

ORGANIZATION OF  
AFRICAN UNITY  
Secretariat  
P. O. Box 3243

منظمة الوحدة الأفريقية  
السكرتاريات  
ب. ص. ٣٢٤٣

ORGANIZATION DE L'UNITE  
AFRICAINNE  
Secretariat  
B. P. 3243

Addis Ababa - أديس أبابا

COUNCIL OF MINISTERS  
Fortieth Ordinary Session  
Addis Ababa -- Ethiopia  
27 February - 7 March 1984

CM/1242 (XL)  
ORIGINAL: FRENCH

REPORT OF THE SECOND MEETING OF EXPERTS ON THE OAU  
PROJECT ON INTERNATIONAL HYDROGEOLOGICAL MAP OF AFRICA



CM-1242

MICROFICHE

In implementation of Resolution CM/Rés.702 (XXXII) adopted by the 32nd Ordinary Session of the OAU Council of Ministers meeting in Nairobi, Republic of Kenya, from 23 February to 4 March 1978 and of Resolution No.4 of the 3rd Council of the African Association of Cartography, accepting co-ordination of the OAU International Hydrogeological Map of Africa project, the second meeting of experts on that project was held in Dakar (Senegal) from 5 to 11 December 1983 at the Palais des Congres at the Trade Fair Site.

I. Present at the meeting:

In attendance were senior cartographers and hydrogeologists from 22 African countries, namely: Algeria, Benin, Cameroon, Congo, Egypt, Ethiopia, Gabon, Gambia, Ghana, Upper Volta, Kenya, Libya, Madagascar, Mali, Mauritania, Niger, Nigeria, Central African Republic, Rwanda, Senegal, Togo, Tunisia.

African and International Organizations represented at that second meeting were:

- United Nations Economic Commission for Africa (ECA)
- African Remote-sensing Council (ARC)
- Inter-African Committee on Hydrological Studies
- United Nations Institute for Development and Economic Planning (IDEP)
- Regional Training Centre for ariel mapping (RECTAS)
- The United Nations: Department of Co-operation
- FAO
- International Association of Cartography (IAC)
- Arab Centre for the Studies of Arid Zones and Dry Lands (ACSAD)
- International Hydrogeological Association (IHA)  
(International Hydrogeological Maps Commission)
- Canadian International Research and Development Centre (CRDI)

Invited countries which participated were:

- Canada, China, Spain, Japan, Italy, France (BRGM and IGM, (Associate member of AAC) Poland (Geokart, associate member of AAC) and Yugoslavia, Germany, Great Britain and Switzerland were represented by specialized companies dealing with cartography in general.

II. Opening of the meeting:

The meeting was opened on Monday 5 December 1983 at 10:00 a.m. by H.E. the Minister of Water Resources of the Republic of Senegal

### III. Plenary Session and Election of Members of Commissions

The plenary sittings which were chaired by the President of AAC dealt with:

- consideration and adoption of the Agenda.
- report of the AAC Secretary-General on the OAU Project on the hydrogeological map of Africa (Annex II)
- presentation of national reports and papers by associate members, regional and international organizations, countries and personalities invited. All these interventions dwelt in particular on the international hydrogeological map of Africa and on a systematic approach to the preparation of a hydrogeological map and water resources.

All the African States present unanimously and unreservedly accepted that project and declared their preparedness to ensure the successful accomplishment of that gigantic task. Working groups had already been set up in several African countries to that effect.

The International Organizations and countries invited were prepared to give their support.

#### Establishment of Commissions:

Two commissions were established to consider the various aspects of that important project:

#### Commission I:

Chairman: Mr. Halima Mansour Algeria

Rapporteur: Mr. Barry Samba Senegal

#### Matters discussed:

- objectives and scales
- basic data
- data collection
- cartographic representation (legend)

#### Commission II:

Chairman: Mr. Bazie Pierre Emile Upper Volta

Rapporteur: Mr. Kedjar Aboubakar Algeria

Matters dealt with:

- draft plans
- follow-up structure and implementation of the project
- method of evaluation
- co-operation with international organizations and bodies.

Furthermore, the participants agreed to the following organizations of work:

Morning: 9:00 a.m. to 12:30 p.m.

Afternoon: 3:00 p.m. to 6:30 p.m.

The following is a summary of the programme:

Monday 5 December 1983	:	Plenary
Tuesday 6 December 1983	:	Plenary and Commission I
Wednesday 7 December 1983	:	Commission I and Commission II
Thursday 8 December 1983	:	Meeting of hydrogeologists only and preparation of reports of commissions I and II.
	:	Meeting of AAC's Commissions III and IV
Friday 9 December 1983	:	Consideration, amendment and adoption of reports and resolutions of commissions I and II 18:30 p.m. closing of the technical session of the AAC and of the 2nd meeting of experts on the OAU Project on International Hydrogeological Map of Africa.
Saturday 10 December 1983	:	Technical visit and excursion
Sunday 11 December 1983	:	Administrative Session of AAC

The outcome of the deliberations of Commissions I and II on the OAU Project are contained in the following reports:

These reports, are the outcome of in-depth debates on various aspects of the project, were prepared on the basis of:

- AAC documents circulated since March 1983 to all African countries in agreement with OAU;
- specific experiments both at the national and international levels;
- excellent national reports presented to the meeting reflecting not only the will of countries to contribute to the project but also analysing the main issues raised and proposing methods for its implementation;

- papers by international organizations and similar bodies, especially the Arab League project directed by ACSAD for all the Arab African countries;
- various interventions made during the meeting;
- OAU Recommendations, especially Resolutions CM/Res.450 (XXV) and CM/Res.702 (XXXII);
- a detailed study and a better understanding of the fundamental objective laid down by OAU for that project;

Three important dates were fixed

- End of March 1984 - Presentation of comprehensive documentation on the OAU project, after approval by an Ad-Hoc Commission.
- End of 1984 - Launching of the project and beginning of data collection.
- End of 1985 - Beginning of implementation of the project, with the publication of papers, if possible, during the Cartographic Year in Africa in 1986; a date officially declared by the ECA Council of Ministers and which would be adopted by the OAU Council of Ministers.

The AAC Council and the second meeting of experts requested OAU to present the outcome of their deliberations to the next session of the Council of Ministers in order to work out all practical modalities as well as the requisite financial means for the extremely urgent implementation of the project.

REPORT OF COMMISSION I

1.3. After reviewing the principles established for similar projects by other bodies and International Organizations and following discussions on what would be best for the project, the 2nd meeting of experts agreed to the principle of a unique scale as being the most suitable for cartographic work of a continental dimension.

## II. Basic data:

II.1. In order to harmonize all hydrogeological data to be plotted, the Commission drew up a list of substantive information to be gathered:

These are:

- data on the nature of soils (lithology, permeability, porosity) and its characteristics with regard to water;
- data on the structure and geometry of aquifers;
- data on the conditions of the limits of main aquifers;
- hydrodynamic data on aquifers;
- physio-chemical data on waters;

II.2. The collection of data available on the national level would be undertaken by National Correspondents.

All existing data other than national, would be collected by the AAC General Secretariat.

II.3. All data would first be processed by the follow-up and co-ordination unit of the AAC before being communicated to the national bodies responsible for the implementation of the project at Member States level.

## III. Data Collection:

### III.1. National level

At this stage, the Commission noted the awareness of all African States of the need for co-operation and their commitment to send to the AAC General Secretariat, all hydrological, hydrogeological and climatological data available to them.

### III.2. At sub-regional and international level

The Commission proposed to the 4th Council of the AAC to mandate its Secretary-General to collect these data.

