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Technical Assistance to

**INTERAFRICAN COMMITTEE FOR
HYDPAULIC STUDIES (C I E H)
B P 369
OUAGADOUGOU, UPPER VOLTA**

**SAVANNA REGIONAL WATER RESOURCES
AND LAND USE PROJECT**

PROJECT NO 625 11 120 712

TAMS

**Agricultural
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INTRODUCTION

PROJECT GOAL

The over-all goal to which this project is to contribute is

"the rational development of water resources in the West African Savanna region as required for agricultural development, human and animal consumption, and with due consideration for the ecological effects of such development"

(From USAID Noncapital Project Paper (PROP),
submitted March 17, 1972)

PROJECT PURPOSE

The purpose of this project is

"to assist CIEH, an African organization based in Ouagadougou, concerned with water resource development, to develop the capacity to analyse regional water requirements and formulate an action program to meet them, and to serve as central dissemination agent for water related information."

(From Amendment No. 4 to the Grant Agreement
between USAID and CIEH, May 14, 1976)

SCOPE OF WORK

The scope of work charged to TAMS calls for this firm

"to provide the professional staff and related services to assist CIEH establish at its headquarters

1. A documentation center, by providing
 - a. assistance with the planning of, and procurement of equipment for said center,
 - b. for the institution of systems to acquire, process and disseminate documents pertaining to hydrology, land use, and other directly related information,
 - c. on-the-job and overseas training for CIEH staff, including programming and arrangements for the Participant Training of two documentalists, to be provided by CIEH, in either the United States or Canada for approximately eighteen months of service each.
2. A planning office, by providing
 - a. assistance with the planning of and procurement of equipment for said office,
 - b. for the development of techniques to obtain, evaluate and synthesize documents and information for the Savanna region in order to identify gaps in information and specify proposals for further studies,

- c. an overall action program for the Savanna region including specific projects for submission to donor organizations for financing,
- d. on-the-job and overseas training for CIEH staff; including the programming and arrangements for the Participant Training of two hydrologists an assistant hydrologist, and a land-use specialist, to be provided by CIEH, in either the United States or Canada for approximately twelve months service each".

(From Modification No. 4 of the Contract
between USAID and TAMS, August 17, 1976)

PROJECT PROGRESS

PROJECT FUNDING

The following Amendment to the Grant Agreement between USAID and CIEH was signed during the report period

Amendment No. 10 (December 28, 1977) allowing for increased funding of the project to a total amount of US \$ 1,989,730 to be used in accordance with the following budget

a)	Technical Assistance (TAMS)	1,862,000
b)	Commodities	84,730
c)	Other Costs	43,000

Another separate Grant Agreement between USAID and CIEH was signed during the report period

Grant Agreement Project 625-0926 (August 30, 1977) for an amount of US \$ 100,000 to be used to cover the costs of purchasing land use/land cover maps in support of the ongoing Regional Water Resources and Land Use Project

The following Modification of the Contract between USAID and TAMS was signed during the report period

Modification No. 7 (August 16, 1977), based on Grant Agreement Amendments No. 8 and 9 signed previously, included a new budget of US \$ 2,061,006 and extended the estimated completion date of the Project from June 30, 1977 to September 30, 1978. However, funds obligated under this contract are US \$ 1,497,000 only. As a result project funds were once again exhausted by November 30, 1977.

On November 30, 1977, TAMS was informed that only US \$ 365,000 of FY 78 funds could be added to the presently obligated funds of 1,497,000 making a total of \$ 1,862,000 available through the current completion date of the project. This total is almost \$ 200,000 short of the amount budgeted in Contract Modification No. 7.

STAFF

TAMS staff permanently assigned to the project:

Dr. John Buursink, Project Manager	July 1 - Dec 31
Mr. Robert P. Koester, Documentalist	July 1 - Dec 31
Mr. Philip W. Roark, Hydrologist Planner	July 1 - July 9
Mr. James Orr Robertson, Hydrologist Planner	Sep 28 - Dec 31
Dr. Max A. Saint-Pé, Hydrogeologist Planner	July 1 - Oct 11

CIEH counterpart staff assigned to the project

Mr. Ali Krissiamba, Documentalist	July 1 - Dec 31
Mr. Georges Sola, Assistant Hydrologist (in training in USA)	July 1 - Dec 31
Mr. Francis B. Paré, Draftsman (in training overseas until July 26)	July 1 - Dec 31

TAMS staff supporting the project in New York on part-time basis

Mr. Edward E. Evans, Exec. Director	July 1 - Dec 31
Ms. Sara K. Guthrie, Project Coordinator	Aug 22 - Dec 31
Ms. Emily Candemmo, Documentalist	July 1 - Dec 31
Mr. Domingo Isasi-Diaz, Chief Draftsman	July 1 - Dec 31

TAMS staff and consultants participating in the project in Ouagadougou on TDY basis

Dr. Peter Ahn, Head Dept. of Soil Science University of Nairobi	Sep 6 - Sep 24
Dr. Jan Kowal, Agroclimatologist	July 1 - July 4
Mr. Robert F. Heins, Partner-in-Charge TAMS	Aug 18 - Aug 19
Mr. Edward E. Evans, Exec. Director, TAMS ADG	Aug 1 - Aug 2 Oct 3 - Oct 14
Mr. Armando Balloffet, Senior Civil Engineer, TAMS	Oct 1 - Oct 14
Mr. Milton David, Vice Pres. DPRA, Manhattan, Kansas	Oct 3 - Oct 14

Cooperating Country Nationals permanently assigned to the project.

Mr. D.K. Matthias, Bilingual Secretary	July 1 - Dec 31
Ms. Bintou Maiga, Typist	July 1 - Dec 31
Mr. H. B. Minoungou, Equipment Operator	July 1 - Dec 31
Ms. G. A. Ouédraogo, Library Assistant	July 1 - Dec 31
Ms. A. W. Ouattara, Library Assistant	July 1 - Dec 31
Mr. Y. J. A. Azoungoungou, Chauffeur	July 1 - Dec 31

Other personnel assigned by TAMS for specific project tasks

Mr. Samuel Basié, Technical Assistant	July 1 - Aug 12
Mr. Peter Wright, Technical Assistant	Nov 2 - Dec 31
Mr. Jean Claude Henry, Study proposals (Grenoble)	Oct/Nov

WORK PROGRESS

The CIEH Planning Office finished its work on the "Savanna Resource Base", and a three volume report is scheduled for publication in early 1978. Work started on existing land and water use. Well over fifty study proposals were prepared, a final selection of twenty to thirty proposals is expected to be retained for publication.

The CIEH Documentation Center focussed its efforts on dissemination of information. The Catalogue of the CIEH Documentation Center was published, this is an essential basis for any dissemination program. Recommendations for an exhaustive information dissemination program were made and are presented in this report, funds to implement essential parts of this program are not now available.

Important missions received during the report period were

The AID/OMVS team, concerned with the OMVS Water Data Collection project proposal, in July 1977

The AID/ATAC team, which visited CIEH and organizations in Upper Volta and other CIEH member states in August 1977, to evaluate the project (Contract AID/afr -C-1142, W. O 59).

The TAMS planning team, which worked at CIEH in October 1977, (see Appendix A).

The CIDA/Ghana Government team from Bolgatanga, to inspect pumps in the Ouagadougou area, in November 1977.

PROBLEMS ENCOUNTERED

The major problem that came up during the report period is lack of funds to carry out the work and bring it to completion.

TAMS staff permanently assigned to CIEH is reduced to three professionals and six African support staff. Lack of funds limits the effectiveness of even this small staff in three ways

- 1) Essential commodities (documents, microreprographic equipment, 4-wheel drive vehicle) cannot be purchased.
- 2) No travel to CIEH member states can be made.
- 3) No technical support is available from such West Africa specialists as Dr. Ahn (land use), Dr. Kowal (agroclimatology), Mr. Henry (hydrology) and groundwater organizations such as the National Water Well Association (U.S.), BRGM or BURGEAP (France).

