Key Title	N	M	200	for serials on~
210	Parallel Title and Statement of Responsibility	R	M	600	
A	Parallel Title		M	300	
B	Statement of Responsibility		O	297	
L	Language of Parallel Title		O	3	
213	Translated Title – Arabic	N	M	200	if the centr~ contributes to cooperative system
214	Translated Title – English	N	M	200	" "
215	Translated Title – French	N	M	200	" "
230	Other Title	R	O	200	
240	Uniform Title	N	O	400	
250	Title and Statement of Responsibility – 2nd Level	N	M	600	
A	Title		M	300	
B	Statement of Responsibility		O	297	
L	Language of Title		O	3	

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
255	Serial Title – 2nd Level	N	M	300	
260	Edition	N	M	225	
A	Edition Statement	N	M	25	
B	Edition Statement of Res-ponsibility	R	O	200	
270	Material Specific Details Cartographic Materials	R	M	100	
272	Material Specific Details Computer Files	N	M	100	
200	Personal Author(s)	R	M	100	
A	Entry Element		M		
B	Other Elements		M		
C	Dates		O		
D	Role		O		
Z	Authority File Code		O		
310	Corporate Author(s)	R	M	400	
A	Main Body		M		
B	Sub Body		M		
C	City		O		
D	Country		O		
E	Role		O		
Z	Authority File Code		O		
320	Meeting	R	M	500	
A	Name		M		
B	City		M		
C	Country		M		
D	Date		M		
E	Number		M		
Z	Authority File Code		O		
330	Affiliation	R	O	500	
A	Main Body		M		
B	Sub-Body		O		
C	City		O		
D	Country		O		
350	Personal Authors' 2nd Level	R	M	100	
A	Entry Element		M		
B	Other Elements		M		
C	Dates		O		
D	Role		O		
Z	Authority File Code		O		

-8-

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
360	Corporate Author(s) 2nd Level	R	M	400	
A	Main Body		M		
B	Sub-Body		M		
C	City		O		
D	Country		O		
E	Role		O		
Z	Authority File Code		O		
400	Publisher and Place	R	M	300	
A	Place of Publication		M		
B	Publisher Name		M		
C	Publisher's Address		O		
D	Country		O		
440	Date of Publication	R	M	50	
A	ISO Format		M		
B	Free Format		M		
450	Serial Numbering & Date	N	M	200	
460	Physical Description	N	M	200	
A	Extent		M		
B	Other Physical Details		O		
C	Dimensions		O		
D	Accompanying Material		O		
480	Monographic Series Statement	R	O	300	
A	Series Title		M		
B	Statement of Responsibility		O		
C	ISSN		M		
D	Series Part		M		
490	Part Statement	R	M	80	
A	Volume		M		
B	Pagination		M		
500	Notes	N	O	600	
600	Abstract	R	O	1000	
A	Abstract		M	997	
L	Language of Abstract		M	3	
610	Classification Number	R	O	40	
A	Notation		M		
B	Classification Scheme		O		

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
615	Subject Category	R	M	50	for printed output
620 A B L	Subject Primary Descriptors Descriptors Subject System Language of Descriptors	N	M M O M	300	for exchange
621 A B L	Secondary Descriptors Descriptors Subject System Language of Descriptors	N	M M O M	700	for exchange
622 A L	Geographic Descriptors Descriptors Language of Descriptors	N	O M M	200	
623	Local Descriptors	N	O	300	
624	Proposed Descriptors Proposed Descriptors Language of Descriptors	N	O M M	100	
801	Location of Material	R	O	10	
802	Number of Copies	N	O	3	
803	Microform	R	M	60	when produced
804	Distribution	N	O	10	
805	Acquisition Type	N	M	5	
806	Order Date	N	M	10	
807	Date Received	N	M	10	
808	Price	N	M	15	
809 A B C	Supplier Name Address Country	N	M M M M	200	
810	Acquisition Notes	N	M	200	

