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**ORGANISATION DE L'UNITE
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Council of Ministers

Thirty-Second Ordinary Session

Nairobi, Kenya

CM/963 (XXXII)

23 February - 2 March 1979

REPORT OF THE OAU SECRETARY- GENERAL ON THE

PREPARATION OF THE HYDROGEOLOGICAL MAP OF AFRICA



CM0963

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FIRST EXPERTS' MEETING ON THE PREPARATION OF THE INTERNATIONAL
HYDROGEOLOGICAL MAP OF AFRICA ADDI. ABABA 6 - 9 NOVEMBER 1978

RAPPORTEUR'S REPORT

Pursuant to the Resolution CM/450 (XXV) adopted by the Twenty-Fifth Ordinary Session of the Council of Ministers at its meeting in Kampala, (Uganda), from 18 to 25 July 1975, the first experts' meeting on the preparation of an international hydrogeological map of Africa met in Addis Ababa from 6 to 9 November 1978 in the Conference Hall of the OAU General Secretariat.

1. PRESENT :

Present were delegates from the following countries : Burundi, Cameroon, Egypt, Ethiopia, Kenya, Libya, Madagascar, Morocco, Niger, Tanzania, Uganda. The ICHS (Inter-African Committee on Hydraulic Studies) and the ECA (UN Economic Commission for Africa) sent observers to the meeting.

2. OPENING SESSION :

The meeting was opened on Monday, 6 November 1978 at 4 p.m. by the Head of the Scientific and Cultural Department of the OAU General Secretariat.

In his address, the Head of the Scientific and Cultural Department particularly thanked the delegates for the efforts they had made to participate in this important meeting. He then reminded them of the objective of this first meeting which was to lay the basis for an action towards the implementation of resolution CM/450 (XXV) adopted by the OAU Council of Ministers in July 1975. He recalled that several African States especially those of the SAHEL were permanently faced with the problems of harnessing their underground water resources in view of the cyclic drought which continued to affect the supply of drinking water for the population and the economy in general. He said that the preparation of a hydrogeological map for the African continent proposed by the OAU Council of Ministers had a privileged place in the global strategy of drought control.

Finally, the Head of Scientific and Cultural Department called on the participants to consider very seriously the ways and means of ensuring a satisfactory accomplishment of this gigantic task. He called on International organisations, especially those of the United Nations System, to provide technical and financial assistance for the realisation of this project.

3. ELECTION OF OFFICERS

The following Officers were elected :

- Chairman : Mr. SAYED ABOUSEID (Egypt)
- Vice-chairman : Ato SALOMON ASRAT (Ethiopia)
- Rapporteur : Mr. TAWAYE CHEKANAOU (Niger)

4. AGENDA AND WORK PROGRAMME

The following agenda was adopted :

- a) Report of the General Secretariat and General debate;
- b) Consideration of the national situation in Member States and the contribution of international Organisations in the preparation of hydrogeological maps;
- c) Evaluation of the bulk of the required work and the financial implications;
- d) Preparation of a short, medium and long term programme of work;
- e) Recommendations and adoption of the rapporteur's report;
- f) closing session.

The participants further adopted the following working hours during the 3 day's meeting :

- Morning : from 10 a.m. to 1 p.m.
- Afternoon : from 4 p.m. to 6 p.m.

5. REPORT OF THE SECRETARY-GENERAL AND GENERAL DEBATE

With regard to Agenda item 1, several delegates spoke on the General Secretariat's report and informed the Secretariat of the work recently undertaken in their countries on the preparation of hydrogeological maps. Consequently, a hydrogeological map of Ethiopia to a scale at 1/1,000,000 had recently been published. Some delegates informed the participants that for about twelve years their countries had been carrying out several studies on underground water resources and had prepared a number of hydrogeological maps at different scales. Some delegates stated that most of the maps actually published in Member States were not prepared in a similar way. They were of the opinion that the exact information on what had been realised in Member States should better be made clear.

- 3 -

6. CONSIDERATION OF THE NATIONAL SITUATION IN MEMBER STATES AND CONTRIBUTION OF INTERNATIONAL ORGANIZATIONS IN THE PREPARATION OF HYDROGEOLOGICAL MAPS

Speaking on the Agenda item 2, several delegates supplied information on the present situation in their countries in the area of the preparation of hydrogeological maps (see annex for the full texts of the interventions).

The general opinion was that the preparation of national hydrogeological maps was meeting a series of difficulties the major ones on which were :

- lack of data and difficulties in collecting them;
- lack of financial and material means;
- lack of personnel;
- special geological and social factors existing in certain member States.

Some delegates highlighted the efforts made by the Governments of their respective countries in the evaluation and the harnessing of their underground water resources for a better utilisation in all fields (agriculture, industry, food, public health, etc.). In this context, several thematic maps had already been prepared, especially hydrotopographical maps, geological maps and so on.

Many delegates spoke of the assistance they had received from international organizations in this field, especially from the EEC*, UNDP*, UNESCO*, WMO*, PHI*, SIRD* etc... They also mentioned the organisation of national services responsible for these activities in the various countries. Some delegates said that their countries did not have any hydrogeological maps and therefore expressed the desire that these activities be started as early as possible with a view to attaining this objective in conjunction with international organizations such as the OAU and other international institutions.