On December 7, 1977, TAMS informed AID that the reduction in funding makes it impossible to provide to CIEH the services agreed upon in the Scope of Work.

A second issue is that africanization of CIEH is not proceeding at a rapid enough pace. However, as of January 1, 1978, a new engineer, Mr. Kodjo Ativon, will be seconded to CIEH by the Government of Togo. Another engineer from Mali is now also scheduled to join CIEH in 1978.

Thirdly, during the report period the need arose to define more precisely the purpose, scope and role of CIEH's planning activities in water resources development, especially in regard to parallel regional planning activities undertaken by such development organizations as OMVS, CFN, etc. and development coordinating agencies such as CILSS (see Appendix A).

RECOMMENDED SOLUTIONS

Concerning the problem of underfunding it is recommended that USAID clarify its position to CIEH on current and possible future support in order to allow CIEH to plan its activities accordingly.

Both the issue of africanization and the role of CIEH in planning water resource development vis-a-vis other West African organizations should be considered and decided upon at CIEH's 9th Council of Ministers Meeting to be held in Lomé, Togo, in February 1978.

STATUS OF THE WORK

The status of project work is reported upon in this section and accomplishments are discussed under the following two headings

- Institutional Elements
- Technical Elements

A revised flow chart of work follows as Figure 1.

INSTITUTIONAL ELEMENTS

1. Functions of Planning Office and Documentation Center

If the overall purpose of the Planning Office is to analyse regional water requirements and formulate an action program/plan or plans to meet them (for a detailed discussion see Appendix A), then the following two functions seem to be essential

Function I - Synthesis of Information

This function consists of analysis, evaluation, and synthesis of basic planning and engineering data as it is being collected by CIEH's Documentation Center relevant to water resource development in West and Central Africa, and comprises assessments of the resource base, of existing and planned resource development, and of the water needs. This function provides in a continuing, uniform way a basis for subsequent planning efforts at CIEH and allows the various government agencies and regional organizations within West Africa to better make decisions concerning water resource development. The synthesis of information also allows for identification of gaps in existing information and the formulation of study proposals to fill such gaps whenever necessary for further planning.

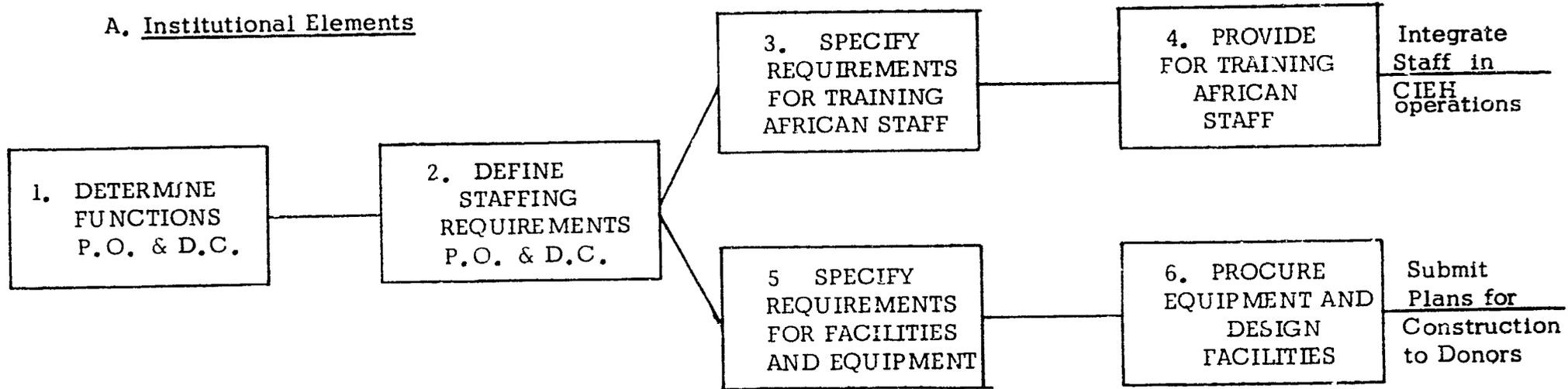
Function II - Design of Plans

This function consists of the preparation of a framework for long range planning of the water resource development for West and Central Africa as a whole, for specific subregions, river basins or for individual states, as required. On the basis of such a framework, original CIEH plans (project proposals) are designed, or existing plans are supported. Emphasis is on regional plans or national developments having a regional impact. Plans are submitted to the government agency concerned for financing and implementation, or submitted directly to outside donor organizations for financing and implementation under CIEH auspices.

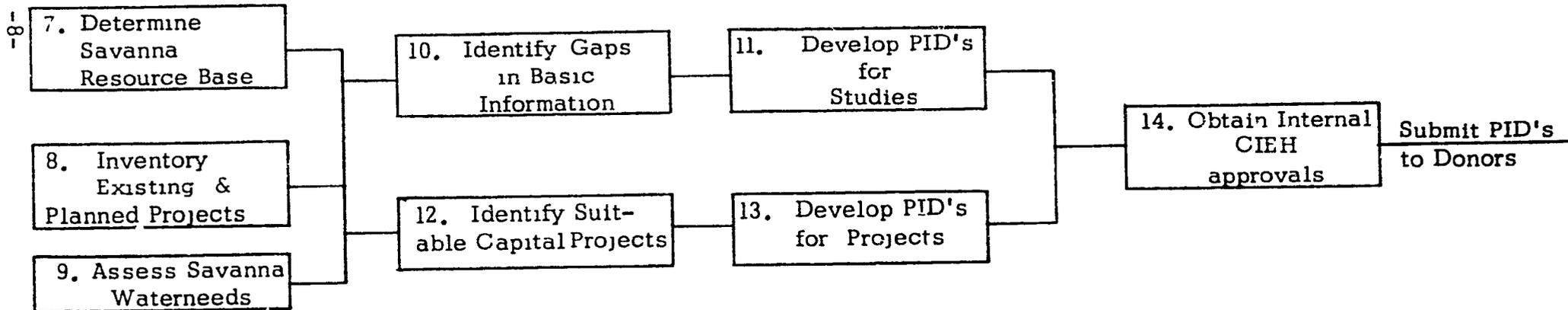
Depending on the overall purpose set for CIEH's planning activities a third function is envisaged.

Figure 1. Flow Chart of Work for Assisting CIEH to establish a Planning Office (P.O.)
and Documentation Center (D.C.)

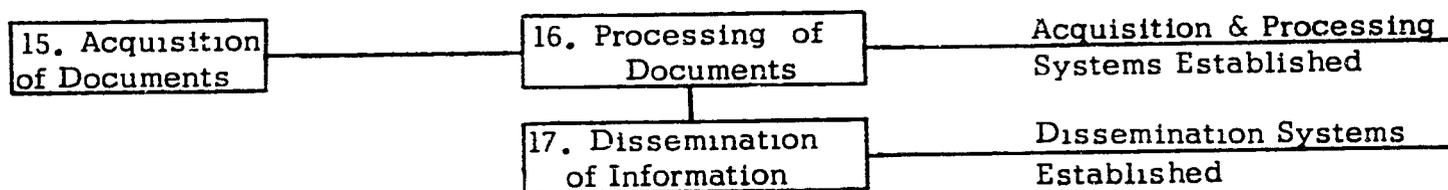
A. Institutional Elements



B. Technical Elements (Planning)



C. Technical Elements (Documentation)



Function III - Plan Implementation

This function consists of supervising and monitoring the execution of water resource development projects in the region to ensure their implementation according to the plans designed by CIEH or others as requested. This task also involves the promotion of regional plan implementation through coordination of planning and plan implementation activities carried out by other agencies in the region including the soliciting of financing from outside donors.