## IV. Cartographic representation (legend)

The 2nd meeting of experts, noting that the General-Secretariat of the AAC had specimen of various cartographic legends already used for similar projects, considered the advisability for the AAC technical co-ordination and follow-up unit to draw from these legends in working out appropriate specifications for the project.

COMMITTEE II REPORT:

In compliance with the decision of the Second Experts Meeting on the OAU sponsored project of the International Hydrogeological Maps of Africa, held alongside the 4th Session of the AAC Council, Committee II met on 7 December 1983 to consider the following agenda items:-

- the draft operational plans;
- the project follow-up and implementation plan;
- draft estimates;
- co-operation with national and international organizations and institutions.

These agenda items were fruitfully discussed at the Plenary Session and in view of the close inter-relationship between the activities to be undertaken, the members unanimously accepted the 4 monographs submitted by the AAC Secretary-General indicating the right approaches to be followed the amendments adopted are contained in the relevant documents which were subsequently submitted to the Experts Meeting for approval.

Committee II made improved modifications to the Organizational Chart so that the operational plans might be brought into line with the following documents:

- Table 1 : Overall implementation approach;
- Table 2 : General Project Lay-out;
- Table 3 : General Organizational Chart of the parties involved;
- Table 4 : Sequence of General Technical Operations;

1. The operational plan for the implementation of the project of the International Hydrogeological Map of Africa (FCHIA) comprises:

1. An overall implementation approach (See table 1 attached hereto) including:-

- \* the first phase involving the preparation of the relevant documents of the project for submission to the OAU.

The documents should detail out and specify:

- the contents and technical specifications of each project component;
- the necessary facilities, including costing and scheduling of the programme implementation.

The AAC shall draw up those documents:

- in compliance with the recommendations of the current meeting of Experts;



- by drawing exhaustively upon the data and view points on the project contained in the country reports submitted by OAU Member States in so far as these reports do not contradict the recommendations referred to above;
- with reference to the views and correspondence from regional and international Organizations, National institutions and invited experts in so far as they are in conformity with the said recommendations.

- \* The second phase of the programme involves the preparation of technical documents needed for the implementation and setting up of the relevant structures.
- \* The third phase is the actual implementation of the three aspects of the programme, namely: data collection, processing and drawing of the map.

2. A General project layout: (See table 2 attached hereto) which besides the establishment of a computerized system of data collection and processing and the preparation of the necessary topographical bases the making of the inventory maps for the first phase and those of the water and hydrogeological resources maps for the second and third phases.

3. A General Organizational Chart of the Institutions Involved (see table 3 attached hereto) which sets out the relations between the national bodies and operators within OAU Member States, their national correspondents, the regional and international organizations, OAU, AAC and the internal project co-ordination and follow-up unit.

4. Sequence of General Technical Operations (vide table 4 attached) which lays down the mode of operation of the mapping, geological and hydrogeological activities.

## II. Financial Resources for the Project preparation and launching

### 1. Preparation of the documents to be submitted to the OAU before the end of March 1984

- Staff costs US\$17,000;
- Supplies and Services
- Expenditure to be incurred by the Committee which is to approve the documents;  
(per diem and transport) US\$10,000
- TOTAL US\$27,000

### 2. Preparatory phase set out in the second phase of the programme (to be completed before the end of 1984)

- Staff costs US\$45,000.00 (2nd half 1984)
- Cost of supplies of services US\$25,000.00 (2nd half of 1984)
- TOTAL US\$70,000.00

3. Launching phase of the work to be done during 1985

- Staff costs	US\$ 90,000.00
- Supplies and Services	<u>US\$ 60,000.00</u>
TOTAL	<u>US\$150,000.00</u>

III. Recommendations

The second experts meeting:-

Recommends further that Member States take immediate steps to include the International Hydrogeological Map Project for Africa in the activity programmes of their national institutions;

Requests the OAU Administrative Secretary-General to make all the arrangements needed to place the programme on the agenda of the forthcoming session of the OAU Council of Ministers so that it may be considered and relevant decisions taken and ensure that the necessary funds are made available for its implementation by the AAC.