TAG	NAME OF FIELD & SUBFLD	REPEAT	MAND OR OPTION	LENGTH	NOTES
811	Printed Outputs	R	M	22	if the centre publishes bulletins
A	Output		M	6	
B	Date of Output		M	10	
C	Record Identifier		M	6	
820	Documentalist	N	M	80	
A	Cataloguer		M	20	
B	Indexer		M	20	
C	Data Entry		M	20	
D	Verified by		M	20	

3.7. CEHANET FORMAT AND CCF

CEHANET format is greatly influenced by CCF (Common Communication Format) developed by UNESCO for exchange of machine-readable bibliographic data, although it differs from the latter in the following aspects:

a)   It includes some fields not present in CCF to meet the local needs, e.g Fields 070, 250, 350, 360, 801-820.

b)   It excludes some fields and subfields particularly optional ones; e.g. fields 015, 023, 080, 081, 082, 083, 086, 102, 111, 220, 221, 222, 223, 410, 420, 441, 465, 510, 530 and subfields 031B, 041B, 101B etc.

c)   It does not use the system of indicators used by CCF. This means that the indicator will always be 00 at the time of exchanging data.

d)   It uses separate fields for describing host or parent documents of analytics, while CCF uses a system for linking fields (fields 080-086)*

e)   It includes rules for entering data in the various fields, while CCF has to accept any rules for entering data provided that data can be formatted according to CCF requirements.

f)   It does not specify field separators as this is left to be decided according to the computer system used, and space is left instead, while CCF suggests a.

The following table of comparison illustrates the matching between the various fields of both formats as it is an essential procedure for exchanging machine-readable bibliographic data from one to another. One basic condition should be adhered to, namely that recording data on magnetic tapes should conform to ISO standard 2709 (Format for bibliographic information interchange on magnetic tapes).

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*   See : CCF : Common Communication Format/compiled by Peter Simson and Alan Hopkinson - 2nd ed. - Paris : UNESCO, 1988. Section 2.5 and description of fields   080-086

CEHANET FORMAT		COMMON COMMUNICATION FORMAT	
TAG	**FIELD**	**TAG**	**FIELD**
001	Record Identifier	001	The Same
005	Accession Number	–	NOT USED
010	Record Identifier – 2nd elvel	010	Record Identifier used in a secondary segment
A	Parent Record Identifier)	A	Identifier
B	Individual Record Identifier)		
011	Alternative Record Identifier	011	The Same
A	Alternative Identifier	A	The Same
B	Centre Coded Identification	B	The Same
C	Centre Name	C	The Same
013	Related Record	–	NOT USED
A	Relatedness	–	NOT USED
B	Related Record Identifier	–	NOT USED
–	NOT USED in the same sense (see 070)	015	Bibliographic level of Secondary Segment
		A	Bibliographic level
020	Source of Record	020	The Same
A	Centre Coded Identification	A	The Same
B	Centre Name	B	The Same
C	Coding System	C	The Same
D	Bibliographic Description Rules	D	The Same
L	Language of Centre Name	L	The Same
021	Completeness of Record (not subfielded)	A	Code of Completeness
022	Date Record Entered (not subfielded)	022A	Date
–	NOT USED	023	Date and Number of Record version
		A	version Date
		B	Version Number
025	Record Status History	–	NOT USED
A	Record Status	–	NOT USED
B	Status Date	–	NOT USED

CEHANET FORMAT		COMMON COMMUNICATION FORMAT	
TAG	FIELD	TAG	FIELD
030	Character Set Used (not subfielded)	030	Character Set Used Record
-	Data in this field	A	Alternative Control Set (C1)
-	is generated automatically	B	Default Graphic Set (G0)
-	at the time of Exchange	C	2nd Graphic Set (G1)
-		D	3rd Graphic Set (G2)
-		E	4th Graphic Set (G3)
-		F	Additional Control Set
-		G	Additional Graphic Set
031	Language of Record	031A	Language of Record
040	Language of Text	040A	Language of Item
041	Language of Summary	041A	Language of Summary
-	NOT USED	050	Physical Medium
060	Type of Material	060A	Type of Material Code
070	Bibliographic Level	-	Field 015 is used in
A	First level	-	different sense
B	Second level	-	
-	Data will be generated	080-	Segment Linking fields
-	automatically from other	085	
-	Fields by utilizing field 070	086	Field to Field Link
100	ISBN	100	ISBN
A	ISBN	A	ISBN
	NOT USED	B	Invalid ISBN
B	Qualifications	C	Qualifications
101	ISSN	101A	ISSN
-	NOT USED	102	CODEN (for serials)
-	NOT USED	110	National Bibliography Number
-	NOT USED	111	Legal Deposit Number
120	Document Number	120A	Document Identification Number