During the report period the Planning Office carried out Function I. Function II (Design of Plans) is not yet fully developed.

The purpose or mission of the Documentation Center, - to act as the central agent for dissemination of information on water resources in West and Central Africa - is achieved through the carrying out of a series of information dissemination service programs (described in detail in Appendix B). These programs are effected by the performance of three essential functions and the various activities of which they are comprised

Function I - Acquisitions

1. Pre-acquisitions searching
2. Ordering purchase, gift, exchange
3. Receipt, acknowledgement, payment
4. Check-in

Function II - Processing

1. Descriptive Cataloging
2. Geographic Indexing
3. Subject Indexing
4. Card preparation, reproduction, filing
5. Binding, preservation, collection maintenance
6. Microfiching of documents

Function III- Information Dissemination

1. Reference, Orientation and Instruction
2. Circulation, Current Awareness, Selective
Dissemination of Information
3. Document Delivery
4. Publication Preparation
5. Distribution of CIEH studies & Liaison Bulletin.

During the report period the Documentation Center carried out all three functions. The Information Dissemination function is the least developed at this time (see Section 17 below).

2. Staffing Requirements

During the report period CIEH's Planning Office and Documentation Center were understaffed, having two TAMS planners, one CIEH documentalist and one TAMS documentalist. One CIEH assistant hydrologist is being trained in the US.

Project agreements call for two CIEH hydrologists, an assistant hydrologist and a land-use specialist as well as two documentalists to take over the work by the end of 1978. Even if this staff were available now, it would be insufficient to carry out the essential functions and activities described in the previous section.

It has become clear that a substantially larger staff is necessary at CIEH to do the work. A team of ten professionals is believed to be a basic requirement: five planners and five documentalists. This full-time staff should be able to carry out its tasks with the assistance of full-time support staff at CIEH and short term consultants in such fields as agroclimatology, economics, urban water supply, land and water rights, and information sciences.

Depending on how CIEH wishes to define its role in planning water resource development in West and Central Africa, additional planning teams may be required for each of the major river basins. Such teams would consist of a hydrologist planner, a hydrogeologist planner, and a land-use planner.

A basic team required for the Planning Office should consist of:

1. hydrologist planner
2. hydrogeologist planner
3. land use planner
4. irrigation engineer
5. ecologist

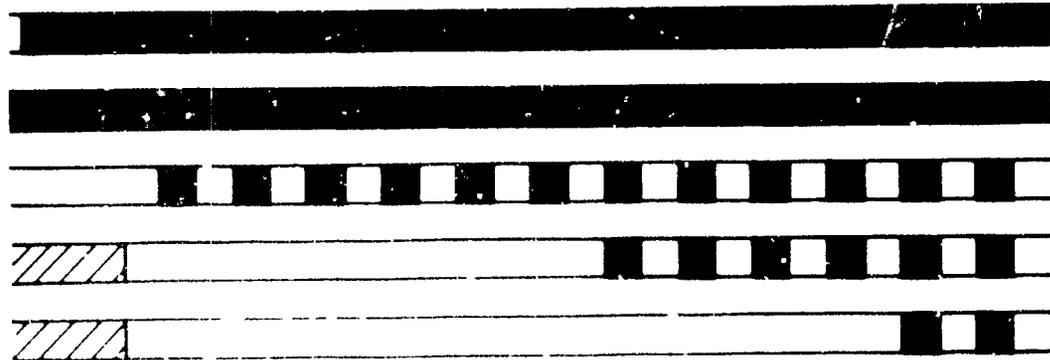
A basic team required for the Documentation Center should consist of:

1. acquisition documentalist
2. processing documentalist
3. processing documentalist
4. information dissemination documentalist

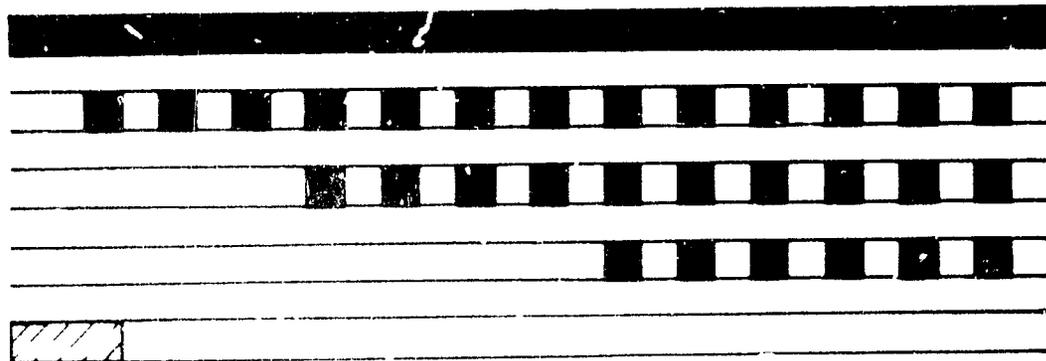
 PERSONNEL DU CIEH
CIEH STAFF
 PERSONNEL PREVU POUR LE CIEH
SCHEDULED STAFF FOR CIEH

 PERSONNEL TAMS/USAID
TAMS USAID STAFF
 PERSONNEL PAS DISPONIBLE
UNAVAILABLE STAFF

PERSONNEL PLANIFICATION
STAFF FOR PLANNING OFFICE



PERSONNEL DOCUMENTATION
STAFF FOR DOCUMENTATION CENTER



PROJET USAID
PROJET

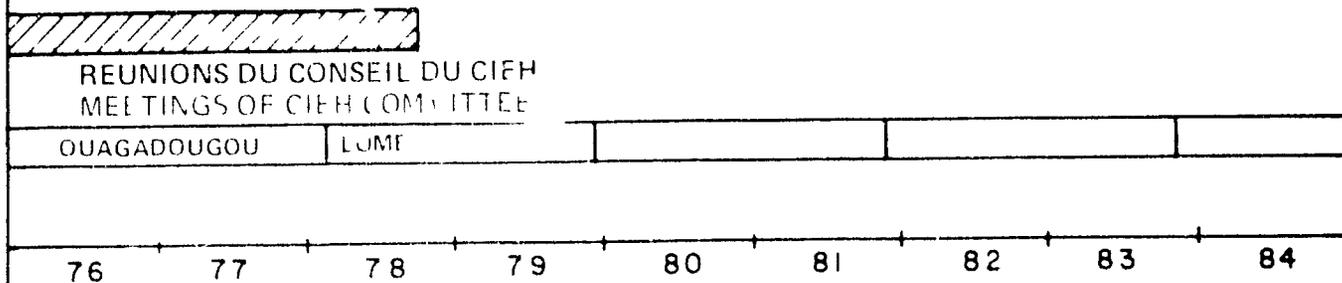


Fig 2 Schéma du personnel du Bureau de Planification et du Centre de Documentation du CIEH
 Personnel of the Planning Office and the Documentation Center of CIEH

5. chief documentalist

Considering the staff currently available and staff currently required, a tentative staffing schedule was prepared as of January 1, 1978. An effort was made to make this schedule (Figure 2) as realistic as now possible and in line with CIEH's expected budget increase in the future. CIEH is scheduled to Africanize at a faster rate than is shown here. Some of its staff, however, will be assigned to its Technical Services Department which carries out research.

It is evident that CIEH cannot function in Planning and Documentation for several years to come without outside support. The degree to which its Planning Office and Documentation Center need this manpower support is shown in Figure 2.