TABLE 1 : OVERALL IMPLEMENTATION APPROACH

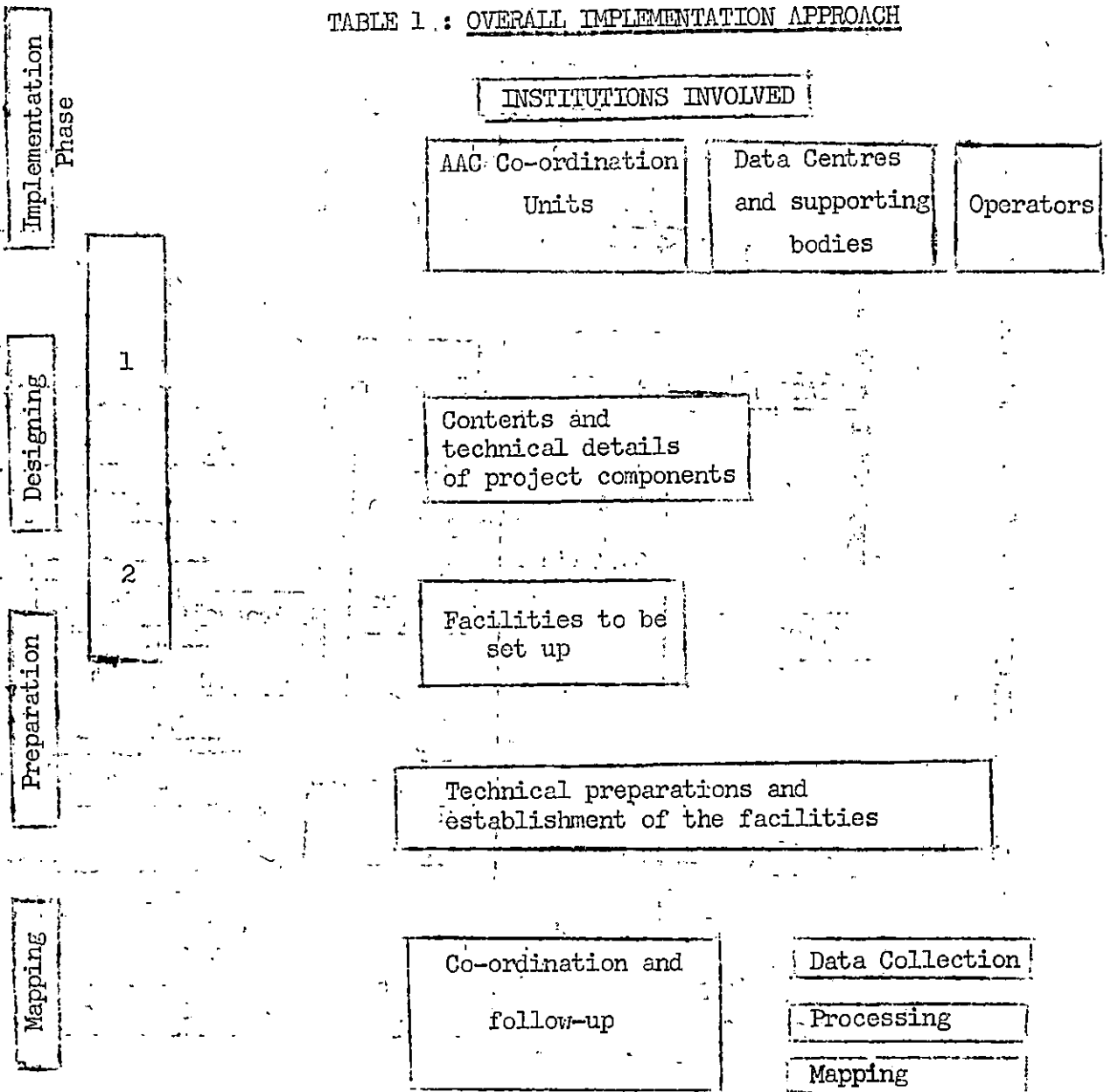


TABLE 2. GENERAL PROJECT LAYOUT

PROJECT OF INTERNATIONAL HYDROGEOLOGICAL MAP OF AFRICA

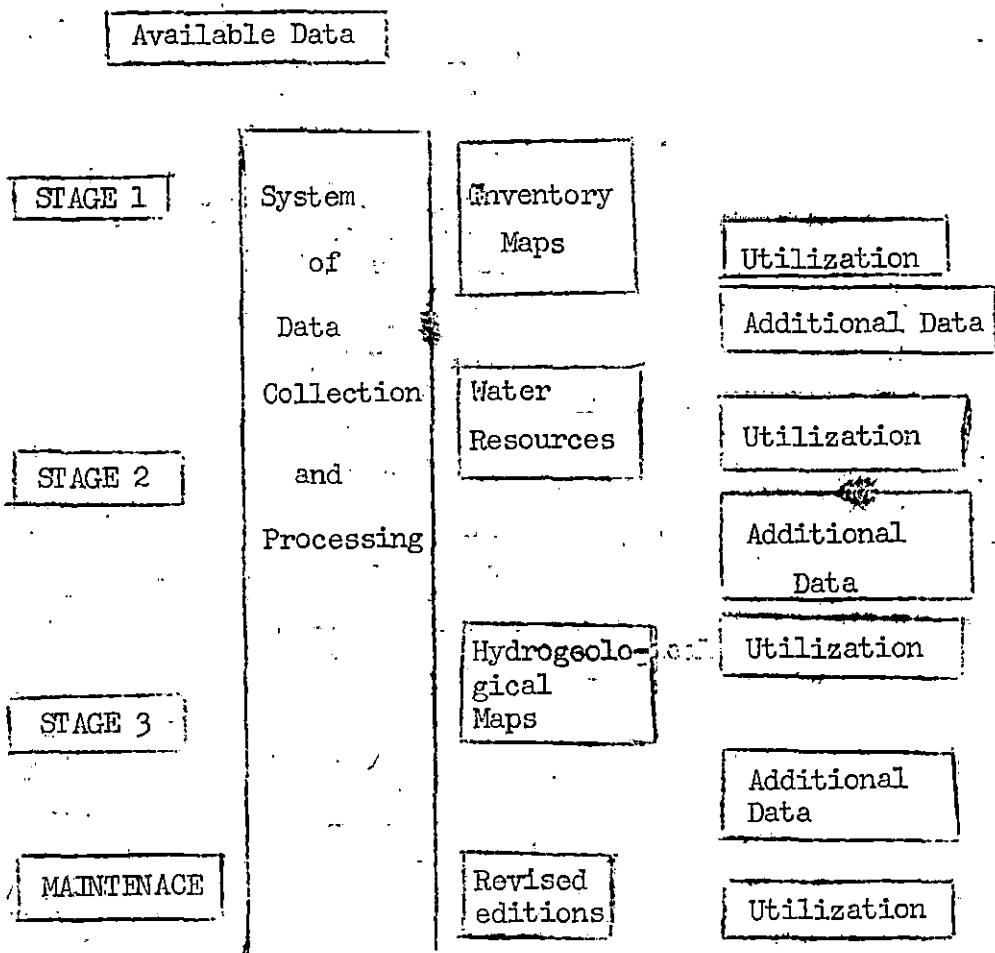


TABLE 4: GENERAL TECHNICAL OPERATIONS

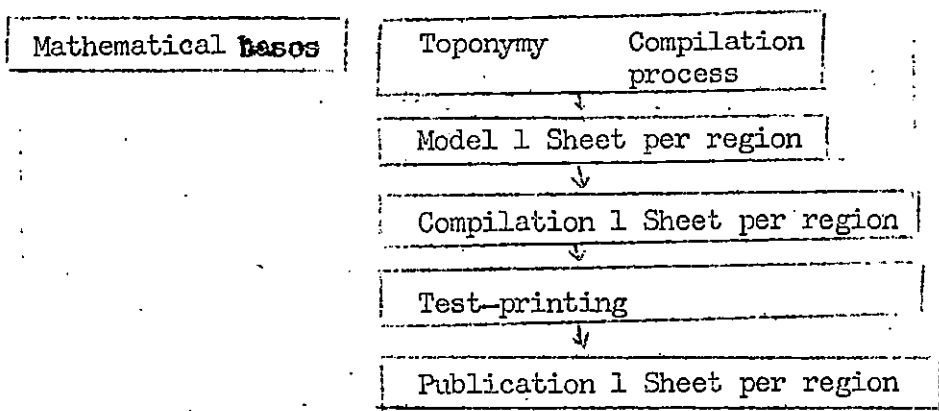
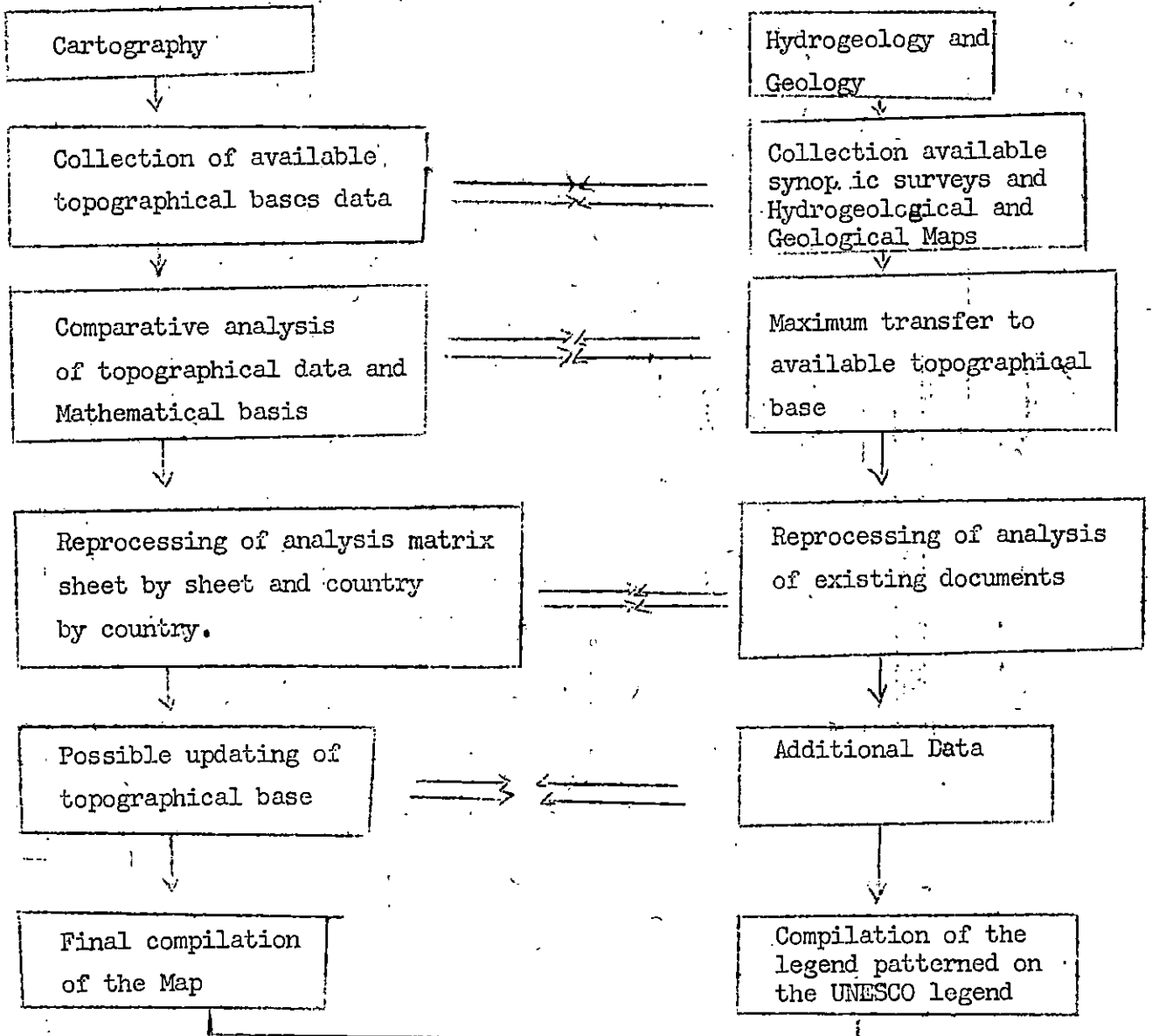
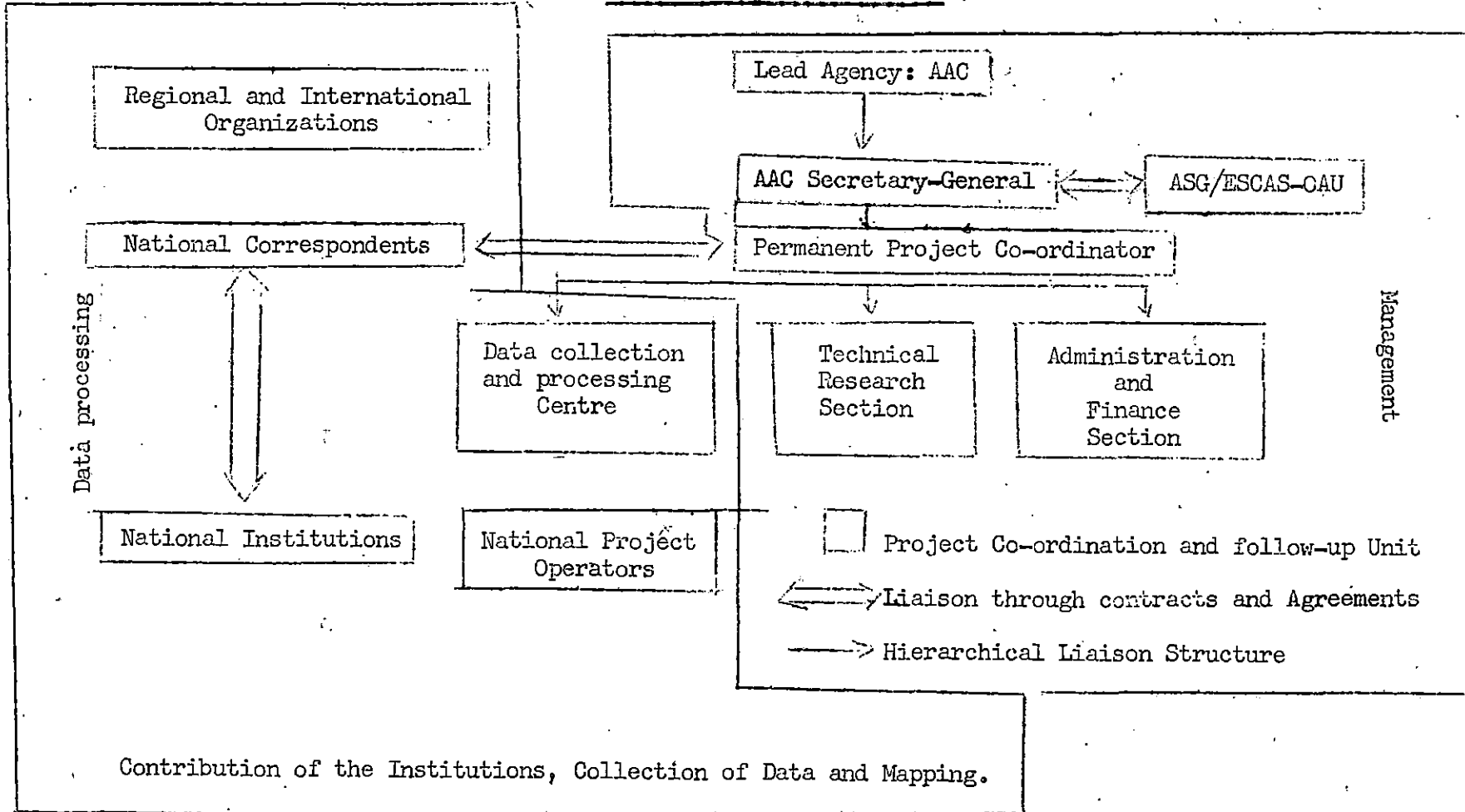


TABLE 3: GENERAL ORGANIZATIONAL CHART OF  
THE INSTITUTIONS INVOLVED



RESOLUTION 1ON THE PERMANENT PROGRAMME CO-ORDINATOR OF THE  
INTERNATIONAL HYDROGEOLOGICAL MAPPING PROJECT FOR AFRICA

## THE SECOND MEETING OF EXPERTS,

Bearing in mind the guidelines of the Lagos Plan of Action for the economic development of Africa adopted by the Heads of State and Government in April 1980,

Recalling the provisions of OAU Council of Ministers resolutions 336 (XXIII) and 450 (XXV) on the immediate and decisive actions to be taken in order to promote a better knowledge and utilization of the continent's resources within the framework of a continental strategy for drought control,

Considering the decisions of OAU resolution CM/Res.702 (XXXII) and resolution 3 of the 3rd AAC Council meeting, alongside with the recommendations of the 2nd meeting of experts on the co-ordination and follow-up programme unit to be set up within AAC:

1. RECOMMENDS the recruitment by the Secretary-General of AAC of a permanent co-ordinator as part of the implementation of the international hydrogeological mapping project for Africa;
2. CALLS ON the Secretary-General of AAC in co-operation with the OAU Administrative Secretary-General to do everything possible to ensure a wide circulation among all OAU Member States of the required profile attached hereto for the post of permanent programme co-ordinator;
3. REQUESTS all OAU Member States to prepare one or several highly experienced candidates for the post of permanent programme co-ordinator of the international hydrogeological mapping project for Africa

## ANNEX OF RESOLUTION 1

CIRCULAR ON THE JOB DESCRIPTION FOR THE POST  
OF PERMANENT PROGRAMME CO-ORDINATOR OF THE  
INTERNATIONAL HYDROGEOLOGICAL MAPPING PROJECT FOR AFRICA

The General Secretariat of the African Association of Cartographers hereby informs all the members of the terms and conditions of service for the post of permanent programme co-ordinators of the international hydrogeological mapping project for Africa.

