

**PROGRESS IN DEVELOPING
INFORMATION MANAGEMENT CAPABILITIES**

in the
Water Development Department
of the
**Ministry of
Water, Energy, Minerals and Environment Protection
(MWEMEP)**
of the
Government of Uganda

a report prepared by

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0. PREFACE

- 0.1 This report on the continued development of information management capabilities in the Water Development Department (WDD) of the Ministry of Water, Energy, Minerals and Environment Protection (MWEMEP) of the Government of Uganda has been prepared by the IRC International Water and Sanitation Centre, at the invitation of the Commissioner for Water Development, as a further contribution to the rehabilitation and development of the water supply and sanitation sector in Uganda. The report has been prepared following a visit to the WDD by an IRC consultant from 17 to 25 August 1991. It follows a previous report (1) prepared by the same consultant after a visit to the WDD from 25 February to 9 March 1990.
- 0.2 The previous report presented an assessment of the information management needs and capabilities of the WDD and put forward an outline programme for the development of the Department's information management capabilities comprising fourteen separate but interrelated projects to be undertaken in three successive phases, as follows:

Phase 1

- 1.A. Establishment of an Information Management Unit
- 1.B. Establishment of a Uganda Water Information and Documentation Centre (UWIDOC)
- 1.C. Feasibility study for the establishment of a document production unit
- 1.D. Establishment of a Management Information System for Water Resources (MISWAR)
- 1.E. Establishment of a Management Information System for Water Supply (MISWAS)
- 1.F. Establishment of a Management Information System for Administration (MISAD)

Phase 2

- 2.A. Establishment of a Uganda Water Information and Documentation System (UWIDOS)
- 2.B. Establishment of a document production unit
- 2.C. Extension of MISWAR to district level
- 2.D. Extension of MISWAS to district level
- 2.E. Extension of MISAD to district level
- 2.F. Feasibility study for the establishment of a Water Project and Sector Information System (WAPGIS)

Phase 3

- 3.A. Establishment of a Uganda Water Information and Documentation Network (UWIDON)
- 3.B. Establishment of a Water Project and Sector Information System (WAPGIS)

The report also contained draft project proposals for the projects included in Phase 1.

- 0.3 Part 1 of the present report comprises a brief review of the main changes which have taken place since the previous report was prepared in respect of:
- (a) the general situation of the water supply and sanitation sector in Uganda
 - (b) the organizational structure and housing of the WDD
 - (c) the designation of categories of information in the water supply and sanitation sector
 - (d) the present situation of water supply and sanitation information in Uganda
 - (e) information requirements in the WDD.
- 0.4 Part 2 of the report aims to:
- (a) assess the progress which has been made in developing information management capabilities in the WDD since the previous report was prepared
 - (b) determine the extent to which the original development proposals need to be revised to account of recent changes in the situation
 - (c) identify further actions needed to implement the revised programme.
- 0.5 This report has been prepared in close collaboration with the African Medical and Research Foundation (AMREF) Network for Water and Sanitation (NETWAS), (hereinafter referred to as AMREF) in its role as the regional centre for the United Nations Development Programme/World Bank International Training Network for Water and Waste Management (ITN).
- 0.6 In submitting this report IRC would like to express its thanks to the Commissioner for Water Development, Eng. B.K. Kabanda and his staff, for the opportunity to carry out this further assignment at WDD and for the help and support they provided.
- 0.7 It is hoped that this report will be of practical assistance to the WDD in its efforts to establish effective information management capabilities, and so help to enhance the Department's efforts to rehabilitate and develop the water and sanitation sector in Uganda.

References

1. Parker, J. Stephen. Developing information management capabilities in the Water Development Department of the Ministry of Water and Mineral Development of the Government of Uganda.
The Hague, IRC, 1990. vii, 50 p.

PART 1

REVIEW OF RECENT CHANGES

1. INTRODUCTION

- 1.1 To facilitate reference to the 1990 report, Part 1 of the present report follows the same overall structure as the previous report, giving references to specific sections, paragraphs or pages of that report where appropriate.

2. WATER SUPPLY AND SANITATION IN UGANDA

- 2.1 The former Ministry of Water and Mineral Development (MWMD), of which the WDD forms part, has now been merged with two other former ministries to form a new Ministry of Water, Energy, Minerals and Environment Protection (MWEMEP). (1990 report, para 1.4).
- 2.2 Following on a recommendation of the 1990 UNICEF World Summit for Children, a Monitoring and Evaluation Unit for the water and sanitation sector is to be set up in MWEMEP with assistance from UNICEF. The precise location of this unit has not yet been determined.
- 2.3 Project Communication Support staff of the Rural Water and Sanitation (RUWASA) project (formerly the WDD/DANIDA East Uganda project) have not moved to Entebbe as expected, but remain in the RUWASA offices at WDD headquarters in Luzira (1990 report, para 1.8). The RUWASA project now covers eight districts and has initially been funded for the first five years of its proposed ten-year duration (1990 report, para 1.10).
- 2.4 The National Rural Water Supply Programme was finalized by the consultants in August 1991 (1990 report, para 1.11).
- 2.5 The Uganda Infrastructure Project has been subdivided into a number of smaller projects. One of these, the Small Towns Water Supply and Sanitation Project, which will cover between 30 and 40 small urban areas, is the responsibility of the WDD.
- 2.6 The new WDD headquarters building which was to have been constructed under the Uganda Infrastructure Project will not now be built in the foreseeable future. Instead, the existing building at Luzira has been renovated and extended with the help of DANIDA (1990 report, para 1.12).
- 2.7 The African Development Bank is to provide a grant of USD 3 million to the WDD for institutional strengthening (1990 report, para 1.13).
- 2.8 The report on a recent Dutch fact-finding mission foresees a substantial increase in the involvement of the Netherlands Government in the development of Uganda, and notes that the water and sanitation sector in Uganda is in urgent need of assistance with regard to both water resources development (defined as the implementation of water resources projects) and water resources management (defined as water conservation and control, rehabilitation and strengthening water resources monitoring and assessment services, capacity building).

- 2.9 The Dutch report notes that water resources management needs special attention and proposes a number of projects in this field which might be considered by the Dutch government. These include the establishment of a Water Resources Data Information System and a Water Resources Training project.

3. THE WATER DEVELOPMENT DEPARTMENT

- 3.1 The WDD is now organized in six main divisions, as follows:

1. Water Resources Division
2. Planning, Design and Documentation Division
3. Construction and Development Division
4. Rural Water Supply Division
5. Operations Division
6. Electrical and Mechanical Division.

Administrative and financial matters remain the responsibility of various sections reporting to the Commissioner or Deputy Commissioner.

- 3.2 An important recent development has been the appointment of a Chief Technical Adviser (CTA) and Financial Management Adviser (FMA) under Danish technical assistance, to advise and assist the Commissioner in the planning and development of the Department's activities.
- 3.3 As noted above, the proposed new headquarters building at Luzira will not now be built in the foreseeable future (1990 report, para 2.6); instead, the WDD headquarters building at Luzira has been rehabilitated and extended with assistance from DANIDA. Little or no rehabilitation work has yet been done at the Water Resources Division at Entebbe (1990 report, para 2.5).

4. CATEGORIES OF INFORMATION

- 4.1 On the recommendation of the Core Group on Information, Education and Communication of the Water Supply and Sanitation Collaborative Council, the term 'Public Information and Promotion' has now been replaced by 'Information, Education and Communication' (1990 report, para 3.5).

5. WATER SUPPLY AND SANITATION INFORMATION IN UGANDA

- 5.1 It seems likely that some responsibility for Project and Sector Information will fall on the Monitoring and Evaluation Unit (1990 report, Projects 2.F and 3.B) to be established within MWEMEP. The extent to which WDD will also be responsible for this kind of information has yet to be determined (1990 report, para 11).

6. INFORMATION REQUIREMENTS IN THE WDD

- 6.1 A start has been made on computerizing some categories of information and data in the WDD as indicated below (1990 report, para 5.6).
- 6.2 It has been decided not to proceed with the feasibility study for the establishment of a document supply unit (1990 report, Projects 1.C and 2.B) for the present.

PART 2

INFORMATION MANAGEMENT

IN THE

WATER DEVELOPMENT DEPARTMENT

1. INTRODUCTION

- 1.1 This section of the report is presented with reference to the Phase 1 project proposals presented in the previous report. Where appropriate, reference is also made to relevant subsections of section 7 of that report, which dealt with the present status of information management in the Water Development Department. The overall objectives and strategy of the development programme of which these projects form part remain essentially unchanged from the previous report (1990 report, sections 8.2, 8.3 and 8.4).