3/4. Training of CIEH Staff

The CIEH assistant hydrologist, M. Georges Sola, continued his training program at the University of Arizona, Tucson, during the report period. He took the following courses

Water and the Environment

Soils

Farm Power

Applied Hydraulics

English 5

The CIEH draftsman, M. Francis B. Paré, followed two medium term courses at I.G.N.'s Ecole Nationale des Sciences Géographiques. He started in early June with the "Stage de Perfectionnement en Cartographie" as reported in Semi-Annual report No 8. He continued in July and completed also the "Stage d'initiation au tracé sur couche" (see Appendix C).

The CIEH documentalist, M. Ali Krissiamba, travelled to Senegal, Gambia, Liberia, and Ivory Coast for one month in August/September to complete his training program. M. Krissiamba visited a great many libraries, documentation centers, and research institutes to familiarize himself with the various systems and organizational structures involved. He also was able to acquire a significant group of documents for the CIEH Center.

A Voltaïque student, M. Damascène Some, enrolled in the Ecole des Bibliothécaires, des Archivistes, et des Documentalistes (EBAD) at the University of Dakar, spent nearly two months (August, September) as a student-trainee in the CIEH Documentation Center. His program of work included all aspects of the Centers activities. He prepared a final report as required by his school.

5/6. Facilities and Equipment

During the report period a dry mounting press was received and installed to be used for laminating maps, charts and photographs.

Over forty pieces of office and library furniture, some of them on order since August 1976 and others since February 1977, have not yet been received.

A card inventory was completed of all equipment bought under the TAMS contract or purchased from the Commodity budget in the CIEH/AID Grant Agreement.

After lengthy negotiations, SAFICO of Abidjan agreed to provide a variety of microfiche supplies, as well as equipment repair and maintenance service for 3M microfiche equipment. This equipment was previously selected as being most suited to serve the needs of the CIEH Documentation Center for information dissemination. At the last minute, in early December, these orders had to be cancelled due to project underfunding.

As reported previously a new Documentation Center facility remains necessary for effective utilization of its considerable documentary resources.

TECHNICAL ELEMENTS - PLANNING

7. Savanna Resource Base

During the report period the synthesis of available information on the Savanna's water, land and human resources was completed. Base reports and maps were sent to TAMS, New York, for final editing, translation and printing. The report consists of three volumes

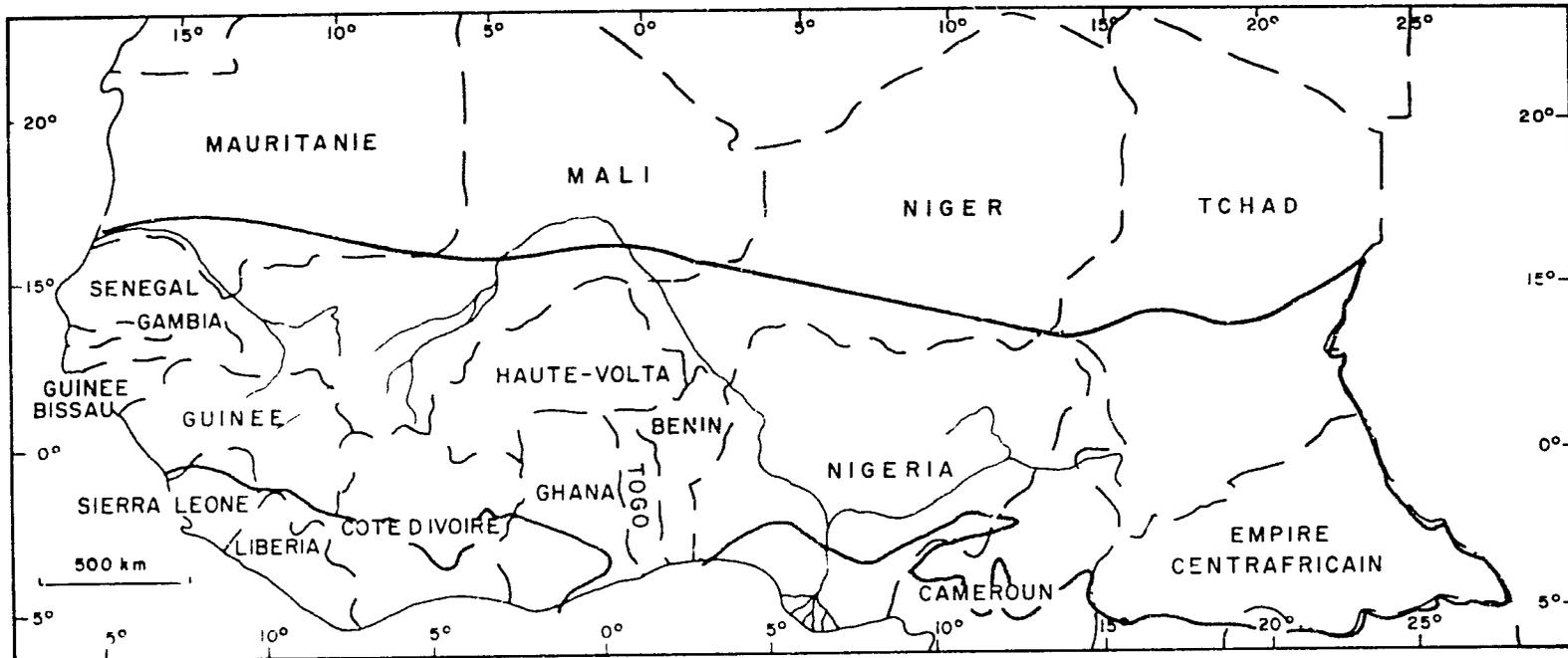
- Volume I. Savanna Resources - Report
- Volume II. Savanna Resources - Mapfolio
- Volume III Savanna Resources - Appendices

The study contains an appraisal of the following resources of the Savanna region (see also Figure 3) climate, water balance, surface water, ground water, land and human resources.

Preliminary copies of these volumes are to be distributed at CIEH's ninth Council of Ministers meeting in Lomé in February 1978.

8. Existing and Planned Land and Water Use

An analysis of current use of the Savanna's land resources, critical



THE PROJECT AREA THE NORTHERN BOUNDARY OF THE SAVANNA REGION IS THE 250mm ISOHYET AND TO THE SOUTH IS THE FOREST BOUNDARY
ZONE DU PROJET LA REGION DE SAVANNE EST LIMITEE AU NORD PAR L'ISOHYETE 250mm ET AU SUD PAR LA FORET

FIGURE - 3

to understanding and managing of the region, will be made primarily with the intent to determine what the actual food production is in the savanna region and to locate areas where the potential to increase this production is highest (with or without irrigation).

During the report period funds were made available by USAID to CIEH, under separate Agreement, to have this study carried out on the basis of data existing at CIEH's Documentation Center or elsewhere and supported by the use of earth resources satellite (LANDSAT) data. No decision was taken during the report period concerning the implementation of the Grant Agreement.

Summary reports were prepared on present groundwater development and on the potential for additional groundwater development. The departure of the project hydrogeologist and the decision by USAID not to refill this position have made further work on groundwater use impossible.

Work was begun on existing and planned surface water use. Much of the necessary information on this subject is available at CIEH's Documentation Center and in project inventory files of proposed or currently operating projects. However, the effort is hampered by the current (financial) restrictions on travel which would have allowed personal orientation in member states concerning planned surface water developments.

9. Savanna Water Needs

The water needs of the Savanna region cannot be assessed by CIEH's Planning Office until sometime in 1978. This assessment of existing needs and future needs, through the year 2030, is scheduled to cover

- a. Human consumption, including sanitary requirements (villages, towns, cities)
- b. Industrial and mining consumption
- c. Animal consumption
- d. Irrigation requirement, which is a function of the demand for crops and competitive production procedures such as new and/or improved rainfall agriculture.
- e. Hydroelectricity
- f. Navigation
- g. Fisheries
- h. Wildlife/Tourism.