DEFINITIONS1. Title of the Post

Permanent Programme Co-ordinator of the International Hydrogeological Mapping Project for Africa

2. Duty Station: AAC Headquarters, Algiers3. Duties

The Permanent Co-ordinator shall be answerable to the Secretary-General of AAC and shall perform the following duties:

He shall:

- a) be in charge of the co-ordination and follow-up of the project;
- b) prepare the technical specifications of the project;
- c) monitor the implementation of the project;
- d) contribute to the collection of data;
- e) at the request of AAC Member States he shall prepare co-operation agreements on data collection and the development of national cartographical and hydrogeological services;
- f) ensure, under the supervision of the Secretary-General of AAC, the administrative and financial management of the funds available for the execution of the project;
- g) perform any other duties as may be assigned to him by the Secretary-General of AAC within the framework of the international hydrogeological mapping project for Africa;
- h) prepare the working documents of the various meetings concerning the programme.

4. Qualification and Experience Requireda) Education

Candidate must hold a BSC degree in hydrogeological engineering or its equivalent.



b) Experience

- Minimum of five (5) years experience in the above mentioned field.
- Experience in inter-state relations in the same field is an advantage.
- Proficiency in at least one of the working languages of AAC (French, Arabic or English) and some practical knowledge of another.
- Nationality

Candidate must have the consent of his Government before taking up the post.

5. Age

Candidate must be at least 30 years of age and at most 55.

6. Conditions of Service and Remuneration (salary and allowances)

a) Salary

According to AAC scale as specified in the staff rules.

\*Grade: HF2 or HF1 depending on the qualification and experience of the candidate selected.

\*Basic Salary: According to grade (Step 13 to 15).

b) Allowance and other Entitlements

As specified in AAA existing staff rules.

- Entertainment allowance: US \$415 to 505 a month according to grade.
- Acting allowance: US \$245 a month.

- Transport

AAC shall provide transport to the experts from their place of work to their residence. In case this is not possible they shall be paid a lump sum transport allowance of US \$135 a month or its equivalent.

- Dependency Allowance

Dependency allowance shall be paid according to the existing rules in Algeria.

Travel Allowance for a period exceeding 12 hours

\*If travel is undertaken inside Algeria: US \$60 a day

If travel is undertaken outside Algeria: US \$90 a day

- Housing

Free accommodation shall be provided to the experts and senior technicians.

c) Diplomatic Immunities

As defined in AAC Headquarters agreement.

d) Appointment and Promotion

The appointed staff shall serve a probationary period of one (1) year.

He shall be tacitly confirmed on the post if no decision is taken against him at the end of the probationary period.

7. Period of Appointment

The period of appointment shall be decided by the AAC Executive Committee.

8. Date of Advertisement

The post shall be advertized in March 1984.

9. Dateline for the Submission of Application

Applications must be submitted three (3) calender months from the date the post is advertized.

10. Submission of Applications

Applications should be sent under registered cover to the:

Secrétaire Général de l'Association Africaine de  
Cartographie

B P 69

HUSSEIN DEY

ALGER, ALGERIE

TELEX: 52635DZ

11. Selection

The AAC Executive Committee shall select the candidate within a maximum period of two months following the deadline for the submission of applications.

## RESOLUTION 2

ON THE HUMAN AND MATERIAL RESOURCES OF THE  
GENERAL SECRETARIAT OF AAC WITHIN  
THE FRAMEWORK OF THE INTERNATIONAL  
HYDROGEOLOGICAL MAPPING PROJECT FOR AFRICA  
THE SECOND MEETING OF EXPERTS

Bearing in mind the guidelines of the Lagos Plan of Action for the economic development of Africa adopted by the Heads of State and Government in April 1980,

Recalling the provisions of OAU Council of Ministers resolutions 336 (XXIII) and 450 (XXV) on the immediate and decisive actions to be taken in order to promote a better knowledge and utilization of the continent's resources within the framework of a continental strategy for drought control,

Considering the decision of OAU resolution CM/Res.702 (XXXII) and resolution 4 of the 3rd AAC Council meeting, alongside with the recommendations of Commissions I and II on the international hydrogeological mapping project for Africa:

CALLS ON the 4th Session of AAC Council to take all the necessary measures to ensure:

- the preparation of the document to be submitted to OAU within two months by a 3-member committee;
- the implementation of the preliminary phase and the launching of the final phase of the project during the transitional period.

The preliminary phase as defined in the second phase of the programme should be completed before the end of 1985 with a total strength of 5 persons; there will be a publication within the framework of the programme to coincide with activities marking the cartography year in Africa in 1986.

REQUESTS the national bodies to facilitate the recruitment of the staff needed by seconding the whole or part of this staff for a period of two months without salary;

FURTHER CALLS ON the 4th Session of AAC Council meeting to take all the necessary measures to ensure the travel and stay at the AAC Headquarters of the members of the commission charged to approve the document before it is submitted to the OAU.

This Commission to be led by the second Vice-President of AAC (Ethiopia) shall be composed of the members of the Bureau of Commissions I and II of the current meeting, namely: Algeria, Upper Volta and Senegal. The duration of the mission assigned to this Commission shall be three (3) days, travel not included.

RECOMMENDS that OAU and the 4th Session of the Council organize a 3rd meeting of experts to be held concurrently with the 5th Session of the AAC Council to examine the progress made with regard to the implementation of the project and propose new actions to be undertaken to ensure the continuation of the programme.

### RESOLUTION 3

#### ON DATA COLLECTION AND PARTICIPATION IN THE IMPLEMENTATION OF THE INTERNATIONAL HYDROGEOLOGICAL MAPPING PROJECT FOR AFRICA

##### THE SECOND MEETING OF EXPERTS

Bearing in mind the guidelines of the Lagos Plan of Action for the economic development of Africa adopted by the Heads of State and Government in April 1980,

Recalling the provisions of OAU Council of Ministers resolutions 336 (XXIII) and 450 (XXV) on the immediate and decisive measures to be taken in order to promote a better knowledge and utilization of the continent's resources within the framework of a continental strategy for drought control,

Considering the decisions of OAU resolution CM/Res.702 (XXXII) and resolution 4 of the 3rd Session of AAC Council alongside with the comments made by the 2nd meeting of experts during the presentation of the national reports and the proceedings of Commission I with regard to the availability of the data needed to implement the international hydrogeological mapping project for Africa

RECOMMENDS to the OAU Member States the setting up in their respective countries of a working group led by a duly appointed national correspondent.

The working group shall work within the framework of the recommendations of this meeting with regard to the preparation and collection of the basic data.

The national correspondent shall forward as early as possible, the data to AAC Co-ordination and follow-up Unit.

CALLS ON the Secretary-General of AAC and the permanent programme co-ordinator after the latter has taken up his post to ensure that the follow-up and processing unit is provided with the basic data, and to undertake missions to States which have neither adequate data nor national bodies capable of working within the framework of the programme.

The purpose of this missions is to encourage the States concerned to appoint a national correspondent thereby enabling them to participate better in the implementation of the programmes.

CALLS ON the institutions, the inter-African and International Organizations concerned to support and participate actively in this campaign.

CM/1242 (XL)  
Annex I

FOURTH SESSION OF THE COUNCIL/  
SECOND MEETING OF EXPERTS - OAU PROJECT ON  
HYDROGEOLOGICAL MAP

LIST OF PARTICIPANTS

AFRICAN COUNTRIES

a) Members of the AAC

ALGERIA

Mr. Halima Mansour Ali -- Head of Delegation,  
Director of the National Institute for  
Cartography, P. O. Box 69, Hussein Dey,  
Algiers.

Mr. Nacer Belgacem, National Institute for  
Cartography.

Mr. Kedjar Aboubeker, National Institute  
for Cartography.

Miss Benzerga Zoubida, Department of Mines  
and Geology, Ministry of Heavy Industry,  
18 Avenue Mustapha EL Ouali, Algiers.