CEHANET FORMAT		COMMON COMMUNICATION FORMAT	
TAG	FIELD	TAG	FIELD
200	Title and Statement of Responsibility	200	Title and Associated statement(s) of Responsibility
A	Title	A	The same
B	Statement of Responsibility	B	The same
L	Language of Title	L	The same
201	Key Title	201A	Key Title
210	Parallel Title and Statement of Responsibility	210	Parallel Title and Associated Statement(s) of Responsibility
A	Parallel Tile	A	The same
B	Statement of Responsibility	B	The same
L	Language of Parallel Title	L	The same
213	Translated Title - Arabic	200A 200L	Title (Indicator 23) Language of Title
214	Translated Title - English	200A 200L	Title (Indicator 23) Language of Title
215	Translated Title - French	200A 200L	Title (Indicator 23) Language of Title
230	Other Title	220A 221A 222A 223A 230A	Spine Title Cover Title Added Title-Page Title Running Title Other Title
230	Uniform Title	240A	Uniform Title
250	Title and Statement of Responsibility - 2nd Level	200 A,B & L	Title and Associated Statement(s) of Responsibility + 015+080
A	Title		
B	Statement of Responsibility		
L	Language of Title		
255	Serial Title - 2nd level	201A	Key Title + 015 + 080
260	Edition	260	Edition Statement and Associated Statment(s) of Responsibility

TAG	FIELD	TAG	FIELD

TAG	FIELD	TAG	FIELD
A	Edition Statement	A	The same
B	Statment of Responsibility	B	The same
270	Material Specific Details – Cartographic Materials	–	NOT USED
272	Material Specific Details – Computer Files	–	NOT USED
300	Personal Author(s)	300	Name of Person
A	Entry Element	A	The same
B	Other Elements	B	The same + C
C	Dates	D	Date(s)
D	Role	E	Role (coded) or
		F	Role (uncoded)
310	Corporate Author(s)	310	Name of Corporate Body
A	Main Body	A	Entry Element
B	Sub-body	B	Other Parts of Name
C	City	D	Corporate Body Address
D	Country	E	Corporate Body Country
E	Role	F	Role (coded) or
		G	Role (uncoded)
Z	Authority File Code	Z	Authority File Number
320	Meeting	320	Name of Meeting
A	Name and Number	A	Entry Element
		B	Other Parts of Name
B	City	G	Meeting Location
C	Country	E	Country
D	Date	H	Meeting Date (ISO Format) or
		I	Meeting Date (Free Format)
E	Number	J	Number of Meeting
Z	Authority File Code	Z	Authority File Number
330	Affiliation	330	Affiliation
A	Main Body	A	Entry Element
B	Sub-body	B	Other Parts of Name
C	City	D	Address
D	Country	E	Country of Affiliation
350	Personal Author(s) – Second Level	300	Name of Person
A	Entry Element	A	The same
B	Other Elements of Name	B	The same