2. COORDINATION OF INFORMATION MANAGEMENT ACTIVITIES

2.1 Background

- 2.1.1 The need for effective coordination of information management activities, not only within the WDD itself, but also in the water and sanitation sector as a whole, is generally recognized by the Ministry, the WDD and the major external support agencies working in the sector in Uganda.

2.2 Present situation

- 2.2.1 There is at present no effective coordinating mechanism for information management in the water and sanitation sector as a whole. An Inter-Ministerial Steering Committee (IMSC) exists, which is responsible for coordinating the activities of the RUWASA project and the South West Integrated Project (SWIP) at the policy level. This meets twice a year. The extension of its responsibilities to cover other water supply and sanitation projects is being considered. The IMSC occasionally appoints task forces to look into specific questions such as training and standardization.
- 2.2.2 The Commissioner for Water Development has accepted the need for a technical coordinating committee on information management for the sector as a whole, and considers that it should report to the IMSC. Such a committee should be chaired by the Commissioner himself, with the Head of the Information Management Unit acting as its secretary. Other members should represent the main national, international and bilateral governmental and non-governmental agencies and organizations active in the sector.
- 2.2.3 The coordination of information management activities within the WDD is intended to be achieved by the proposed Information Management Unit (IMU), the establishment of which is discussed in section 3 below.

2.3 Immediate actions to be taken

2.3.1 Immediately after the Head of the Information Management Unit has been appointed, he should, in consultation with the Commissioner:

- (a) identify other organizations which should be invited to become members of the technical coordinating committee on information management
- (b) prepare draft terms of reference and internal regulations for the committee
- (c) prepare an agenda (to include discussion of the draft terms of reference and internal regulations) for the inaugural meeting of the committee
- (d) make all necessary arrangements for the inaugural meeting, including choice of date and venue, sending out invitations and agendas, organizing secretarial support, etc.

3. ESTABLISHMENT OF AN INFORMATION MANAGEMENT UNIT

3.1 Background

3.1.1 The establishment of an Information Management Unit (IMU) at WDD headquarters, to be responsible for the overall planning, coordination and development of all kinds of information systems within the Department, was the subject of Project 1.A of the development programme outlined in the previous report, (1990 report, Appendix A, pp. 31-36), which emphasized that the implementation of this project should be given first priority so as to create a mechanism whereby the remainder of the programme could be coordinated effectively (1990 report, para 8.5.1).

3.2 Present situation

3.2.1 The need for such a unit to be created as soon as possible is accepted by the Commissioner, who has agreed that the unit should come directly under him and in turn have overall managerial responsibility for UW/IDOC, as suggested in the original project proposal (1990 report, Appendix A 1, para 3.1 (b)).

3.2.2 The Commissioner has indicated that, in addition to its coordinating role, the IMU should also be responsible for consolidating and repackaging information generated by the internal information systems of the WDD and by other sources in the form of reports and papers for use by himself and other decision makers in the WDD and MWEMEP.

- 3.2.3 If the IMU is to perform this role effectively, the staff establishment proposed in Project 1.A will need to be increased by at least one middle-level water sector professional and one typist. Additional office space, furniture and equipment will also be required for these additional staff, for whom training will also be required under Project 1.B.
- 3.2.4 It should be noted that the space provided for library and offices on the first floor of the renovated WDD headquarters at Luzira is not sufficient to accommodate the IMU as well as the staff of UWIDOC. It will therefore be necessary, at least initially, to find accommodation for the IMU elsewhere in WDD headquarters.
- 3.2.5 It may be possible to create new offices for the IMU on the first floor by extending the existing library and offices on to the flat roof above the entrance to the courtyard, as shown in Appendix B, Figure 1. It is hoped that such an extension can be financed from the proposed ADB grant for institutional development.
- 3.2.6 The additional responsibilities for the IMU which are outlined above, and the proposed merger of the MISWAR and MISWAS information systems (see section 6 below), require the original project proposal to be revised. The revised proposal, which includes outline job descriptions for the professional staff of the unit, and terms of reference for an external Information Management Adviser to be supplied under technical assistance, is attached at Appendix A.

3.3 Immediate actions to be taken

- 3.3.1 The main actions to be taken in respect of the establishment of the IMU, in order of priority, are as follows:
- (a) formally establish the IMU as an administrative entity within the WDD, reporting directly to the Commissioner
 - (b) designate a suitable member of the existing professional staff of the WDD as Head of the IMU
 - (c) in consultation with the Head, IMU, designate or recruit the additional local staff required, namely:
 - (i) an Information Assistant to be responsible for the consolidation and repackaging of information
 - (ii) a secretary to the Head
 - (iii) a typist
 - (iv) a driver
 - (d) provide suitable initial accommodation for the Unit at WDD headquarters

- (e) make adequate budgetary provision for the operation of the Unit
- (f) seek foreign technical assistance (possibly under the proposed Dutch government project) for
 - (i) the supply of an Information Management Adviser, information handling equipment and a vehicle
 - (ii) training of local staff
 - (iii) extending the existing first floor library and offices to provide permanent accommodation for the Unit.

3.3.2 While there are various possible sources for the foreign technical assistance component of the project, it is proposed that it should first be incorporated in the formal submission to the Government of the Netherlands seeking support for the development of the water resources management capabilities of the Department and the establishment of a Water Resources Data and Information System. IRC recommend to the Dutch Government to include the establishment of the IMU in this larger project.

3.3.3 Support for training for the staff of the IMU may be available from DANIDA and from other sources.

3.3.4 As noted above, it may be possible to obtain financial assistance for the creation of new first floor offices for the IMU, as part of a general extension of the existing library and offices, within the proposed institutional development grant of USD 3 million from the African Development Bank.

3.3.5 It is important not to wait for the availability of foreign technical assistance to be confirmed before taking action to establish the IMU, provide initial accommodation and furniture, appoint local staff and provide a recurrent budget.

4. ESTABLISHMENT OF A UGANDA WATER INFORMATION AND DOCUMENTATION CENTRE (UWIDOC)

4.1 Background

4.1.1 The establishment of a Uganda Water Information and Documentation Centre (UWIDOC) at WDD headquarters was the subject of Project 1.B of the development programme outlined in the previous report (1990 report, Appendix A 2, pp. 37-44). Significant progress has been made towards the establishment of UWIDOC, since the previous report was prepared, as indicated below.

4.2 Present situation

- 4.2.1 The actions taken, and those remaining to be taken, to implement the strategy for the establishment of UWIDOC as outlined in the previous report (1990 report, Appendix A.2, section 4), are described below.
- 4.2.2 As part of the rehabilitation of the WDD headquarters building at Luzira, a first floor extension has been built to house UWIDOC. The total area of the first floor accommodation, including stairway, corridor, toilet, offices and library room, is 265 square metres. The total area proposed for UWIDOC in the previous report was 260 square metres (including 10 percent for expansion) (1990 report, Appendix A.2, para 4.2 (b) and section 6.3).
- 4.2.3 The first floor accommodation should therefore be adequate to house UWIDOC (but not the IMU as well), at least during Phase 1 of the proposed development programme. However, the first floor offices are at present occupied by other staff, and the total area available to UWIDOC is only 76 square metres, comprising the main library room of 68 square metres and an entrance lobby of 8 square metres.
- 4.2.4 The other staff now occupying the first floor offices should be relocated elsewhere as soon as possible, and the offices made available to UWIDOC. The proposed layout of the main library room in this case is shown in Figure 2, Appendix B.2 .
- 4.2.5 In the event that the other staff cannot be relocated immediately, it may be possible, as a temporary expedient, to accommodate workspaces for UWIDOC staff within the main library room for a short period. The proposed layout of the main library room in this case is shown in Figure 3, Appendix B.1.
- 4.2.6 As noted above, it may be possible to extend the existing first floor library and offices on to the flat roof over the entrance to the WDD courtyard, and Figure 1, Appendix B.1, provides a plan of the first floor showing such an extension, which would increase the space available to UWIDOC and the IMU by some 150m². Detailed floorplans and layouts for such an extension should be prepared when it is decided to proceed.
- 4.2.7 AMREF has agreed to provide all items of wooden furniture required for UWIDOC (1990 report, Appendix 1.B, para 4.1 (b)). Twenty upright chairs and five book-shelf units have already been constructed in a local workshop. However, the bookshelf units require modification before use, as they are too low and the shelves are too close together to take a standard A4 report.
- 4.2.8 AMREF agreed to postpone the construction of the remaining items of furniture until drawings of the items required could be supplied by the consultant. These drawings were supplied direct to AMREF shortly after the consultant's visit to Uganda. For lists of furniture items required refer to Appendix B.2.
- 4.2.9 The library floor lay-out shown in Figure 1, Appendix B.1, includes all items of furniture shown in the temporary layout in Figure 2, Appendix B.2, except for

three work desks and the storage cabinet. It also includes one additional wall shelving unit, type B, and a typing return added to the control desk.