BENIN

Mr. Lokovi Pascal, Director -- National  
Institute for Cartography, P. O. Box 360,  
Cotonou.

Mr. AGBOTON Jeannot, Director of Hydraulics,  
Hydraulics Department, P. O. Box 157, Yaounde.

CAMEROON

Mr. DOUNTIO Joseph, Director -- National  
Geographical Centre, P. O. Box 385, Cotonou.

CENTRAL AFRICAN REPUBLIC

Mr. Mayah Barthelemy, Department of Physical  
Planning, P. O. Box 129, Bangui.

Mr. Yamba Joseph, Ministry of Energy and  
Hydraulics, Bangui.

CONGO

Mr. BIZENGA Martial, Director, National  
Geographical Institute, P. O. Box 125,  
Brazzaville.

EGYPT

Mr. Haddi Mansour WASSEF -- Director Survey  
Department -- Vice-Minister, Survey Authority,  
Dokky - Giza.

Mr. Kamel Hefny Hussein -- Director -- Ground  
Water, 15 Giza Street, Giza Cairo.

ETHIOPIA

Mr. Fanta ASFAW -- Director, Ethiopian  
Mapping Agency, P. O. Box 597, Addis Ababa.

GABON

Mr. Nguema Mengone Michel - Head of  
Delegation - Director-General, Ordnance  
Survey and Topography, P. O. Box 2896,  
Libreville.

Mr. Bibang Bi Nkogho J. Florentin -  
National Institute for Cartography,  
P. O. Box 13600, Libreville.

GHANA

Mr. Abu Iddirisu, Director - Survey  
Department, P. O. Box 191, Accra.

Mr. Seth Ruben Kwamu Loh, Survey Department,  
P. O. Box 191, Accra.

KENYA

Mr. Charles K. Kimotori, Kenya National  
Cartographical Committee, P. O. Box 30241,  
Nairobi.

Mr. Gichohi James Ngari, National  
Cartographic Committee, P. O. Box 42645,  
Nairobi.

LIBYA

Mr. Abdallah Krew, Water and Soil Department,  
Secretariat of Agricultural Reclamation and  
Land Development, P. O. Box 5332, Tripoli.

MADAGASCAR

Mr. RAKOTONDRAINIBE Jean - Department of  
Mines and Energy - Division of Hydrogeology  
P. O. Box 280, Antananarivo.

MAURITANIA

Mr. SARR Mamadou, Director - Department of  
Topography and Cartography, P. O. Box 356,  
Nouakchott.

Mr. Mohamed Moctar Mohameden Fall, Department  
of Hydraulics, P. O. Box 356, Nouakchott.

NIGER

Mr. Garba Yacouba, Ordnance Survey Department,  
P. O. Box 250, Niamey.

Mr. Sani Ibrahim, Hydrogeology - University  
MHE/DRE, P. O. Box 257, Niamey.

Mr. Zwahlen Francois, - Ministry of  
Hydraulics, University of Niamey.

NIGERIA:

Mr. Adebekun Olumuyima, Director, Federal  
Surveys - Lagos.



SENEGAL

Mr. Thiam Serigne M'Baye, Head of Delegation -  
Director - National Geographical Service,  
P. O. Box 740, Dakar.

Mr. Guisse Najim, Geographical Service.

Mr. Gueye Abdoul Aziz, Geographical Service.

Mr. Barry Samba Tening, Department of  
Hydraulic Studies, P. O. Box 4021, Dakar.

Mr. Diagne Amadou Abdoulaye, Geographical  
Service.

Mr. Le PRIOL Jean, Department of Hydraulic  
Studies, P. O. Box 11040, Dakar.

Mr. Gaye Cheikh Becaye, University of Dakar,  
Department of Geology, Dakar.

Mr. Ndiaye Boubacar, Ordnance Survey - Bloc  
Fiscal, Dakar.

Mr. Doucoure Mamadou, Ordnance Survey -  
Bloc Fiscal, Dakar.

TOGO

Mr. GBARRE ISSA-GNON, Director - National  
Cartography and Ordnance Survey, P. O. Box 500,  
Lomé.

Mr. AIMEIDA N. COMLAVI, National Service of  
Mining Research - Department of Hydrogeology,  
P. O. Box 356, Lomé.

TUNISIA

Mr. Habib EL AMRI, Director - Topography  
and Cartography Service - 13, rue de la  
Jordanie, Tunis.

UPPER VOLTA

Mr. Bazie Pierre Emile - Director-General,  
Geographical Institute, P. O. Box 7054,  
Ouagadougou.

Mr. Kouate Mamadou LAMINE, Department of  
Hydraulics and Rural Equipment, P. O.  
Box 7025, Ouagadougou.

b. Non-Member Countries of the AAC

GAMBIA

Mr. Lamin Kaba JAWARA - Department of  
Water Resources, Banjul.

MALI

Mr. Traore DIADIE - Director - Cartography  
Department of Cartography and Topography,  
P. O. Box 2401, Bamako.

RWANDA

Mr. BIZIMUNGU, Telesphore - Director,  
Cartography - Ministry of National Resources,  
P. O. Box 413, Kigali.

c) Associate Member of the AAC

Ordnance Survey (Algeria)

Mr. Bendjaballah M'Hamed - Government  
Palace - Ministry of Finance - Algiers.

Mr. Gharbi Mahfoud - Government Palace -  
Ministry of Finance - Algiers.

CABINET DIOUF (Senegal)

Mr. Assane Diouf - Office of Assane Diouf -  
10, Avenue Roume, P. O. Box 11090 - Dakar.

National Geographical Institute (NGI)

FRANCE

Mr. Winghart - Head of Delegation, National  
Geographical Institute, 136, bis rue de  
Grenelle 75007, Paris.

Mr. GATEAUD Jean (N.G.I.)

Mr. DURIEUX Gilbert, "

Mr. COUZY Alain "

Mr. MONTOROI Roger ".....

Mr. LUTROT Gérard "

Mr. GOURDON Jean-Claude (N.G.I.)

GEOKART (Poland)

Mr. WYŚOCKI Jerzy, Director - Geokart  
00-950, Warsaw.

Mr. KRYNSKI Andrzej, Geokart 00-950,  
Warsaw 2/4 JASNA.

2. African and International Organizations

a) African Organizations

ECA

Mr. OLUJHUNGBE Funso, United Nations  
Economic Commission for Africa - Cartography  
and Remote Sensing Unit - P. O. Box 3005,  
Addis Ababa.

ARSC

Mr. Kabiyoma Buhendma - African Remote Sensing Council - P. O. Box 2335, Bamako.

CIEH

Mr. Diluca Charles, Inter-African Committee for Hydraulic Studies - Department of Hydrogeology and Village Hydraulics, P. O. Box 369, Ouagadougou, Upper Volta.

Mr. Bassirou DIAGANA - Department of Hydrogeology and Village Hydraulics, P. O. Box 369, Ouagadougou, Upper Volta.

IDEF

Mr. Diakite YAYA Hamid - African Institute for Economic Development and Planning UN/ECA.

RECTAS

Dr. S.O. IHEMAD Regional Centre for Training in Aerial Survey - Nigeria, PMB 5545, Ile, Ife.

b) International Organizations

UNITED NATIONS

Mr. Fernadopulle Denis, Department of Technical Co-operation for Development, c/o UNDP, Bangui - The Gambia.

FAO

Mr. R.G. THOMAS - Land Water Development Division - Food and Agriculture Organization of the United Nations - Rome COLOO, Italy.

IAC

Mr. Olof HEDBOM, International Association for Cartography.