10/11. Gaps in Information and Study Proposals

During the report period work continued on the formulation of study proposals to fill gaps in basic information essential to planning. Well over fifty proposals were made some of them listed in the previous semi-annual report. Considerable time was spent, also at the October "CIEH Planning" Meeting held at CIEH (see Appendix A), in reviewing all study proposals and in including comments and observations of various other scientists.

It is expected that a preliminary set of study proposals can be made available for discussion at CIEH's Council of Minister Meeting (February 78) and that all proposals, in French and English, will be available for internal approval at CIEH and subsequent distribution to interested donors for financing in early 1978.

12-14. Capital Projects

Plans for new capital projects will be proposed, or support for existing plans proposed, once the work described in sections 7, 8, and 9 is completed.

TECHNICAL ELEMENTS - DOCUMENTATION

15. Acquisition of Documents

More than 400 documents were identified and added to CIEH's collection during the report period. Significant acquisitions resulted from trips of CIEH staff to Senegal, Gambia, Liberia, Ivory Coast, Mali, Mauritania, England and France.

Between July and December, the Center experienced a diminution in the rate of acquisitions resulting from lack of staff (no second project documentalist) to handle the acquisitions.

In early December, all acquisitions purchases were halted because of project underfunding. This situation, left unattended, will in a short time become difficult, if not impossible, to rectify. Documents which the Center should be ordering will go out of print, others will have their supplies exhausted. The lack of travel funds will also gravely affect the ability of documentalists and engineers alike to acquire publications and unpublished reports from CIEH member states while on mission. Serious gaps in information will result.

16. Processing of Documents

The number of registered and fully catalogued monographs and periodical

articles increased from 7,500 per June 30, 1977 to 8,200 per December 31, 1977. Some 400 documents were bound in-house during the report period.

Figure 4 shows (1) the increase in catalogued documentary units since the beginning of the project, (2) the total number now available for use, and (3) a bar representing the 10,000 documentary units set as a target for the estimated completion date of the project September 30, 1978.

A major recommendation made by the AID/ATAC Evaluation Team (to develop, implement and maintain a subject indexing system using keywords) was to have been the major thrust during this and the following report period in this aspect of the Documentation Center's activities. The same recommendation had already been made to CIEH in September 1976 by project consultant Prof Dr M A. Aman, Dean of Palmer Graduate Library School, Long Island University (cf. Semi-Annual Report No. 7, Appendix B Recommendations for Improving the Function and Services of CIEH's Documentation Center). Again, due to lack of funding and the resultant inability to hire documentalists, either full-time or on TDY, this important facet of the Center's development, which would have permitted access to the collection by subject key-words, had to be delayed indefinitely.

During the report period, more simplified methods of performing the technical services work/materials flow were adopted (see Flowcharts of Appendix B, Semi-Annual Report No 8) This move has resulted in faster and smoother materials flow, more rapid availability of documents, significant reduction of clerical error, and greater general efficiency. The new system is still being adjusted to assure its maximum utility.

Although documents acquisitions have slowed significantly, an important backlog of cataloging, geographic indexing, shelf listing and binding exists and will continue to exist because of the backlog of documentary units in the form of periodical articles which grows daily.

17. Dissemination of Information

Elaborate plans were made for an information dissemination/document delivery system based on microfiching the Documentation Center collection. Equipment was about to be ordered, and contractual agreements were about to be signed for the provision of film and fiche supplies and equipment maintenance and service with a firm in Abidjan when the program had to be cancelled due to the shortage of project funds. CIEH cannot meet the expectations of its member-countries and as a consequence faces a serious credibility problem. Not only are the unkept promises of the Documentation Center being questioned, but the good-will and resolution of the American Government are being challenged.

Since a comprehensive system to disseminate information cannot now

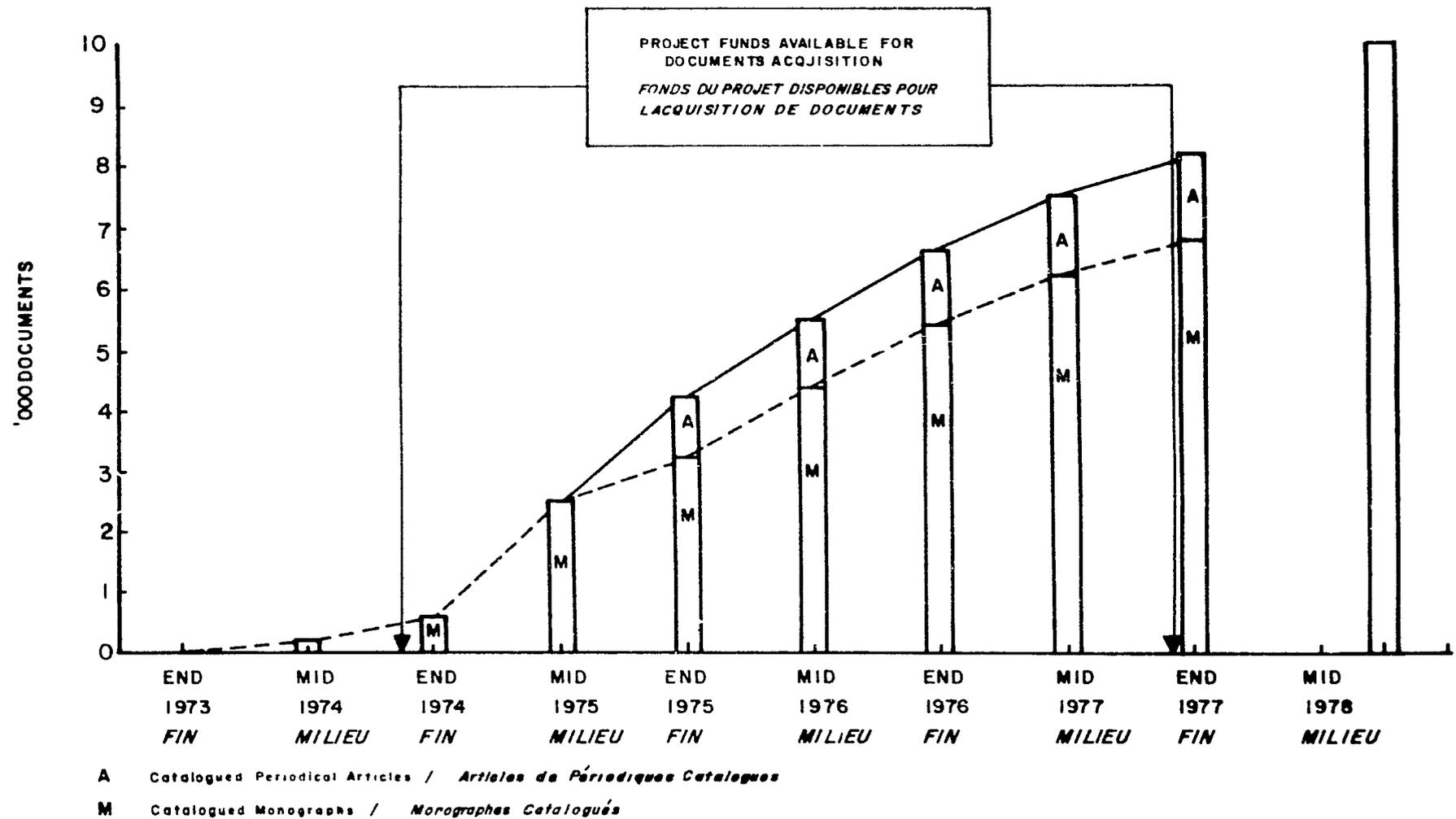


Fig 4 Increase of Catalogued Documentary Units Available at the C I E H Documentation Center
Accroissement des Documents Catalogués au Centre de Documentation du C I E H