- 4.2.10 When it becomes possible to change the contemporary layout shown in Figure 1 and rearrange the library on a more permanent basis in accordance with Figure 2, two of the three work desks and the storage cabinet should be placed in the smaller of the two offices.
- 4.2.11 At this time, it will also be necessary to purchase five wall shelving units Type B for the workroom, two for the larger of the two offices and one for the smaller office. It will also be necessary to acquire an office desk and chair and other standard items of office furniture for the large office.
- 4.2.12 Although Figure 2 shows the control desk located inside the library, more space could be gained by
 - (a) constructing a new library entrance partition at the front of the work area, as shown in Figure 1, Appendix B.1
 - (b) moving the control desk into the work area
 - (c) opening a new staff entrance into the library area from behind the relocated control desk, in the position occupied in Figure 2 by two wall shelving units Type B, which could be relocated against the wall were the control desk is placed in Figure 2.
- 4.2.13 No steps have been taken as yet to acquire the items of technical equipment required for UWIDOC. However, the Commissioner has agreed to investigate the possibility of purchasing them from existing WDD funds (1990 report, Appendix A 2, para 4.1 (b)).
- 4.2.14 Donations of books have been received from AMREF and the British Council. No steps have yet been taken to prepare these books for use, and no action has been taken to try to secure the supply of foreign information materials for a minimum period of three years (1990 report, Appendix A.2, para 4.1 (a)).
- 4.2.15 AMREF has agreed to provide the services of a national consultant for UWIDOC. Draft terms of reference for this appointment are attached at Appendix C.1. Regional and international consultancy support may also continue to be available from time to time from AMREF and IRC (1990 report, Appendix A 2, para 4.1 (c)).
- 4.2.16 The Commissioner has agreed to take steps to create a post for a professional information scientist or librarian to act as Head of UWIDOC, and to recruit a suitably-qualified person for this post (1990 report, Appendix A.2, para 4.2 (c)). A draft job description for this position, and a statement of the qualifications, experience and personal qualities required of the holder, are attached at Appendix C.2.
- 4.2.17 The DANIDA office in Kampala has indicated that there may be a possibility of providing training for the staff of the IMU and UWIDOC (and possibly of other elements of the WDD information management system) through its Fellowships Programme, details of which are attached at Appendix C.3.

- 4.2.18 A provisional training programme for the staff of IMU and UWIDOC, which includes an indication of possible training institutions and programmes, is attached at Appendix C.4. This will need to be discussed with the Information Management Adviser, the national consultant and the staff concerned as well as with WDD's Training Officer, before being implemented.
- 4.2.19 One library assistant at Luzira and two at Entebbe received training in basic library techniques at a five-day workshop organized by AMREF at the East African School of Librarianship, Makerere University, in November 1990 (1990 report, Appendix A.2, para 4.1 (a)).
- 4.2.20 During the assignment, one assistant from each location, and the WDD Training Officer, were taken to visit the National Agricultural Documentation and Information Centre (NADIC), which was established with support from the United Nations Food and Agriculture Organization (FAO) and advice from the present consultant, in 1989.
- 4.2.21 The Commissioner announced his intention of taking a senior management team from WDD to visit NADIC in order to see how a computerized technical information and documentation centre works and what kinds of services it can provide.
- 4.2.22 Information on possible training institutions and programmes for the staff of IMU and UWIDOC is to be supplied direct to the WDD by ANREF. The various possibilities will need to be discussed with the Information Management Adviser, the national consultant and the staff concerned as well as with WDD's Training Officer, before staff training programme can be implemented.
- 4.2.23 UWIDOC can only be formally established when the IMU itself has been established (1990 report, Appendix A.2, para 4.2 (a)).
- 4.2.24 A recurrent budget for UWIDOC should be provided under the proposed new subhead for information management (1990 report, Appendix A.2, para 4.2 (e)).
- 4.2.25 General administrative and logistical support for UWIDOC should be provided through the IMU (1990 report, Appendix A.2, para 4.2 (f)).
- 4.2.26 The library at Entebbe has now been re-opened. Most of the documents in its collections are old, worn-out or damaged, though they include a few reasonably new books on relevant topics and some others on clinical medicine which are of no conceivable relevance to the work of the WDD, but which were apparently retained because they were received as gifts (1990 report, Appendix A.2, para 4.2 (g)).
- 4.2.27 The re-opening of the Entebbe Library in fact constitutes the first step in the development of the Uganda Water Information and Documentation System (UWIDOS) (1990 report, Appendix A.2, para 3.1 (c) and 4.2 (b)). The library building is in urgent need of rehabilitation and the furniture is old and in poor condition.

4.2.28 One of the tasks of the National Consultant should be to assess and recommend whether the Entebbe library should be maintained (and consequently rehabilitated) or should be integrated with the library services at WDD Headquarters. If found feasible the consultant should prepare a proposal for rehabilitation of the old Entebbe library.

4.3 Immediate actions to be taken

4.3.1 The first step to be taken in order to establish UWIDOC as an effective operational unit is for AMREF to appoint the national consultant. A suitable person has already been identified and should be able to begin work in the very near future. The consultant should advise on and participate in all aspects of the development of UWIDOC and may also, pending the appointment of an Information Management Adviser, advise on the establishment and development of the IMU. Draft terms of reference for the consultant are set out in Appendix C.1 below. These may be subject to modification after consideration by AMREF and the consultant.

4.3.2 In line with a realistic approach and timely built-up of WDD's information management capability, it may be worthwhile in the initial phase to combine the functions of the Information Management Unit (IMU) and the Uganda Water Information and Documentation Centre (UWIDOC). The proposed staffing for the IMU could for the time being handle the two interrelated matters. When resources become available the recruitment procedure for the staff of UWIDOC should be initiated with priority.

4.3.3 The actions to be taken in the immediate future to establish and promote UWIDOC - in consultation with the national consultant - , are, in rough order of priority:

- (a) sending members of the top management of WDD to visit NADIC
- (b) assigning temporary responsibilities to IMU staff with respect to UWIDOC
- (c) relocating the staff now occupying the first floor offices adjacent to the library room
- (d) completing the construction of wooden furniture for the existing library and offices
- (e) installing the completed furniture in the library room and offices
- (f) purchasing and installing information handling equipment
- (g) purchasing library and office stationery and supplies
- (h) preparing the existing book donations for use

- (j) seeking foreign technical assistance (possibly under the proposed Dutch government project) for the supply of foreign information materials for a period of three years
- (k) initiating the process of collecting technical documents from other offices of WDD
- (l) negotiating an adequate budget for UWIDOC within the proposed subhead for information management
- (m) initiating the recruitment of a professionally-qualified information scientist or librarian as Head of UWIDOC
- (n) recruiting additional local staff as required
- (o) preparing a training programme for local staff
- (p) seeking foreign technical assistance (under the DANIDA Fellowships Programme or from other sources) to implement the training programme
- (q) assessing the possibility of maintaining the Entebbe library and, if affirmative, preparing a proposal for rehabilitating it
- (r) preparing a proposal for extending the existing first floor library and offices at Luzira on to the flat roof, and seeking foreign technical assistance (possibly under the proposed ADB project) for this.

5. ESTABLISHMENT OF A WATER MANAGEMENT DATA AND INFORMATION SYSTEM (WAMDIS)

5.1 Background

- 5.1.1 The 1990 report included two projects for the establishment of management information systems for water resources (MISWAR) and water supply (MISWAS) respectively (1990 report, Appendix A.3, pp. 45-48).
- 5.1.2 In the light of the analysis of water data and information requirements provided in the report of the recent Dutch fact-finding mission, and following discussion of this topic with the Commissioner, the Financial Management Adviser and the Training Officer, it has been decided that these two systems should be combined into one Water Management Data and Information System (WAMDIS), which may be considered to be the equivalent of the Water Resources Data and Information System referred to in the Dutch report.
- 5.1.3 Section 6.2 below outlines the present situation with regard to both water resources information and water supply information, as originally defined in the previous report (1990 report, para 5.2, p. 13).