ACSAD

Dr. DROUBI Abdullah - Arab Centre for the Studies of Arid Zones and Dry Lands - P. O. Box..... Damascus, Syria.

IAH

Mr. STRUCKMETER, International Association for Hydrogeology (Commission of Hydrogeological Maps).

UNDP

(Dakar)

3. Non-African Countries - Organs and Personalities Invited

GERMANY

Mr. Struckmeir Wilhelm, Federal Institute for Geo-sciences and Natural Resources (BGR)

CANADA

Miss NORBERT Marielle - Research and International Development Centre.

Prof. BRANDEN BERGER - Laval University, Department of Photographic Surveying.

CHINA

Mr. Huang YNKANG, Chinese Geodesic and Cartographical Society.

SPAIN

Mr. Murcia Emilio - National Geographical Institute.

Mr. GOMEZ de las HERAS, National Geographical Institute.

Mr. SACRISTAN Luis - National Geographical Institute.

FRANCE

Mr. MARGAT, Bureau de Recherches Géologiques et minières BRGM, Office of Geological and Mining Research, P. O. Box 6009, 45018 Orleans Cedex France.

Mr. Moussu Henri - BRGM  
Mr. SAOS Jean Luc - ORSTOM (Senegal Agency).

FINLAND

Kolehmainen Lemantie 6, SF-510 Helsinki 51  
Miss ANN Saxen, Itahdenkatv 2, SF-00210, Helsinki 21.

Mr. Kolehmainen, Itahdenkatv 2, SF-00210, Helsinki 21.

HOLLAND

Mr. DEHOOP, ITC, International Institute for Aerial-Survey and Earth Sciences - Enschede.

Dr. BERTRAND René, ITC, International Institute for Aerial-Survey and Earth Sciences Enschede.

ITALY

Mr. PAMPALONI Maurizio, Military Geographical Institute, via Battisti, 10 Firenze.

JAPAN

Mr. Motohima Kenzō, Association of Engineers, 5 Rokuban Chijo Chiyodaku - Tokyo.

YUGOSLAVIA

Mr. SARIN ANTE, Institute of Geology Sachsova 2, 41000 Zagreb.

Mr. MIJATOVIC BORLJOVE, Institute of Geology - 11000 Beograd, Geozavod, 48 rue Karadiordjeva.

4. Specialized Enterprises and Firms Invited as Observers

COFET (France)	Mr. SAMOULLIER.
Clyde Survey Ltd. (England)	Mr. KARAIUS Jean
Eurosense/Belfotop (FRAG/Belgium)	Mr. HABERL Siegfried.
Hansa Luftbild (Germany)	Mr. KUBETSCHKA Ernest
Mark Hurd (USA - Senegal Agency)	Mr. RETA.
MATRA (France)	Mr. ROUHAUD Pierre.
S.F.S. (France)	Mr. de BOUVILLE Hubert.
	Mr. MAZUE Pierre.
SWISS AIR (Switzerland)	Mr. MEIER Hans
WILD HEERBUUG (Switzerland)	Mr. CHABOT Daniel
	Mr. RICARD

CM/1242 (XL)  
Annex II

PAPER OF THE A.A.C. SECRETARY GENERAL ON THE OAU  
PROJECT OF THE HYDROGEOLOGICAL MAP OF AFRICA

PAPER OF THE A.A.C. SECRETARY GENERAL ON THE OAU  
PROJECT OF THE HYDROGEOLOGICAL MAP OF AFRICA

(A JOINT PROJECT IN THE SERVICE OF A SCIENTIFIC COOPERATION AND PLANNED DEVELOPMENT OF OUR CONTINENT).

First of all I should like to seize this opportunity to thank the Government of the Republic of Senegal for the warm welcome and kind hospitality accorded us. I express my gratitude also to:

- the OAU for the trust placed in our young organization to lead the important project, the subject of our meeting;
- the representatives of African countries who, by their presence, show the will to bring it to a successful issue;
- the international and regional organizations, foreign institutions which kindly accepted our invitation;
- the scientists who helped and supported us so much to plan a successful take off of this project.

I am particularly happy to be among you today in this meeting of experts on the project of the OAU Hydrogeological Map. This meeting is a historical event for it marks the beginning of what may be called a new era because:

- \* it concretises, at the African level, a genuine complementarity between various soil scientists;
- \* it tackles a major project which will have extremely beneficial effects on the development problems as a whole and also on the basic planning and integrated development decisions of our continent;
- \* it constitutes a base for the development of African and international co-operation which regulates mutual-help and coexistence for and among all the peoples;
- \* it is the manifestation of the efforts made by the OAU and the AAC to implement the recommendations of the supreme African bodies as stipulated in the OAU Resolution CM/Res. 702 (XXXII).

You are fully aware that the making of each type of map must necessarily imply the preliminary study of its designing consisting of the identification of the phenomena which have a predominant influence within the context of the chosen theme.

This identification leads to the definition of the motivation factors on which will depend the features of the map to be drawn and a satisfactory expression of the facts and concepts to be shown.

A map is not an end in itself. It is a basis of documentation, a work tool, a means for research and a progress factor to facilitate the economic development and then try to be free from the constraints.

Without being may be adequate for those in charge of specific regular development problems for which bigger scales are required, they provide them with the general context in which their activities are located and point out to them possible comparisons with other areas, other regions which are very useful to them at the experimental and planning stages.

Although it is necessary to distinguish between the basic cartography "called topographical mapping" constituting a universal substratum and the thematic mapping (e.g. hydrogeological, geological...) the motivation factors impose on the various intervening experts to reply, as a preliminary, to the following questions:

- what do we want to show and for what purpose?
- which are the available data?
- which factors we want to map?

If those objectives are not attached at the outset, the map may be considered as obsolete before being edited and it would be in vain to expect a wide dissemination and utilisation.

This charting concept implies therefore, the search for the best choice of the criteria of the expression modes for a map will not attain its aim of the portrayal is not adequately clear and legible and of the phenomena studied are not developed in such a way as to be clearly perceptible.

For this purpose, we should focus our attention on:

- \* the way adopted by others for such a work?
- \* how far they succeeded?
- \* what can be used from the results of their work by improving or adapting them if necessary?

This meeting should not solely centre on a limited stage of the development of this project but it should also be concerned about a broader dimension aimed at meeting the multiple expected requirements.

There is on Africa:

- a huge reserve of concrete experience data;
- a substantial catalogue of local or sub-regional (multi-state) hydrogeological maps of underground waters. Though differing in their objectives and contents, they all contain usable information for making an international map.

For example, the United Nations and affiliated organizations have invested, from 1962 to 1977, 30 million US Dollars in the prospection of underground waters and the utilization of water resources in Africa.



Can we conform today that all the results of these works, these maps... are known, indexed and analysed by the African countries concerned?

Beyond all considerations, the project of the OAU international hydrogeological map of Africa will lead to:

- \* a sharing of responsibilities among international, regional organizations, foreign institutions, processing information on the matter and relevant African organs;
- \* transcend the political barriers often hindering a genuine continuity at the physical and human levels for it is disappointing, when preparing regional development operations, to have to stop at an irregular line crossing the map and later on having to look for other series of maps which are often on other scales and with different technical specifications;
- \* an exchange of experience data, an inestimable source of increased scientific cooperation between specialised institutions making it possible to guard against the:
  - lack of material means and specialised personnel;
  - lack of data and the difficulties of organising its collection;
  - different development degrees of specialised national services...
- \* provide the development planners with the instrument enabling them to strengthen considerably their collaboration with a view to finding, as soon as possible, new innovative and more effective models and strategies both at the national and regional levels.