CEHANET FORMAT		COMMON COMMUNICATION FORMAT	
TAG	**FIELD**	**TAG**	**FIELD**
C	Dates	D	Date(s)
D	Role	E	Role (coded) or
		F	Role (uncoded)
Z	Authority File Code	Z	Authority File Number
360	Corporate Author(s) - Second Level	310	Name of Corporate Body
A	Main Body	A	Entry Element
B	Sub-body	B	Other Parts of Name
C	City	D	Address
D	Country	E	Corporate Body Country
E	Role	F	Role (coded) or
		G	Role (uncoded)
Z	Authrotiy File Code	Z	Authority File Number
400	Publisher and Place	400	Place of Publication and Publisher
A	Place of Publication	A	The same
B	Publisher Name	B	The same
C	Publisher's Address	C	Full Address of Publisher
D	Country	D	Publisher's Country
	NOT USED	410	Place of Manufacture and Manufacturer
	NOT USED	A	Place of Manufacture
	NOT USED	B	Manufacturer
	NOT USED	C	Manufacturer Address
	NOT USED	D	Manufacturer's Country
	NOT USED	420	Place of Distribution and Distrubutor
	NOT USED	A	Place of Distribution
	NOT USED	B	Distributor
	NOT USED	C	Distributor's Address
	NOT USED	C	Distributor's Country
440	Date of Publication	440	Date of Publication
A	ISO Format	A	Date in Formal Format
B	Free Format	B	Date in Informal Format + 441A Date of Legal Deposit
450	Serial Numbering and Date	450A	The same
460	Physical Description	460	The same
A	Extent	A	Number of Pieces and Designation
B	Other Physical Details	B	Other Descriptive Details
C	Dimensions	C	Dimensions
D	Accompanying Material	D	Accompanying Material

CEHANET FORMAT		COMMON COMMUNICATION FORMAT	
TAG	FIELD	TAG	FIELD
-	NOT USED	465	Price and Binding
480	Monographic Series Statement	480	Series statement and Associated Statement(s) of Responsibility
A	Series Title	A	Series Statement
B	Statement of Responsibility	B	The same
C	ISSN	D	ISSN
D	Series Part	C	Part statement
490	Part statement	490	Part statement
A	Volume	A	Volume/Part Numbering and Designation
B	Pagination	B	Numbering of Pages Identifying the Part
500	Notes	500A	Note
		510A	Note on Bibliographic Relationship
		520A	Serial Frequency Note
		530A	Contents Note
600	Abstract	600	The same
A	Abstract	A	The same
L	Language of Abstract	L	The same
610	Classification Number	610	Classification Scheme Notation
A	Notation	A	Notation
B	Classification Scheme	B	Identification of classification scheme
615	Subject Category	-	NOT USED
620	Subject Primary Descriptors	620	Subject Descriptor
A	Descriptors	A	Descriptor
B	Subject System	B	Identification of Subject System
L	Language of Descriptors	-	NOT USED
621	Secondary Descriptors	620	Subject Descriptor
A	Descriptors	A	Descriptor
B	Subject System	B	Identification of
L	Language of Descriptors	L	Subject System
622	Geographic Descriptors	L	NOT USED
A	Descriptors		
L	Language of Descriptors		
623	Local Descriptors		
624	Proposed Descriptors		
A	Proposed Descriptors		
L	Language of Descriptors		

801- These fields are local and are
820 not normally exchanged.

ANNEXES

1. Country Codes

2. Language Codes

3. Codes of Character Sets

4. Role Codes

5. IRC Classification System

6. ISO Currency Codes

7. Acronyms & Abbreviations Recommended
   a) Codes of States
   b) Acronyms of Regional and International Organizations
      that may be used as Headings

8. Examples of Printed Outputs

9. Glossary

MESSAGE REPEATED....33 141 33....

Is IRC's telephone number

We are repeatedly informed that people are still trying to contact IRC at our old number (changed early last year). Please realize that the Dutch telephone company has already assigned our old number to a new subscriber.

Please note IRC's telephone number correctly in your diaries, and register it with your telephone operator in your organization. It is:

(31)-70-33 141 33.

"HAPPINESS WATER" FOR WOMEN REPORTED FROM CHINA

Women's participation in improving water supply and sanitation has brought remarkable changes in the rural periphery of Chaozhou City, Guangdong province in the People's Republic of China. Among the most important changes are that women have been freed from the burden of fetching water and that the incidence of waterborne diseases has been reduced. This is reported by Mr. Paul Guo, director of the Western Pacific Region of the World Health Organization in reaction to the "Women, Water and Sanitation" series started in this newsletter in 1990.