5.2 Present situation

- 5.2.1 A start has been made on computerizing hydrological and hydrogeological records at the Water Resources Division in Entebbe. Two microcomputers have been supplied by the International Development Research Centre (IDRC) and computerized databanks are being created using Lotus 1-2-3 spreadsheet software (1990 report, para 6.2.1).
- 5.2.2 Some verification of data collected in the field has been done at twenty field stations under a World Bank/United Nations Development Programme (UNDP) project. The Water Resources Division recognizes that verification of data before input is essential, and expert advice is needed to evaluate records and identify those which are reliable (1990 report, para 6.2.2).
- 5.2.3 The British Overseas Development Administration (ODA) has offered to supply the Water Resources Division with the HYDATA hydrological data management software package, together with the necessary hardware, training and a technical adviser for a period of three months.
- 5.2.4 The recent fact-finding mission from the Netherlands proposed that the Dutch government should assist in the rehabilitation of the hydrological network and the establishment of a Water Resources Data and Information System, together with training in water resources (1990 report, para 6.2.5).
- 5.2.5 The Water Resources Division continues to suffer from manpower problems; one systems analyst appointed to help develop the computerized databanks simply failed to report for work and was later found to be working in the private sector. One of the Division's main needs is for a hydrological database manager to help set up the system, ensure its compatibility with other such systems, and produce output. Similar needs exist in respect of hydrogeological and hydrometeorological data (1990 report, para 6.2.8).
- 5.2.6 The RUWASA (formerly East Uganda) project has now completed its databank of water sources, including not only boreholes but also wells, protected springs, etc. in the project area. This is designed to be capable of being applied throughout Uganda. Some problems of compatibility with similar records created by UNICEF and other agencies have been noted, and the need to ensure such compatibility is recognized, though no definite action has yet been taken in this regard.
- 5.2.7 The RUWASA project is using K-MAN software for this databank, and SPSS (Statistical Package for the Social Sciences) for a village inventory which is now in progress in three of the eight districts covered by the project (1990 report, para 6.3.4).
- 5.2.8 Storage conditions for the files of engineering drawings have improved somewhat with the rehabilitation of the building (1990 report, para 6.3.5).

5.3 Immediate actions to be taken

- 5.3.1 The principal action to be taken in respect of the establishment of WAMDIS is to prepare a formal submission requesting technical assistance for this development from the Government of the Netherlands, as part of a general request for assistance in the development of water resources management.
- 5.3.2 Such a submission should cover the main elements of the two former project proposals for MISWAR and MISWAS. A draft combined proposal is attached at Appendix D. This will need to be further developed by WDD staff.
- 5.3.3 The submission may also include the following items noted under other sections above:
 - (a) supply of an Information Management Adviser for the IMU
 - (b) supply of foreign information materials for UWIDOC
 - (c) rehabilitation of the library at Entebbe

6. MANAGEMENT INFORMATION SYSTEM FOR ADMINISTRATION

6.1 Background

- 6.1.1 Physical conditions for the storage of administrative and accounting records at WDD headquarters have improved somewhat as a result of the rehabilitation of the building. The consultant was unable to reassess the situation with regard to other aspects of the management of administrative information which were referred to in the previous report (1990 report, section 6.4).

6.2 Present situation

- 6.2.1 The most significant development in this area has been the appointment of an expatriate financial management adviser whose responsibilities include training staff in the use of financial and information management systems. The exact scope and extent of this responsibility have yet to be defined, but it seems likely that the Adviser will be able at least to identify the needs for administrative information management more precisely and recommend further actions to be taken including, if appropriate the appointment of other specialist advisers or consultants. (1990 report, para 6.2.8).

6.3 Immediate actions to be taken

- 6.3.1 The immediate action required in respect of the development of MISAD is for the Financial Management Adviser to review the project proposal contained in the previous report and prepare revised proposals in the light of his more detailed knowledge of the present situation and future needs in this regard. If possible, this should be done in consultation with the Information Management Adviser, the

national consultant to UWIDOC, external consultants from IRC and AMREF, and other specialists, as appropriate.

7. FINANCE

7.1 Background

7.1.1 None of the actions proposed in this report can be implemented without adequate finance. While it is hoped that financial support for the implementation of the various project proposals will be provided by external support agencies, representatives of major donors interviewed during the assignment emphasized that it was now essential for the WDD to demonstrate its commitment to the development of its information management capabilities by making proper and adequate budgetary provision for a contribution to these activities from its own resources.

7.2 Present situation

7.2.1 The annual budget estimates of the WDD do not, at present, make specific provision for any aspect of information management. The Commissioner has accepted the need to include a separate subhead for information management in the estimates in future.

7.2.2 While contributions to some of the necessary expenses may initially be obtained from external support agencies under one or other of the projects outlined below, it is most important for the WDD to establish a specific budget subhead for information management and make at least nominal provision for the items listed in section 3.3 below, to facilitate the gradual transfer of financial responsibility for information management from external agencies to the WDD in the future.

7.3 Immediate actions to be taken

7.3.1 The Commissioner, assisted by the Financial Management Adviser and the Head of the Information Management Unit, should initiate discussions with MWEMEP with a view to including a subhead for information management in the WDD's budget estimates for the next financial year.

7.3.2 Provision should be made for both recurrent and development expenditure in respect of:

- (a) the work of the technical coordinating committee on information management
- (b) the Information Management Unit
- (c) the Uganda Water Information and Documentation Centre

- (d) the Water Management Data and Information System
- (e) the Management Information System for Administration.

7.3.3 In respect of each of these activities, provision should be made for:

- (a) local staff salaries and allowances, pensions, etc.
- (b) purchase and replacement of office and library furniture, equipment (including vehicles) and supplies
- (c) purchase of information materials (books, periodicals, audiovisual materials, databases, software, etc.), including a foreign exchange component for the acquisition of materials published abroad
- (d) running costs (including maintenance and upkeep) of premises, vehicles and equipment.

8. CONCLUSION

- 8.1 This report on the development of information management capabilities in the Water Development Department has been prepared after only a very brief return visit to the Department to assess the progress which has been made since the previous report of May 1990 was prepared and to revise the original project proposals accordingly.
- 8.2 The establishment and development of information management capabilities along the lines outlined above is a complex and time-consuming task requiring continuing advice and assistance from professionals in both the information sector and the water and sanitation sector. One of the aims of the proposals put forward in this report is to provide for the appointment of the external advisers and consultants and the permanent professional staff who will be needed to provide this advice and assistance. Proposals are also made for the training of local staff to equip them to take full responsibility for information management in the WDD as soon as possible.
- 8.3 It cannot be too strongly emphasized that the key to the successful implementation of the proposals contained in this report and its predecessor is the selection and appointment of competent, well-qualified and well-motivated staff at all levels. Without adequate human resources, no real progress in this field will be possible. It is therefore urgently necessary to implement the proposals with regard to the supply of manpower for the various projects with the least possible delay.

REVISED PROJECT PROPOSAL FOR THE ESTABLISHMENT OF AN INFORMATION MANAGEMENT UNIT

1. Introduction

- 1.1 The project outlined in this revised proposal forms part of a development programme for information management in the Water Development Department (WDD) prepared in September 1991 by the IRC International Water and Sanitation Centre in consultation with the African Medical and Research Foundation (AMREF).
- 1.2 This project is given first priority under the programme since it provides the essential basis for the development within the WDD of a Uganda Water Information Documentation and Information Centre (UWIDOC), a Water Management Data and Information System (WAMDIS) and a Management Information System for Administration (MISAD), which are the subject of separate but closely related project proposals.

2. Development objective

- 2.1 To strengthen the capacity of the Water Development Department to plan, establish, operate and maintain efficient and effective systems and facilities for the collection, processing, storage, retrieval and dissemination of management information and technical information.