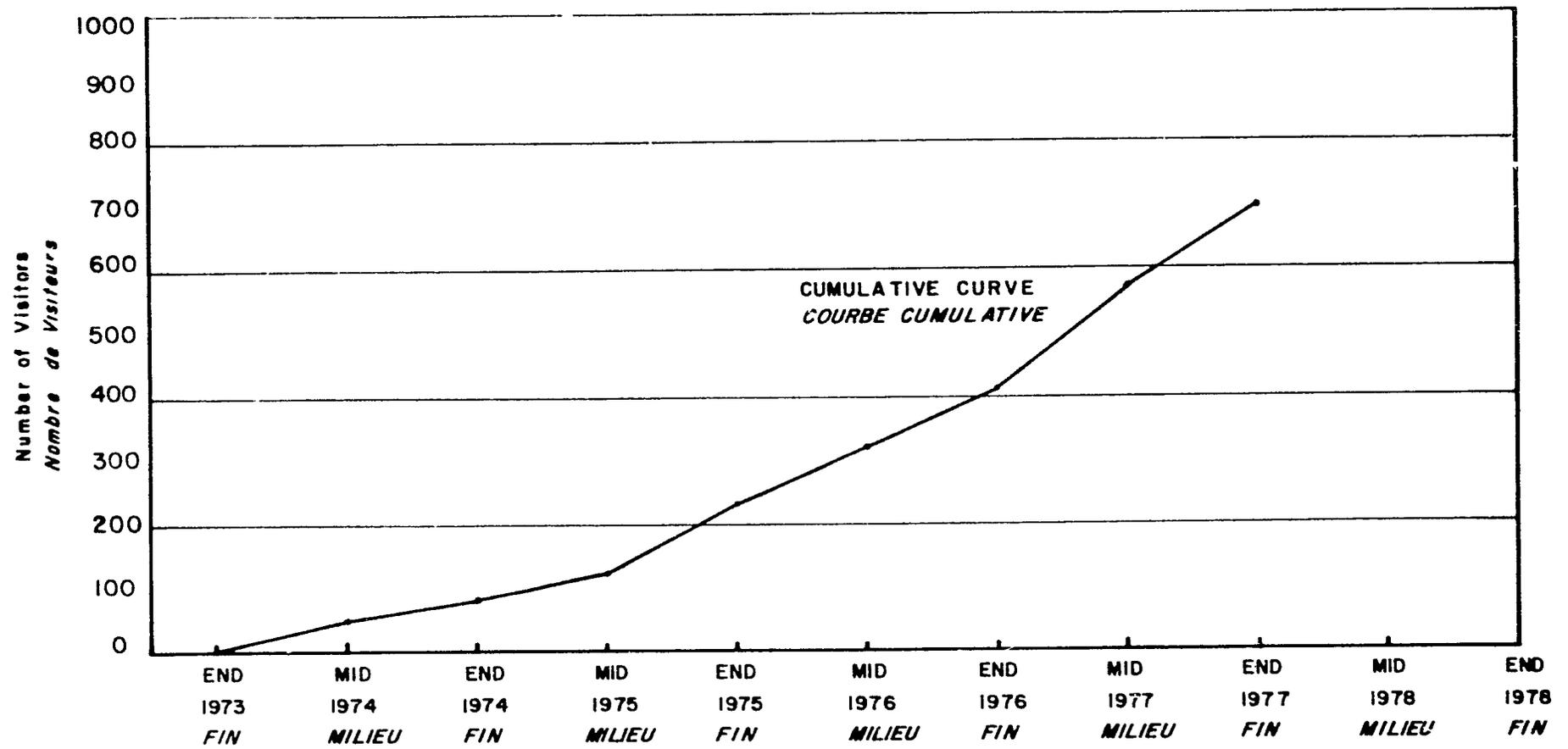


Fig 5 Increase of Visitors Using the C I E H Documentation Center
Accroissement des Visiteurs au Centre de Documentation du C I E H

be instituted, a detailed description was prepared of what should be done and could be done. Recommendations for a CIEH information dissemination program are contained in Appendix B.

More than 120 different visitors used the services of the Documentation Center during this six month period. Figure 5 shows the increase in the number of visitors since the beginning of the project.

The Documentation Center continued to support the administrative, research and planning activities of the CIEH Secretariat, the Technical Services Office, and the Planning Office respectively. In addition to the approximately 300 documents borrowed by CIEH engineers and planners during the report period, 50 different periodical titles were routed to them regularly, based on a subject-interest questionnaire

Lists of recent significant acquisitions to the Center's collection were prepared for three different issues of the CIEH Liaison Bulletin.

The CIEH List of Publications which includes all of CIEH's 165 studies was revised and printed in New York. Distribution of the List will begin in January 1978. A copy of the List is included with this report as Appendix D.

More than 1100 copies of CIEH's publications were distributed to member-states and some to Center users in Ouagadougou.

The Catalog of the Documentation Center was published by G.Y. Hall in Boston. One hundred copies of the two-volume work, which lists all CIEH acquisitions up to January 1, 1977, will be distributed free of charge by CIEH to its member-states

The two documentalists working at CIEH, Mr Krissimamba and Mr Koester, participated in the CILSS meeting on the Institute of the Sahel, held in Ouagadougou during the month of October. One of the outcomes of the meeting was a plan to create a network of documentation centers throughout the Sahel. The CIEH Documentation Center is seen as playing a crucial role in the workings of the network because of the unique character of its collection and the richness of its holdings

APPENDIX A

The CIEH Planning Office

This report is a summary of ideas and conclusions of the meeting on "CIEH Planning" held at CIEH, Ouagadougou, from October 3 to 13, 1977. The following persons participated in the meeting

M. G. Gagara - CIEH Secretary General (selected sessions)
A. Balloftet - TAMS senior water engineer
M. David - Vice Pres Development Planning and Resource Association
E. Evans - Exec Director TAMS ADG
J. Buursink - CIEH Planning Office
J. O. Robertson - CIEH Planning Office
M. A. Saint-Pé - CIEH Planning Office
R. Koester - CIEH Documentation Center (selected sessions)
A. Krissiamba - CIEH Documentation Center (selected sessions)

The main objectives of this meeting were

- 1) Evaluate planning work accomplished to date
- 2) Evaluate study proposals prepared to date
- 3) Define future project planning work at CIEH
- 4) Provide recommendations for future development of CIEH's Planning Office

In the report that follows only the last two issues are being considered.

Scope of Work for Planning Office

The scope of work in assisting CIEH in the establishment of its Planning Office calls for providing

- (a) assistance with the planning of and procurement of equipment for said office,
- (b) for the development of techniques to obtain, evaluate and synthesize documents and information for the Savanna region in order to identify gaps in information and specify proposals for further studies,
- (c) an overall Action program for the Savanna region including specific project proposals for submission to donor organizations for financing,

- (d) on-the-job and overseas training for CIEH staff, including the programming and arrangements for the Participant Training of two hydrologists, an assistant hydrologist, and a land-use specialist, to be provided by CIEH, in either the United States or Canada for approximately twelve months of service each

Institutional Elements

Items (a) and (d) in the Scope of Work essentially refer to the institutional development of a Planning Office (P.O) at CIEH.

This institutional development depends on the overall purpose of the Planning Office and the role this Office is envisaged to play in CIEH and in relation to other planning agencies in the region. Once the purpose of the Planning Office is defined, its functions, methods of operations, and technical activities can be determined and subsequently its staffing and manpower requirements as well as the specific requirements for facilities and equipment of the office

In project agreements, the purpose of CIEH's P O is briefly stated as follows "analyze regional water requirements and formulate an action program to meet them"

A more detailed definition of the purpose of CIEH's P O. and of the role which CIEH wants to assume in planning for development of the West and Central African region, however, is of fundamental importance. A decision on this issue is imperative in the development of the P O and its activities.