Chaozhou City, situated downstream of the Ha river, has a total area of 1,330 km2. It is divided into 24 districts, which are subdivided into 520 townships with 1,153 villages in the rural periphery. WHO has been collaborating with Chaozhou City since 1981. From 1981 to 1986 155 water supply projects were completed through the participation of women, bringing benefits to 442,000 people. In 1987, clean and safe drinking water was available to 59% of the total population, of which 49% had access to tap water. More than 180 women in different villages participated in the construction of sanitary facilities under the guidance of the city's health department.

"Their participation facilitated the improvement of rural sanitation: 123,470 m2 of cement roads were laid, 383 drainage canals with a total length of 27,988 m were built, 630 garbage tanks were constructed and 120 W.C. units were installed. All these facilities remarkably improved the living environment of the residents, particularly the women, who no longer had to use and empty night-soil buckets every day."

"In 1986, results of the survey carried out in the rural areas where water supply systems had been implemented, showed that the annual incidence of infectious diseases such as dysentery, typhoid and viral hepatitis, was reduced by 93%, 72% and 62% respectively compared with statistics in 1980," Mr. Guo reports from a study done with WHO support in 1987.

The WHO Western Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (PEPAS) collaborated with the government in a project to train women in the improvement of drinking water quality. Women were taught financial management, maintenance of water supply facilities and methods of testing and monitoring water quality. Women were also taught community participation in promoting water supply in townships and villages.

During the construction of water supply systems in rural areas, women's views and recommendations were taken into account regarding the selection of water sources, siting of water works, collection of funds, and management and planning of water supply systems. of the 218 water works in the city, 31% of the staff were women.

"With the time saved from not having to fetch water, women were able to contribute to the development of the rural economy, increasing family income and improving living standards. Previously, one woman in

household, incidence of diarrhoea was reduced by more than 30%.

While the course taken by Lesotho's NRSP is by no means the only viable approach to sector development, its history is informative and instructive, and written up in only 26 pages, with a 2-page summary of lessons learned at the end.

"Rural Sanitation in Lesotho - from Pilot Project to a National Program", DP Number 3, may be obtained from:

World Bank
Infrastructure and Urban Development Department
Water and Sanitation Division
1818 H Street, N.W.
Washington, D.C 20433
USA

NEW PUBLICATIONS

» Roark, Philip (1990). **Evaluation Guidelines for Community-based Water and Sanitation Projects.** - Arlington, VA, USA : Water and Sanitation for Health Project. - 80 p. - (WASH Technical Report no. 64)
Price: Free of charge

The model presented here was originally developed by Dennis Warner and Raymond Isely, and is primarily meant for evaluators serving on WASH assignments involving USAID-funded projects. However, it should also prove useful to other development organizations interested in water supply and sanitation projects. Section I of the report, "Overview of Evaluation Process and Model", provides the background and definition of the evaluation process, and introduces the proposed model and evaluation methods. Section II, "Evaluation Model Guidelines", provides a chapter outline and guidelines of what each chapter should include. The appendices contain a tentative schedule for a four-week evaluation assignment, a questionnaire for field surveys, and a bibliography.

Available from: WASH
Operations Center
1611 N. Kent St. Room 1001

Arlington, VA 22209-2111 USA
tel: +1-703-243 8200, fax: +1-703-525 9137,
telex: WUI 64552

» Sinha, Bakshi D. ; Ghosh, Arun K. (1990). **Evaluation of Low-cost Sanitation : Liberation, Training & Rehabilitation of Scavengers** . - New Delhi, India : Arnold Publishers. - 144 p.
ISBN 81-7031-250-7
Price: Rs.100