3. Immediate objective

- 3.1 To establish within the Water Development Department, under the direct authority of the Commissioner for Water Development, an Information Management Unit (IMU) capable of performing the following functions efficiently and effectively:
 - (a) providing technical and administrative support to a proposed technical coordinating committee on information management for the water and sanitation sector
 - (b) planning and coordinating all information management activities and systems within the Water Development Department
 - (c) consolidating and repackaging information generated by the internal information systems of the Water Development Department and by other sources in the form of reports and papers for use by the Commissioner and other senior staff of the Department and the Ministry of Water, Energy, Minerals and Environment Protection

- (d) assuming overall managerial responsibility for the Uganda Water Information and Documentation Centre (UWIDOC)
- (e) guiding and coordinating the establishment, development and operation of a Water Management Data and Information System (WAMDIS) and a Management Information System for Administration (MISAD) within the Water Development Department
- (f) initiating the development of a Uganda Water Information and Documentation System (UWIDOS), comprising UWIDOC and information and documentation centres in other units of the Water Development Department down to district level
- (g) initiating the development of a Uganda Water Information and Documentation Network (UWIDON), embracing UWIDOS and information and documentation centres in other institutions in Uganda
- (h) ensuring the compatibility of these various systems with each other and with other national, regional and international information systems
- (j) planning, organizing and conducting training programmes for information personnel and information users
- (k) initiating and maintaining contacts and exchanges with other information systems and organizations concerned with information on water supply and sanitation.

4. Strategy

4.1 To seek foreign technical assistance for the establishment of the Information Management Unit in the form of:

- (a) the supply of an Information Management Adviser for a minimum period of twelve months, to help initiate and develop the Unit and its activities and train a local counterpart and other local staff
- (b) the supply of information handling equipment and supplies sufficient to enable the Unit to operate effectively for a minimum period of three years
- (c) the supply of a vehicle for use by the Information Management Adviser and other staff of the Unit and of UWIDOC
- (d) the provision of training opportunities for the local staff of the unit, including, where appropriate, fellowships for training and study tours abroad.

- 4.2 To complement the foreign technical assistance required by:
- (a) formally establishing the Unit as an administrative entity under the direct authority of the Commissioner for Water Development
 - (b) providing suitable and adequate accommodation and furniture for the Unit
 - (c) appointing a Head for the Unit as counterpart for the Information Management Adviser
 - (d) recruiting other local staff as indicated in section 6 below
 - (e) providing an adequate recurrent budget to enable the Unit to perform its functions properly
 - (f) providing general administrative and logistical support to the Unit.

5. Outputs

- 5.1 The main output of the project will be the supply of technical and management information and data to users within the Water Development Department and elsewhere through a number of separate information systems.

6. Inputs

6.1 Manpower

- 1 x Information Management Adviser (technical assistance)
- 1 x Head, Information Management Unit as Programme Coordinator and counterpart to information management specialist
- 1 x Information Assistant to be responsible for consolidating and repackaging information
- 1 x secretary to Head IMU
- 1 x typist
- 1 x driver

6.2 Training

The training needs of IMU staff are considered in Appendix C.4 to the 1991 IRC consultant's report on the development of information management capabilities in the WDD (1).

6.3 Accommodation

- 1 x office for Head IMU (10m²)
- 1 x office for Information Management Adviser (10m²)
- 1 x office for Information Assistant (10m²)
- 1 x office for secretary (10m²)
- 1 x office for typist (10m²)
- 1 x workspace for driver (5m²)

Traffic and utility space @ 40% of above (22m²)

TOTAL SPACE REQUIRED: 77m²

6.4 Equipment

2 x microcomputer workstations, each comprising:

- (a) 1 x microcomputer, 100 percent IBM-compatible, with minimum 640K RAM, 40 mb hard disk, 12" colour monitor and enhanced keyboard, MS-DOS 3.30 operating system
e.g. IBM PS/2 Model 502-61 with 12" colour display model 8513
- (b) 1 x 5¼" disk drive and adaptor
- (c) 1 x CD-ROM (Compact Disc--Read Only Memory) drive
e.g. NEC Model CDR 75
- (d) 1 x Uninterrupted Power Supply (UPS) unit for computer and CD-ROM drive
e.g. Grizzly 500 VA
- (e) 1 x voltage stabilizer/surge protector for UPS
- (f) printer and power cables.

1 x laser printer

e.g. Hewlett Packard LaserJet III

1 x voltage stabilizer/surge protector for printer

1 x electronic typewriter

e.g. IBM Model 6784

1 x photocopier

e.g. Xerox Model 1038 Z/PLT

6.5 Furniture

The following items of furniture will to be required:

3 x executive desk with typing return

2 x secretarial desk with typing return

1 x printer table

5 x office tables

3 x occasional tables

3 x executive swivel chairs

2 x secretarial swivel chairs

8 x upright chairs

8 x casual seating units

5 x 4-drawer vertical filing cabinets

4 x rows of 2 units single-sided glass-fronted bookshelves

5 x storage cupboards

6.6 Supplies

General office supplies

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

Computer supplies

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

Photocopying supplies

- toner, spares kits, paper

6.7 Vehicle

Suzuki Samurai 4 x 4 (or similar) and spares

6.8 Finance

- 6.8.1 It is not possible, at this stage, to determine the costs of all the inputs listed above. This will require detailed study by the Water Development Department and potential donors, supported by quotations from local and foreign suppliers.

References

1. Parker, J. Stephen and Riunge, Theresa W. Progress in developing information management capabilities in the Water Development Department of the Ministry of Energy, Minerals and Environmental Protection of the Government of Uganda. The Hague, IRC, 1991.

INFORMATION MANAGEMENT ADVISER

1. Terms of reference

1.1 The Information Management Adviser will advise and assist the Head of the Information Management Unit in the planning, development, coordination and management of all information and data systems and services in the Water Development Department, including:

- (a) the formulation of information policy
- (b) the preparation of operating guidelines, manuals and methodologies
- (c) the coordination of information activities in the water and sanitation sector
- (d) the standardization of data and information systems
- (e) the dissemination of data and information to users
- (f) the identification of training needs of information personnel
- (g) the identification of appropriate training facilities and opportunities
- (h) the organization of inservice and other training activities
- (j) the selection and procurement of information management hardware and software
- (k) participation by the Water Development Department in appropriate local, regional and international information networks and programmes
- (l) the consolidation and repackaging of information.

2. **Specification**

2.1 The person selected as Information Management Adviser should have:

- (a) substantial practical experience in planning, developing and directing information management systems in developing countries, preferably in the water and sanitation sector
- (b) educational or professional qualifications in a relevant sectoral discipline
- (c) postgraduate qualifications, or the equivalent, in information science or information management.

HEAD, INFORMATION MANAGEMENT UNIT

1. Job description

1.1 The Head, Information Management Unit will be directly responsible to the Commissioner for Water Development for the overall planning, development, coordination and management of all information and data systems and services in the Water Development Department.

1.2 The specific responsibilities of the position will include:

- (a) formulating information policy for the Water Development Department and the water and sanitation sector as a whole
- (b) preparing guidelines and methodologies for the collection, processing, storage and retrieval of information on water and sanitation
- (c) promoting effective coordination and collaboration between all institutions, organizations and departments involved or interested in the water and sanitation sector
- (d) ensuring the compatibility and standardization of systems for the collection, storage and retrieval of data and information within the Water Development Department and among other institutions in the water and sanitation sector
- (e) developing effective mechanisms for the dissemination of data and information to users
- (f) identifying the training needs of information personnel in the Water Development Department
- (g) identifying appropriate training facilities and opportunities for information personnel in the Water Development Department
- (h) organizing inservice and other training activities for information personnel in the Water Development Department
- (j) selecting and procuring information management hardware and software for use by the Water Development Department
- (k) ensuring the active participation of the Water development Department in appropriate local, regional and international information networks and programmes

- (l) ensuring the effective consolidation and repackaging of information for use by decision makers in the Water Development Department and the Ministry of Water, Energy, Minerals and Environment Protection
- (m) day-to-day management of the Information Management Unit
- (n) supervising the development of the Uganda Water Information and Documentation Centre under the direction of the Head of the Centre
- (o) acting as Secretary to a technical coordinating committee on information management to be established under the Chairmanship of the Commissioner for Water Development
- (p) such other duties as the exigencies of the service may from time to time require.