Besides, as you are fully aware, the concepts relating to the aim, contents and legends of hydrogeological maps have developed during the years.

This meeting should answer precisely three technical questions:

- \* the first point of success of this project is to define clearly the objective of this venture on the basis of a consensus of all the participants;
- \* the second basic question is the definition of the scales to be adopted, partly linked with the objective but also exacted by the available materials, the existing topographical and geological bases;
- \* the third question is the definition of its contents and the adoption of an appropriate portrayal mode. All this is strictly subordinated to the assigned priority objective as well as to the specific constraints of the scale adopted.

Without being exhaustive or adequate, the AAG, in agreement with the OAU, tried to publish working documents to serve as a basis for your deliberations. You will find:

- \* a summary of the first meeting of experts held at the OAU Headquarters, a provisional agenda of our event and an approach of the follow up structure to be established for the concretisation of this project;

- \* the major cartographiable data in hydrogeology making it possible to facilitate data collection;
- \* a preliminary inventory of maps and research works published in this field;
- \* a summary identification of topographical bases and legends already published in this field;
- \* a summary identification of topographical bases and legends already published enabling the contribution, but without exclusive right, to the preparation of the appropriate legend of this project;
- \* an awareness building of the basic concepts for the study of this project;
- \* Resolution CM/Res. 702 (XXXII) of the OAU Council of Ministers, etc...

We hope that these documents, which were widely distributed by the AAC, according to the mandate by the OAU, at the African and international levels, had reached you in time to prepare your active participation in this meeting.

In addition to its own documents, the AAC has obtained the assistance of eminent experts to present, during this meeting, papers on the various conceptual aspects of this project.

Our pragmatic step has been to enrich the discussions and grant to this project its right place despite the complexity of combining several targets, some more scientific and others more practical and utilitarian and end up easily with a common platform reconciling the variety of the geological and climatic conditions of our continent and the different utilization of water resources.

Each of your decisions should seek effectiveness encourage this initiative and take into account the expenses involved.

For example, around 190 scientists contributed to the project of the hydrogeological map of Europe on the scale of 1/1,500,000. In 20 years of existence, only one third of the 30 sheets of the project have been published. Although the contents and the expected target differ from our project, these figures, nevertheless, point out the caution and variety of our choices to be sought. 130 sheets will be necessary for this project if we want to execute it on the scale of 1/1,000,000.

It is, therefore, essential to understand well the target of the project as stipulated in Resolution CM/Res. 702 (XXXII), particularly:

"prepare a hydrogeological map of Africa which should facilitate a better implementation and harmonisation of national policies for the development of inventory projects and exploitation of underground water resources of all OAU Member States ... and ... to implement the drought control strategy ...".

This resolution is adequately explicit and it behoves this meeting to choose the priority users we want to serve. In this regard, we request you to listen attentively to the paper of Professor MARGAT who makes an important contribution in this direction.

Without anticipating your conclusions, it appears clearly that we should take two ways, one speedy and one long term, for this project, completing themselves by the services they may render and the users aimed at. This orientation will make it possible to avoid mixing almost irreconcilable targets at the risk of attaining none.

Beside the extremely important information which the speedy way could provide on underground water, it will, undoubtedly, enable us to:

- \* encourage and support the inventory of basic data;
- \* support the efforts of the experts at the national and regional levels for the success of the second way;
- \* initiate national hydrogeological maps on the basis of a better knowledge of what exists;
- \* encourage international and regional cooperation in this field;
- \* attain, to a great extent, the objective of the OAU and increase the awareness of African governments to provide greater means for these basic sciences;
- \* strengthen and encourage the collective autonomy of African countries through exchange of experience and making them more suited to identify, analyse and formulate necessary strategies for the conduct of development operations;
- \* strengthen and make the African technical service more fitted to absorb and adapt the techniques and skills to their specific needs;
- \* establish and strengthen the existing regional and sub-regional institutions and organisations by clarifying the institutional links governing them to better meet the needs of each government etc ...

The two ways to be adopted at precise targets that are not mutually exclusive but are incompatible on the same map for they call for different materials (nature of data, forms of information, scales, support ...).

The project of the OAU hydrogeological map will, therefore, enter a new and decisive phase.

I am sure that this meeting will be a landmark in the history of African cartography.

You have the opportunity to open the door to hope and cooperation.

It behoves the meeting to make recommendations on all the above-mentioned issues. But these recommendations should be accompanied by draft operation plans to put this gigantic work in concrete form.

It is imperative to obtain your thoughts on each of the ways chosen, as they will help in transforming the expenses generated by the follow up, coordination, execution and monitoring of this project into budget estimates.

In addition to these expenses, provision should be made for those resulting from the recruitment of an expert for an initial period of two years, including the trial period of 6 months to one year, assisting the AAC Secretary General, in the preparation of execution specifications in the co-ordination and follow up of short and long term planned activities. To this effect, a model profile of that expert has been proposed in section I of the AAC and it is advisable to consider it in order to adopt or amend it accordingly.

All the recommendations, operation plans budget estimates and follow up structure will be submitted to the OAU for consideration and decision.

Finally, we shall be gratified if specific technical and/or financial contributions can be recorded during this meeting by African countries, regional and international organizations, invited institutions or any other source.

We are convinced that the competence and motivation of the participants to this meeting, the spirit of creativity will enable us orient this major project towards irreversible and concrete stages fulfilling the hope rested in us by the supreme African bodies.

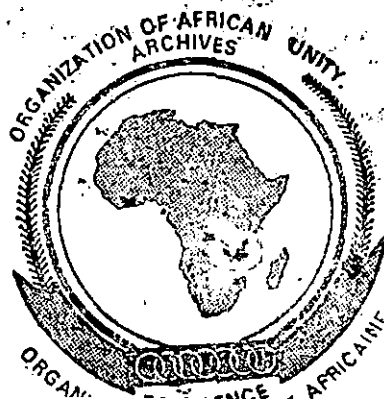
Finally, to stress the importance of water for the survival of humanity in general and African peoples, is there a better conclusion than that of Paul Emile Victor?<sup>(1)</sup> "If the earth were as a big orange, all the water of the world (around 1.5 billion Km<sup>3</sup>) would have been represented, in volume, only by a droplet delicately deposited by a dropper on that orange."

Almost the totality (97 to 98%) of that droplet would be composed of salt water, the rest (2 to 3%) would be fresh water, necessary for life, such a small quantity and tinier than a pin-head...! This fresh water is 99% inaccessible at present to man. About 25 to 30% are in deep layers of the earth at more than 800 mts deep.

Much less than 1% of fresh water is available to man. It is this infinitesimal quantity which we use today without control, which we pollute shamelessly and whose consumption always increases at a soaring speed..."

This conclusion needs no comments and allows us to appreciate rightly the concerns of our major African Organization "The OAU" and the supreme leading bodies in Africa. Our mission of urgent concretisation of this gigantic project will be recorded in the contemporary history of our continent and will prove our continent and will prove our keen sense of scientific and technical militancy in the service of the development and rapprochement of our peoples...

1. Le fantastique voyage de L'ileberg par Paul Emile Victor. Honorary Director of the French Plan expeditions, founded in 1947.



AFRICAN UNION UNION AFRICAINE

African Union Common Repository

<http://archives.au.int>

---

Organs

Council of Ministers & Executive Council Collection

---

1984-02

# Report of the Second Meeting of Experts on the OAU Project on International Hydrogeological Map of Africa

Organization of African Unity

Organization of African Unity

---

<https://archives.au.int/handle/123456789/9958>

*Downloaded from African Union Common Repository*