It is strongly recommended that CIEH (at its Ninth Council of Ministers Meeting in Lome, February 1978) define the role of the CIEH P.O in relation to the overall mission of CIEH and especially in relation to other regional agencies (OMVS, CFN, CBLT, CILSS etc.) and national ministries working in this field

It is suggested that existing liaison between CIEH and the United States Water Resources Council be strengthened in order to benefit from the experience gained by this Agency in water development planning in the United States. For ease of reference, a statement of WRC's purpose follows here

"Encourage the conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by Federal, State and local governmental entities and private entities by

1. maintaining a continuing study and preparing periodic national assessments,

2. appraising the adequacy of existing and proposed programs and policies and the means for their coordination,
3. establishing principles, standards, and procedures for Federal participation in preparation of comprehensive plans and for formulation and evaluation of Federal and federally assisted water and related land resources projects,
4. recommending improvements in institutional arrangements for achieving objectives at the national level, and at the regional, State, and local levels through commission, interagency committee, agency, and State and local governmental relationships "

In defining the role of CILH's P O consideration might also be given to the following options

Option 1. Coordination and advisory role with river basin, national and sub-national planning organizations involved with water and related development. This might be termed as a passive option

Option 2 Coordination and advisory role with river basin commissions and leadership role in planning for areas outside the basins but concentrating on surface water and groundwater development

Option 3 Coordination and advisory role with river basin commissions and leadership role in planning for areas outside basins, concentrating on water management in rainfed agriculture, surface water and groundwater.

Option 4 Option 2 - but taking active role in project implementation and monitoring

Option 5 Option 3 - but taking active role in project implementation and monitoring

Technical Elements

Items (b) and (c) in the Scope of Work essentially refer to the development of a planning method for the Savanna region. Plan implementation, which might be conceived of as a function of CILH's P O , is not called for at this stage.

Various approaches to planning can be and are used depending on institutional organization and specific needs.

From an overall management - organizational point of view, the major problem in reference to this work is more a problem of strategy than sophisticated long range planning

The need for additional food production is clear and expressed by many CIEH member-states, and emphasis is on methods to rapidly increase agricultural productivity

Obviously, a wide variety of improvements are possible including those of an institutional nature (i.e. marketing, taxes, prices, extension, etc.) and those relating to technology (i.e. crop varieties, fertilizers, mechanization, etc.) Included in this package is water. The use and role of water can range from water resource management in a rainfed context to intensive irrigation. A major constraint in implementation of irrigated agriculture is that many Savanna farmers now use traditional methods and do not understand intensive irrigated agriculture. Given the large area of relatively high rainfall, the strategy to have rainfed agriculture play a very important role in meeting West Africa's food needs seems indicated.

However, if this is adopted as a primary strategy, water resource management is only one possible element. This raises the issue as to whether CIEH should focus only on water management. If so, how does CIEH integrate its activities with other development and research agencies in the Savanna? Or does CIEH assume leadership in overall development of rainfed agriculture?

Another aspect is that the strategy itself needs to be defined. A strategy could be adopted as follows:

- a. Near term -
 - 1) Implementation of rainfed agriculture and small irrigation projects, i.e. flood recession, small ponds, low lift pumps, possibly groundwater. (risk of damage to the overall water resource is minimal with small scale projects)
 - 2) Continue needed studies for river basin development.
- b. Intermediate term -
 - Implementation of bigger projects, feasibility studies for large scale projects
- c. Long term -
 - Implementation of large scale projects.

A document like the "Proposal for a Long Term Comprehensive Development Program for the Sahel" by AID would seem to be a reasonable model. How-

ever, this ought to be CIEH's view, reflecting their desires, objectives, views, etc.

It is felt that the development strategy issue needs to be resolved before CIEH's P O can produce reasonable and meaningful proposals (PID's)

Two other issues are relevant here (1) planning method and (2) planning data.

(1) It is recommended that CIEH planning be multidisciplinary, that is, the use of a number of relevant specialities in a coordinated integrated effort. The other approach is strictly water oriented, a compartmentalized (subject) approach without concerns of the interactions with other specialities. This issue represents an important decision point - both to TAMS in carrying out its work and to CIEH in formulating its role in general and water resource development in the Savanna

(2) Particularly in the agricultural and livestock sectors, there appears to be a significant lack of basic planning data on such issues as varieties, fertilizers, cultural practices, crop adaptation, etc. Much of this information can only be developed through an extensive agricultural research program. The actual execution of these activities is beyond the scope of the Planning Office although certainly, some kind of interface is required.

It is clear that this kind of research is needed. A basic issue is whether or not this sort of research be done at CIEH. If it cannot, it seems that CIEH ought to take the leadership in developing multidisciplinary research projects. Perhaps a research council involving CIEH, research stations and other planning and development agencies could be set up to implement, direct and design the research needed to develop planning data and information.

In light of the above underrlined situation with regard to strategy, it is tentatively proposed to proceed with a three-level planning approach for the Savanna region. The three levels are

- 1 - Savanna resource assessment, a comprehensive analysis and evaluation of information available at CIEH of the savanna water resources (climate, surface and groundwater) and related land and human resources
- 2 - existing and planned savanna resource development, a compilation of information on existing land and water use in the savanna region and of major project plans
- 3 - savanna water needs assessment,
 - (a) an initial general appraisal of overall needs for water

related goods and services based on compatible projections of population and economic activity for the savanna region (or by subregions)

(b) a continuing set of projections updated as new information becomes available and circumstances change

(c) periodic reporting of results to provide input to CIEH and other planning operations

Study Proposals

In proceeding with the foregoing planning tasks, gaps in information will be identified and proposals developed for studies to eliminate such gaps.

Project Proposals

The merging of the savanna resource base, its existing utilization, and water needs will provide the possibility to identify suitable capital projects. Such projects would

- develop water resources in a way not permanently detrimental to man and his environment
- be implementable in terms of size and complexity
- provide a base for further development of water and land resources

In considering capital projects, existing projects and their stage of development with reference to financing and construction should be taken into account. Certainly, all reasonable near-term projects need to be pushed forward as quickly as possible. Action is important if CIEH is to gain additional credibility.

CIEH projects ought to fit with proposals already made by IAC, the UN, IBRD, and AID, etc. Policy statements could be made by CIEH supporting or giving priorities to these projects for use with donor agencies and member countries.

Guidelines and Manuals

It is recommended to develop guidelines and manuals based on experience gained in developing savanna project proposals (PID's), which are generally applicable and can be used by CIEH's F.O. in the future. Some selected PID's could be included in planning manuals as case studies on how to carry out various elements of planning.

In preparing guidelines for development of PID's, consideration will be given to

1. existing recommendations
2. actual merging of resource base and needs and ideas
3. ideas - common sense
4. financial limits on projects - lower and upper
5. within scope of CIEH
6. immediate requirements
7. provision of a foundation for future development
8. compatibility with ability to implement - Government and other beneficiaries
9. PID guidelines from AID
10. use of standard factors for manmonths costs (expert, local), travel support, overseas costs.