2. **Specification**

2.1 The Head of the Information Management Unit will act as coordinator of the entire information management programme, should, if possible be selected from among the existing senior professional staff of WDD. The person selected should have:

- (a) appropriate educational or professional qualifications in a relevant discipline
- (b) substantial practical experience at a senior management level in the water and sanitation sector in Uganda
- (c) a strong interest in information management and a willingness to undergo training in this field
- (d) the ability to communicate effectively with professional colleagues in the WDD and other agencies
- (e) a pleasant personality with the ability to relate well to colleagues and information users.

INFORMATION ASSISTANT

1. Job description

1.1 The Information Assistant will be responsible for consolidating and repackaging information generated by the internal information systems of the Water Development Department and by other sources in the form of reports and papers for use by the Commissioner and other senior staff of the Department and the Ministry of Water, Energy, Minerals and Environment Protection. The Information Assistant will report to the head of the Information Management Unit.

1.2 The specific responsibilities of the position will include:

- (a) identifying and defining the regular and occasional needs of the intended users of the repackaged information
- (b) identifying appropriate sources of information and data, both within the Water Development Department and elsewhere
- (c) organizing the regular supply of information and data required on a regular basis
- (d) organizing the supply of information and data required on an occasional basis
- (e) reviewing, analyzing and interpreting the information and data supplied in accordance with the needs of users
- (f) presenting the results of this process in appropriate formats, including text, tables, graphs, diagrams, etc., as required by users
- (g) such other duties as the exigencies of the service may from time to time require.

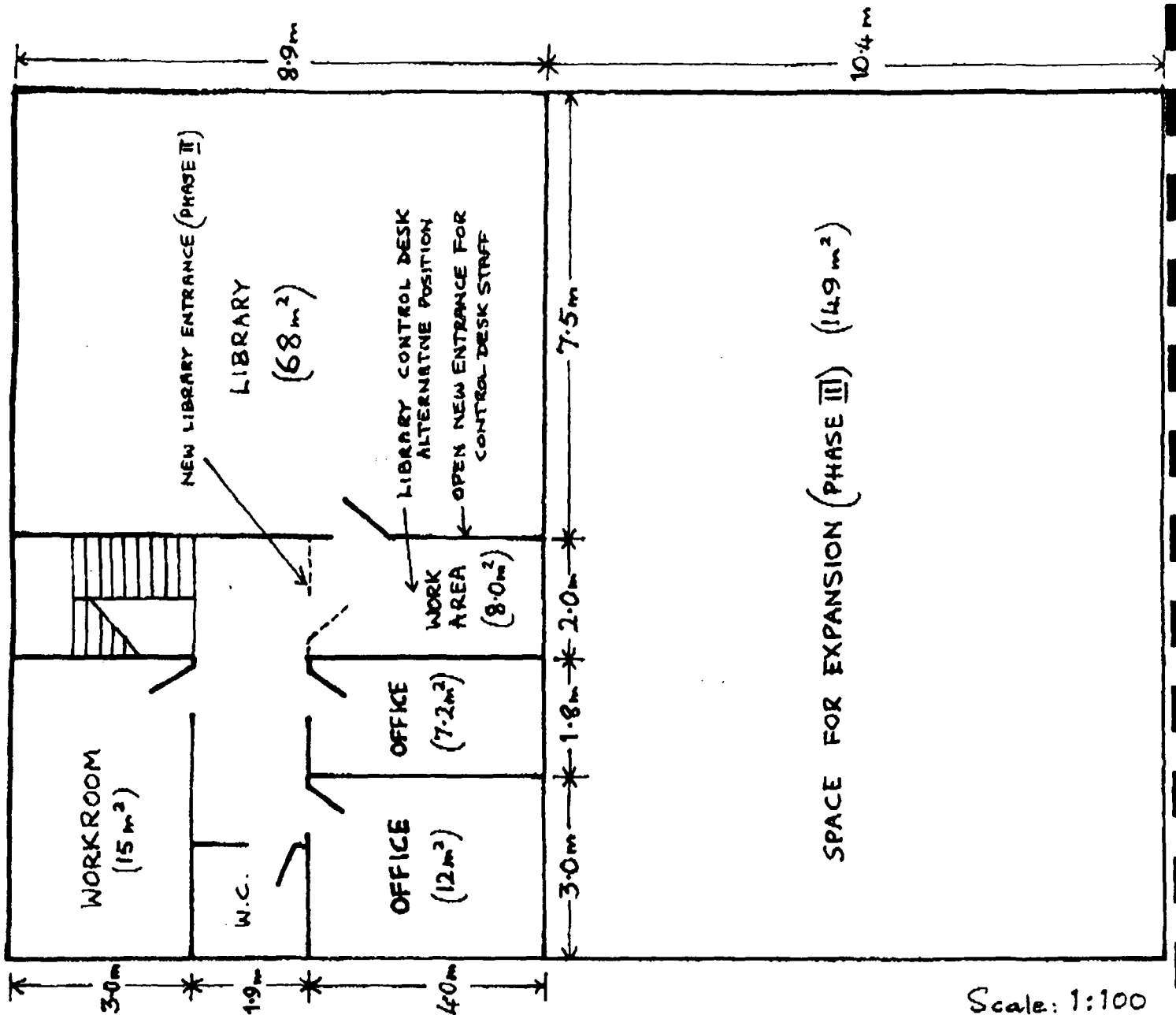
2. **Specification**

2.1 The person selected should have:

- (a) appropriate educational or professional qualifications in a relevant sectoral discipline
- (b) substantial practical experience in the water and sanitation sector in Uganda
- (c) a good knowledge of statistics and methods of data presentation
- (d) proven ability to communicate effectively in writing, particularly in English
- (e) a good knowledge of methods of document production, including desktop publishing
- (f) a pleasant personality with the ability to relate well to colleagues.

UGANDA WATER INFORMATION AND DOCUMENTATION CENTRE

FLOOR PLANS, LAYOUTS AND FURNITURE



Scale: 1:100

Figure 1. Plan of first floor, showing existing library, offices and possible extension