This monograph, with a foreword by Mulk Raj Anand, is an evaluation of a low-cost sanitation programme in three selected towns of Bihar and one in Rajasthan, India. The programme, which in total has already covered 166 towns (1988), has the twin objective of converting dry-latrines into pour-flush latrines and thereby liberating the "scavengers" from their degrading task of collecting nightsoil. The evaluation of the programme in the four towns was carried out by the Council for Social Development, New Delhi, in 1988. Although the majority of the beneficiaries (75% of the sample comprised of 449 households) preferred pour-flush latrines to dry-latrines, quite a large number (23%) of them were facing problems with their pour-flush latrine, while another 7% couldn't use them at all because of blockage. In total 34.5% of the households were not using their pour-flush latrines. Lack of communication between the different agencies and managerial problems are mentioned as causes of poor maintenance and non-use. After their liberation, the socio-economic conditions of the scavengers has improved in terms of income, savings and movable assets. They also no longer suffer the same kind of social and economic discrimination. The vocational training programme for scavengers' youngsters in Bihar, however, did not succeed in getting them employment.

Available from: bookstores
or direct from Arnold Publishers (India) Pvt. Ltd.
AB/9, Safdarjung Enclave
New Delhi 110 029, India

» Black, Maggie (1990). **From Handpumps to Health : the Evolution of Water and Sanitation Programmes in Bangladesh, India and Nigeria.** - New York, NY, USA : UNICEF. - 133 p
ISBN 92-806-0051-6
Price: US$ 17.00 (Sales No. E.90.XX.USA.5)

Case histories of UNICEF-assisted rural water supply and sanitation programmes in Bangladesh, India and Nigeria are presented. Each case history is written in an evolutionary format, placing key events in the different contexts - technological, management, social - in a chronological order. A cross-comparison between the three countries reveals a model of evolution in which five key stages appear:

1 The identification of the appropriate technology

2 The building of human and institutional capacities

3 The transfer of technology to local manufacture and supply

4 The development of mechanisms for community participation

5 The growth of a consumer-driven service

Available from:
UNICEF
3 UN Plaza
New York, N.Y. 10017, USA

» ESCAP (1989). **Guidelines for the Preparation of National Master Water Plans.** - New York, NY, USA : United Nations. - 163 p. - (Water Resources Series no. 65) ISBN 92-1-119549-7
   Price: US$ 19.00 (UN Sales No. E.89.II.F.17)

This publication is presented in four parts. Part 1 consists of guidelines for the preparation of national water master plans adopted at an Expert Group Meeting held at Bangkok, Thailand from 8 to 12 May 1989. The annexes in part one contain several useful tables on water quality guidelines and water demand for domestic, industrial and agricultural (crops and livestock) water use. Part two comprises selected papers from several ESCAP countries. Part three is the report of the Expert Group Meeting. The final part consists of a manual for planning, design, operation and maintenance of irrigation systems.

Available from: booksellers
or direct from United Nations Publications
Sales Section
Palais des Nations
CH-1211 Geneva 10
Switzerland or
United Nations Publications, Sales Section
Room DC2-0853
New York, N.Y. 10017, USA

» Lauria, Donald T. (1990). **Strategy for Planning Peri-Urban Water Systems : a Case Study From Guatemala.** - Arlington, VA, USA : Water and Sanitation for Health Project. - 55 p. - (WASH Field Report no. 310)
   Price: Free of charge

A field study was carried out in a peri-urban community of squatters called Tierra Nueva, adjacent to Guatemala City, which is served by private water vendors. The objective of the study was to devise a strategy for planning an improved piped system which would produce the same revenue presently collected by the vendors. The author argues that users would most likely accept the improved system if level of service, water rates, method of payment, and water quality were comparable to those in the existing system of water vendors. This assumption then favours a metered system based on yard taps for which no connection fee should be charged. Problems relating to the frequency of revenue collection and price selection are also discussed.

Available from: WASH Operation Center
1611 N. Kent St., Room 1001
Arlington, VA 22209-2111
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fax: +1-703-525 9137
telex: WUI 64552

Layout change

In our next issue we are changing the layout of this newsletter. The first obvious change is the mast head on the front page which was linked to the just finished International Drinking Water Supply and Sanitation Decade. Other changes concern headings, the use of more white and where and when possible, the use of illustrations.

Chief Editor: Dick de Jong
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