APPENDIX B

Recommendations for an Information Dissemination

System at CIEH

The CIEH Constitution states that the overall objective of the organization "is to ensure that there is liaison between the participating states in the fields of hydraulic studies, with a view to facilitating exchanges of information, harmonising study programmes of regional importance, effecting joint studies and providing technical assistance to those states who request it for their own study programmes " It further states, " .The Committee can prepare and submit to the participating governments plans for coordination and carrying out of research, studies and field-work "

It is evident that CIEH, like all research, research-coordinating, and planning organizations is vitally dependent upon information whether in the form of basic data, published studies, or written reports To ensure the fulfillment of its objectives, CIEH, with the assistance of the French and American governments, created its Documentation Center in 1974

The purpose of the Documentation Center is to act as central agent for disseminating water information in West and Central Africa

The specific objectives of the Documentation Center are

- to provide broad information support for the CIEH Secretariat to enable it to carry out its administrative and liaison missions,
- to provide information services for the CIEH Technical Office which carries out the CIEH research program, and provides technical assistance to member states,
- to provide a documentary base and information services for the ongoing work of the CIEH Planning Office, currently engaged in developing a master plan for "Savanna Regional Water Resources and Land Use",
- to provide information services to member states, and to regional and international research, educational, and development organizations such as CILSS, OMVS, CFN, EIER and WARDA, as well as for development assistance agencies like USAID, FAC, UNDP, FAO, WHO, and WMO

Since its creation, the CIEH Documentation Center has developed and implemented systems for the acquisition of documentary materials, the organization of its document collections, and for their cataloguing and geographic indexing

Information Dissemination

Additionally, basic information dissemination services have been developed and implemented which partially meet the specific objectives above. These services are the following

1. Reference Service - in person and by correspondence - both substantive and bibliographic inquiries.
2. Circulation Service - circulation of documents to CIEH Secretariat, Technical Services Office, and Planning Office staff, and to others in Ouagadougou.
3. Reprographic Service
 - 3.1 photocopies of documents
 - 3.2 reproduction of maps and charts
 - 3.3 photocopies from microfiche and microfilm
4. Reader's Advisory Service - assistance, orientation, and instruction of Documentation Center users (readers) in accessing information, involves use of catalog and geographic index, reference tools, microfiche reader/printer, and location of documents.
5. Dissemination of CIEH Publications to member states and others
 - 5.1 CIEH Liaison Bulletin
 - 5.2 CIEH Research Publications

All of these services are important and should be maintained in helping CIEH fulfill its objectives. They are, however, only a rudimentary beginning towards a modern information dissemination system.

Other information services provided by the Documentation Center need to be developed and expanded further. These include

6. Current awareness Service - Selective Dissemination of Information (SDI)
 - 6.1 Regular routing of selected periodicals to CIEH staff based on questionnaire profile (current)
 - 6.2 SDI for CIEH staff and member state research personnel based on subject profile, SDI would be in the form of bibliographic citation, photocopy, or microfiche (see 8 below) (should be developed and implemented in future).
7. Publications Service - Preparation of Documentation Center Publications
 - 7.1 Publications now in print
 - 7.1.1 CIEH Catalog of the Documentation Center. 2v. Boston, G & H Hall, 1977
 - 7.1.2 CIEH List of Publications Ouagadougou, CIEH, 1976. Rev. ed. 1978.

- 7.1.3 Quarterly "List of Recent Acquisitions" (included in CIEH Liaison bulletin).
- 7.2 Publications to be prepared in future
 - 7.2.1 Revised editions of CIEH hydrological and hydrogeological bibliographies of Member States
 - 7.2.2 Bibliography of Hydrological Yearbooks
 - 7.2.3 Bibliography of Maps in the CILH Documentation Center
 - 7.2.4 Bibliographies of Subjects of significant interest, e.g. alternative energy sources as means of water extraction, water resources planning, remote sensing, irrigation, climatology
 - 7.2.5 Revision and translation into French of Handbook of Scientific and Technical Documentation. (This would be a joint CIEH/Univ. of Arizona Office of Arid Lands Studies Publication)
 - 7.2.6 CIEH Bibliographic Bulletin, or a bibliographic section in the CIEH Liaison Bulletin. This publication would alert readers of recent publications and signal their availability in microfiche form (see 8.2 below).

Notwithstanding the above, a number of vital information services should (need to) be developed, implemented, and maintained to enable CIEH to carry out its mission fully. Without the provision of the following active information dissemination services, CIEH risks losing its grasp on its essential role as information liaison and coordinator of water resources research and planning in West and Central Africa. It should be stressed that CIEH should seek to strengthen this information liaison and coordination role, especially in view of the dependence placed upon it by its Sahelian member states and by CILSS.

8 Document Delivery Services

- 8.1 Mini-libraries of documents in microfiche form basic to water resources and land use should be sent to key government departments and research organizations in each member state (along with portable microfiche readers - see 9 below)
- 8.2 Documents highlighted in a (new) Bibliographic Bulletin or the Liaison Bulletin (see 7.2.6 above) should be made available in microfiche form for delivery to member states and others on request

- 8.3 Documents should be microfiched and copies made available on demand (subject to copyright and other restrictions)

It cannot be emphasized strongly enough that this Document Delivery Service involving microfiching and rapid dispatch of fiche copies throughout West and Central Africa is the keystone of an effective information dissemination service.

9. Equipment Service. Portable, inexpensive, maintenance - free microfiche readers should be provided to key government departments in member countries.
10. Microfiching Service. The microfiching of unique water resources document collections in member states using portable microfiche cameras should be undertaken. This service is essential in order to (a) ensure the preservation of these documents, many of which are in a perilous state of disintegration due to the extremes of West and Central African climates, and (b) assure that these valuable information sources can be made widely available to other member states and regional organizations through the compact and economic form of microfiche.
11. Automated Bibliographic Data Base Service.
The Documentation Center should serve as a clearinghouse or information broker for CIEH and member state engineers and planners, offering on-demand bibliographic searches from the more than 60 on-line bibliographic data base services now commercially available. On-line access to these data bases via communications satellite should be investigated.
12. Educational and Instructional Services.
CIEH documentalists have a responsibility to inform and instruct Documentation Center users (whether locally in Ouagadougou or in member states) in the availability and use of the information formats and equipment available to them. They further should promote the acquisition and use of these products in member states by conducting in-country and regional workshops and seminars.
13. Special Services. CIEH documentalists currently offer (and should continue to offer) the following special services
- 13.1 In-service documentation training for students and professional documentalists from or working in member states
 - 13.2 Consultation service in documentation for member states and African regional organizations.
 - 13.3 Bibliographic consultation for editors and authors of CIEH publications

APPENDIX C

Training Results of Francis B. Paré

MINISTÈRE DE L'ÉQUIPEMENT
INSTITUT GÉOGRAPHIQUE NATIONAL
ÉCOLE NATIONALE DES SCIENCES GÉOGRAPHIQUES
2, avenue Pasteur - 94160 SAINT MANDÉ FRANCE

ATTESTATION

Le Directeur de l'École Nationale des Sciences Géographiques

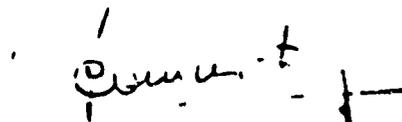
atteste que Monsieur PARE BOUREMA Francis

a suivi du 13 au 24 juin 1977

le stage de perfectionnement en cartographie

A Saint Mandé, le 20 juin 1977

p.o le directeur adjoint



J. Commiot
ingénieur en chef géographe

MINISTÈRE DE L'ÉQUIPEMENT
INSTITUT GÉOGRAPHIQUE NATIONAL
ÉCOLE NATIONALE DES SCIENCES GÉOGRAPHIQUES
2 rue Paric 9410 SAINT MANDÉ FRANCE

ATTESTATION

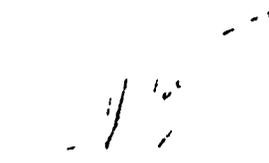
Le Directeur de l'École Nationale des Sciences Géographiques

atteste que Monsieur PARE Bojreima Francis

a suivi du 1^{er} juillet 1977 au 22 juillet 1977

un stage d'initiation au travail sur terrain

A Saint Mandé le 18 juillet 1977


R. d'Hollander
Ingénieur général géographe

APPENDIX D

CIEH List of Publications