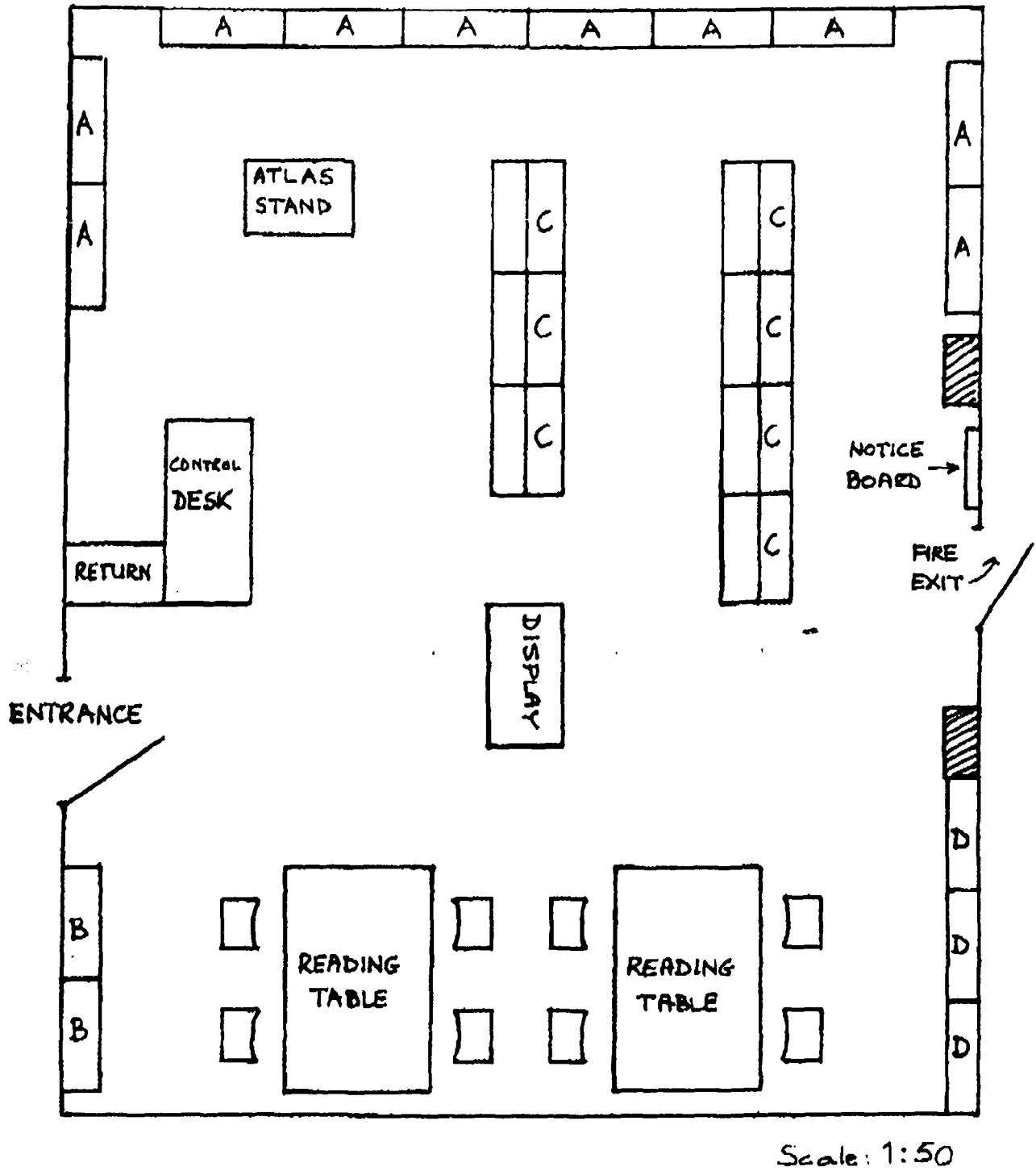
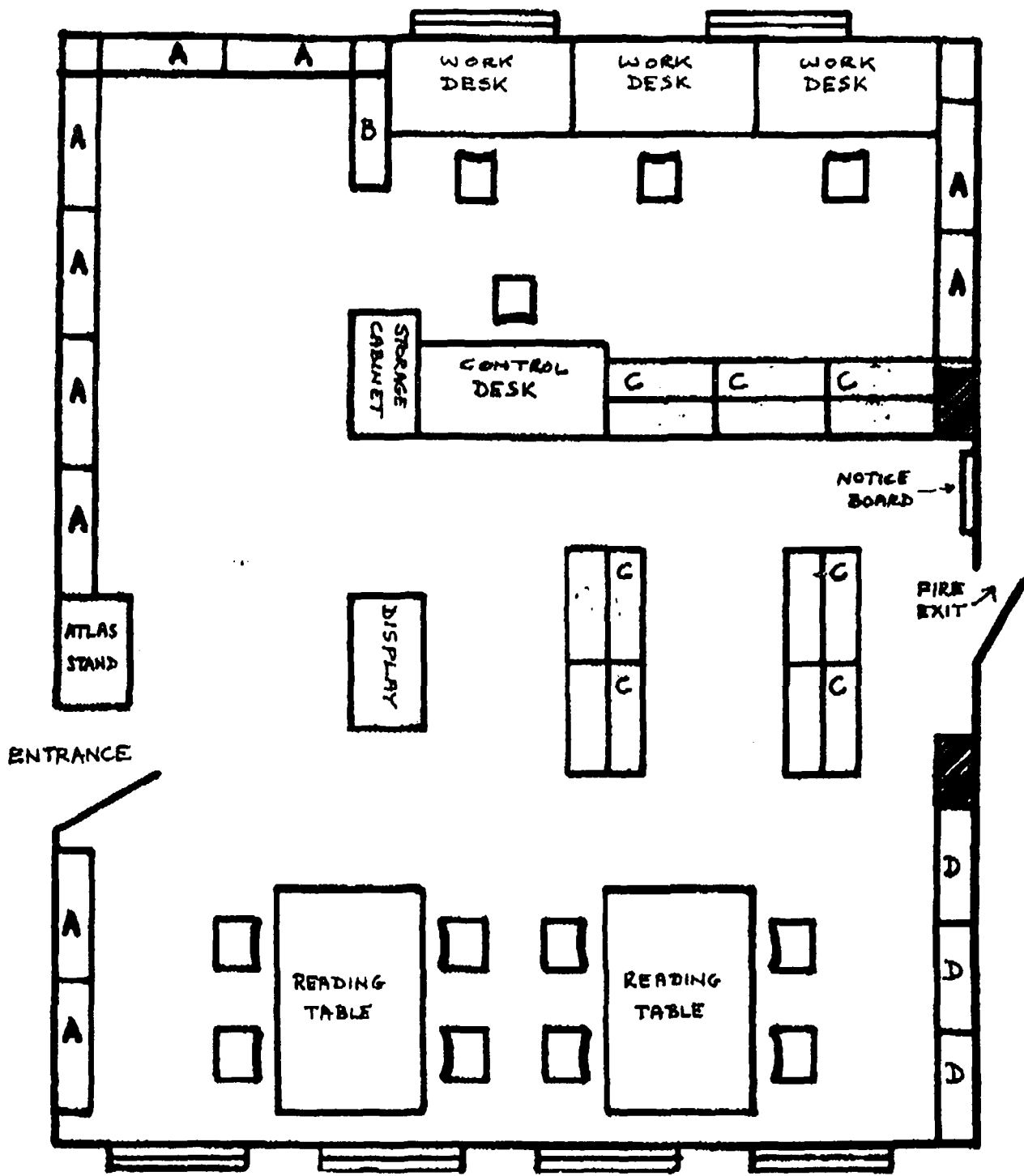


Figure 2. Proposed layout of existing library room
(see Appendix B.2 for key to furniture types)



Scale: 1:50

Figure 3. Temporary layout of existing library room only
(see Appendix B.2 for key to furniture types)

FURNITURE DESCRIPTIONS

Shelf Units

Type A Shelf units already under construction by AMREF.

Type B Single-sided, open-fronted bookshelf (wall mounted).

Each unit has 7.6 cm (3") deep plinth, 1 x fixed bottom shelf, 1 x fixed canopy shelf (top), 5 x movable shelves (adjustable at 2.5 cm (1") intervals), 5 cm (2") deep canopy, solid back panel. Overall height 183 cm (72") approximately. Units are 90 cm (36") wide on centres. Shelves and uprights are 2.2 cm (7/8") thick. Units are free-standing, but attached to wall for greater stability.

Type C Double-sided, open-fronted bookshelf unit (free standing).

Details as for Type B, but double-sided with common backpanel. Units are free-standing.

Type D Single-sided, open-fronted periodical display shelf unit (wall-mounted).

Each unit has 7.6 cm (3") deep plinth, 1 x fixed bottom shelf, 1 x fixed canopy shelf (top), 3 x fixed horizontal shelves + 4 x fixed sloping shelves with lip. 5 cm (2") deep canopy, solid back panel. Overall height 183 cm (72") approximately. Units are 90 cm (36") wide on centres. Shelves and uprights are 2.2 cm (7/8") thick. Units are free-standing, but attached to wall for greater stability.

Other furniture

Reading tables

180 cm width x 120 cm depth x 75 cm height.

Reading chairs

Upholstered chair with arms.

(note: arms must be designed to permit chair to be drawn up close to table)

Office chairs

Secretarial swivel chair: upholstered swivel chair with arms and castors adjustable for height and tilt.

Control desk

Executive desk, 180 cm width x 80 cm depth x 75 cm height, with pedestal containing 3 x locking drawers, modesty panel. Right-hand typing return 100 cm width x 40 cm depth x 70 cm height with pedestal containing 3 x locking drawers, modesty panel.

Work desk

Executive desk, 180 cm width x 80 cm depth x 75 cm height, with 2 x pedestals, each containing 3 x locking drawers, modesty panel.

Atlas stand

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

UGANDA WATER INFORMATION AND DOCUMENTATION CENTRE

STAFFING

NATIONAL CONSULTANT

1. Terms of reference

1.1 The National Consultant will advise and assist the Head of the Uganda Water Information and Documentation Unit (UWIDOC), the Head of the Information Management Unit and the Commissioner for Water Development in the establishment and development of UWIDOC in accordance with the recommendations of external consultants and in consultation with the Commissioner and senior staff of Water Development Department and representatives of external support agencies in the water and sanitation sector.

1.2 The specific tasks to be carried out by the consultant will include:

- (a) designing and assisting in the introduction of basic library routines, including identification, acquisition, processing, storage, circulation, reproduction, weeding and disposal of documentary information sources
- (b) supervising the installation of library furniture and equipment in accordance with the recommendations of external consultants
- (c) initiating the collection of documentary information materials from different divisions of the Water Development Department
- (d) advising on the formulation of a documentary information policy for the Water Development Department
- (e) advising on the recruitment of staff, including the Head of UWIDOC
- (f) advising on the selection, acquisition and use of information and documentation equipment, including computers, and operational tools, including classification schemes, indexing languages, software, etc.
- (g) preparing job descriptions for the staff of UWIDOC

2. Reporting

2.1 The consultant will report to the Commissioner for Water Development through the Head of UWIDOC and the Head of the Information Management Unit, when appointed.

3. **Qualifications**

3.1 The person appointed as consultant should have:

- (a) a university degree or the equivalent, preferably in a scientific or technical subject
- (b) postgraduate qualifications in information science or librarianship
- (c) substantial practical experience in the development and management of technical documentary information centres
- (d) a good knowledge of the information sector in Uganda
- (e) preferably, previous knowledge and experience of information work in the water and sanitation sector.

3.2 The person selected should have the necessary communication skills and personal qualities to enable him or her to work effectively with members of the staff of the Water Development Department at all levels.

HEAD OF UWIDOC

1. Job description

1.1 The Head of the Uganda Water Information and Documentation Centre (UWIDOC) will be directly responsible to the Head of the Information Management Unit for the overall planning, development, coordination and management of the Centre and the subsequent development of a Uganda Water Information and Documentation System (UWIDOS) and a Uganda Water Information and Documentation Network (UWIDON).

1.2 The specific responsibilities of the position will include:

- (a) supervising the implementation of basic library routines, including identification, acquisition, processing, storage, circulation, reproduction, weeding and disposal of documentary information sources
- (b) supervising the operation of information equipment
- (c) collecting documentary information materials from different divisions of the Water Development Department
- (d) formulating a documentary information policy for the Water Development Department
- (e) recruiting and supervising staff
- (f) advising on the selection, acquisition and use of information and documentation equipment, including computers, and operational tools, including classification schemes, indexing languages, software, etc.
- (g) ensuring the provision of documentary information services to users
- (h) such other duties as the exigencies of the service may from time to time require.

2. Specification

2.1 The person appointed should have:

- (a) a university degree or the equivalent, preferably in a scientific or technical subject

- (b) postgraduate qualifications in information science or librarianship
- (c) substantial practical experience in the development and management of technical documentary information centres
- (d) a good knowledge of the information sector in Uganda
- (e) preferably, previous knowledge and experience of information work in the water and sanitation sector.

2.2 The person selected should have the necessary communication skills and personal qualities to enable him or her to work effectively with colleagues and information users at all levels.

Ministry of Foreign Affairs
Danida, Danish International Development Agency
2, Asiatisk Plads, DK-1448, Copenhagen K, Denmark

Guidelines for the Award of Fellowships under Denmark's Bilateral Development Assistance

Danida's Fellowship Programme finances study programmes for participants from developing countries. Study facilities are provided in the form of special courses and studies designed to make the fellowshipholders better qualified for professional work in their countries. Application forms are obtainable from the local Danish Embassy and/or Danida Mission.

Fellowships will primarily be granted in conjunction with other Danida-financed activities or other cooperation between Denmark and the country in question. Fellowships may be granted to nationals of developing countries with an annual per capita GNP of up to US\$ 2,500.

Fellowships are normally granted for a minimum period of 2 weeks and a maximum period of 10 months. However, a brief extension may be granted if the competent authorities of the fellowshipholder's country of domicile and the institution of study recommend it as being of major importance for her/his future work.

- a) Candidates must be recommended by the competent authorities of their countries. In the statement of wishes with regard to studies consideration shall be given primarily to the general development needs of the recipient country. Applications are invited from female as well as male candidates.
- b) Fellowships are granted only to candidates who have completed their basic studies. Fellowships will not be granted to candidates who have previously studied in Denmark or in another industrialized country.
- c) Fellowships are not granted for studies at which the instruction is given in Danish. Study programmes will be arranged in English only, and candidates must have a good command of English. A language test may be required.
- d) A candidate must have some years of practical experience, hold a position for which the education is relevant, and submit evidence of being certain to return to his/her position on completion of the education.
- e) Fellowships for studies in other developing countries are granted only to candidates affiliated to Danish development projects. Fellowships are normally not granted for studies in other industrialized countries.

Fellowships cover the cost of travel, airtickets economy class, between country of domicile and country of study, costs of tuition, accommodation, meals, local transport and pocket money. Special travel arrangements apply to China.

**PROJECT PROPOSAL FOR A
WATER MANAGEMENT AND INFORMATION SYSTEM (WAMDIS)**

1. Introduction

- 1.1 The project outlined in this proposal forms part of a development programme for information management in the Water Development Department (WDD) prepared in September 1991 by the IRC International Water and Sanitation Centre in consultation with the African Medical and Research Foundation (AMREF). The proposal takes account of changes in the situation of the WDD and the water and sanitation sector in general which have taken place up to August 1991.
- 1.2 The original development programme included, *inter alia*, project proposals for the establishment of management information systems for water resources (MISWAR) and water supply (MISWAS). In the light of a recent analysis of water data and information requirements in the Water Development Department it has been decided that the two proposed systems should be combined into one Water Management Data and Information System (WAMDIS), which would have both operational and administrative links with the Uganda Water Information and Documentation Centre (UWIDOC) now being established at WDD headquarters and with a proposed Management Information System for Administration to be set up by the WDD.
- 1.3 All information management activities within the WDD, including those of WAMDIS, will be coordinated by an Information Management Unit (IMU) which is also now being established and which will report directly to the Commissioner for Water Development. One of the tasks of the IMU will be to ensure compatibility between information systems within the WDD, and between the WDD systems and those of other agencies.
- 1.4 With the assistance of the International Development Research Centre (IDRC), a start has been made on computerizing the hydrological and hydrogeological records of the Water Resources Division and verification of data collected in the field has been done at twenty field stations under a World Bank/United Nations Development Programme (UNDP) project. The British Overseas Development Administration (ODA) has offered to supply the Division with hydrological data management software together with the necessary hardware, training and a technical adviser for a period of three months.
- 1.5 A computerized databank of water sources, including not only boreholes but also wells, protected springs, etc. has been established under the RUWASA (formerly East Uganda) project. This is designed to be capable of being applied throughout Uganda.
- 1.6 The WDD now seeks technical assistance for the design and implementation of a computerized Water Management Data and Information System which will include data on these and other aspects of water resources management.

2. **Development objective**

- 2.1 To strengthen the capacity of the Water Development Department to manage national water resources effectively and efficiently and to develop, operate and maintain water supplies of all types in all parts of Uganda.

3. **Immediate objective**

- 3.1 To establish within the Water Development Department a computerized Water Management Data and Information System capable of performing the following functions:

- (a) collecting reliable, accurate and up-to-date data on groundwater, surface water and rainfall and on the construction, operation and maintenance of all types of water supplies, throughout Uganda
- (b) processing, storing and analyzing these data on a regular basis
- (c) disseminating the results of these analyses on a regular basis or retrieving them, or the original data, in response to specific demands

4. **Strategy**

- 4.1 To seek foreign technical assistance for the establishment of WAMDIS in the form of:
- (a) the supply of a water resources data expert to help plan and initiate the establishment of the system and monitor its progress over a period of three years
 - (b) the supply of data processing equipment and supplies sufficient to enable the system to operate effectively for a minimum period of three years
 - (c) the provision of training opportunities for the local staff of the system, including, where appropriate, fellowships for training and study tours abroad.
- 4.2 To complement the foreign technical assistance received by:
- (a) formally establishing WAMDIS as a unit within the Water Development Department
 - (b) providing suitable and adequate accommodation and furniture for the system
 - (c) appointing a suitably-qualified person as head of WAMDIS
 - (d) recruiting other local staff as required

- (e) re-establishing an effective system for the collection of water resources data in the field
- (f) providing an adequate recurrent budget to enable the system to operate effectively
- (g) providing general administrative and logistical support to the system.

5. **Outputs**

- 5.1 The main output of the project will be a regular supply of accurate, reliable and up-to-date data on the water resources of Uganda and on the construction operation and maintenance of all types of water supplies in all parts of Uganda.
- 5.2 The project output will provide input to the HYDROMET Hydrometeorological Survey of the Nile Basin.

6. **Inputs**

- 6.1 The required inputs, in terms of:

- (a) manpower
- (b) training
- (c) accommodation
- (d) equipment
- (e) furniture
- (f) supplies
- (g) vehicles
- (h) finance

are yet to be determined.