Some delegates pointed out the importance and the need for cooperation amongst African countries in the area of their knowledge about underground water and especially inter-States hydrogeological basins so as to plan how best to solve the water problems.

- * WMO - World Meteorological Organization
- EEC - European Economic Community
- UNESCO - UN Organization for Education, Science and Culture
- PHI - International Hydrogeological Programme
- UNDP - UN Development Programme
- SIRDA - Swedish Institute for Development and Research Assistance

- 4 -

The Delegates from International Organizations made brief statements on the experiences acquired by their organizations in the fields of evaluation of underground water resources and the preparation of comprehensive hydrogeological maps. They particularly emphasized the problems of compilation of up-to-date data as well as coordination at the international level. The ECA delegates especially recalled the many regional meetings and conferences their organization had held on the evaluation and utilization of the continent's underground water resources. They further recalled the relevant important resolutions adopted at UN conferences on water resources, in Mar del Plata in Argentina in 1977 as well as on desertification in Nairobi in September 1977. These conferences, they said, urged all international organizations concerned to collaborate with the OAU, ECA, UN in New-York, UNESCO, CILSS*, CIEH* and FAC* etc... in these fields.

7. CONSIDERATION OF PROBLEMS RELATED WITH THE REALISATION OF THE PROJECT

A fruitful discussion then followed on items 3 and 4 of the Agenda. Many delegates intimated that in view of their recent experiences several difficulties were going to emerge during the realisation of the project.

Some said that it was important to know the nature and type of information which should be included on such a map, the scale to be adopted so as to satisfy the objectives of Resolution CM/450 (XXV) of the OAU Council of Ministers and the bulk of the work immediately required in order to obtain the necessary data on the project in its present phase.

Finally, the discussions were conducted on the following points :

- a) Definition of the objectives of the map;
- b) nature and types of information to be included on the map, and the scale of the map
- c) evaluation of the bulk of work required and the consideration of problems related to the project;
- d) setting-up of a co-ordinating Committee, and the financial implications of the organizations of the project in its present phase.

CILSS	- Inter-States Committee on Drought Control in the SAHEL
CIEH	- Inter-African Committee on Hydrolic Studies
FAC	- Fund for Assistance and Co-operation

7a. DEFINITION OF THE OBJECTIVES OF THE MAP

Regarding the definition of the objectives of the map, the unanimous view of delegates was that the former were clearly stated in the resolution of the OAU Council of Ministers : "to prepare a hydrogeological map of Africa so as to acquire a better knowledge and proceed to a better utilization of under-ground water resources of the continent within the context of the continental strategy for drought control." This map should include important hydrogeological information which should be of practical use to Africa. This clear definition of the objective helped delegates to tackle without great difficulty the problem of the scale of the map, the nature and type of information that should be included.

7b. SCALE AND NATURE OF THE MAP

With regard to the scale, most delegates were of the opinion that for such a map to be as useful as indicated in resolution CM/450 (XXV) it should be drawn to the scale of 1/1,000,000. This implies that this map should consist of a large number of sheets.

Most delegates emphasized, that this scale should be considered since it corresponded with the scale adopted for the world International Map, and that the topographical contents would however remain African. Furthermore, while helping to avoid excessive generalisations, this scale would facilitate the use of many hydrogeological data in rational exploitation of under-ground water resources. A few other delegates however felt that such a map should be prepared to the scale of 1/2,500,000 as something new in the series of existing maps and those new being prepared. They further observed that the choice of such a scale was economically more acceptable and that even the 1/1,000,000 scale could not contain all the necessary information concerning the information to include on the map, delegates were of the opinion that for any map to be of any use, it should contain the following hydrogeological information and indications :

- a) data on water strata;
- b) properties of water strata (nature of reservoir, size of reservoir, exploitability of reservoir, type of water strata, average depth of sheet, specific output, chemical property of water, possibility of replenishment;)
- c) data on the structures controlling the direction of a flow of the underground water, types of salinization);
- d) climatic data (annual rainfall, evaporation and transpiration);
- e) hydrological parameters (basins, rivers, river sources, bore-holes etc..
- f) hydro-geomorphological data.

Some other but no less important information such as hydrogeological and botanical relationships, topographical data, data on geological formations and soils should be included on separate maps or embodied in the explanatory note on the map.

7c. EVALUATION OF THE BULK OF WORK REQUIRED AND THE CONSIDERATION OF PROBLEMS RELATED TO THE PROJECT.

On the question of the evaluation of the bulk of work required and the consideration of the problems related to the execution of the projects, most delegates were of the opinion that such an evaluation would be possible only after establishing a special and permanent structure to follow up the development of the project. Other delegates thought that the financial evaluation of the actual project could be carried out only with the assistance of institutions specialized in the preparation of such maps, or consultants. Nevertheless, they felt that compilation and analysis of data were sufficient factors for action to be taken as soon as possible. The Secretariat then informed the delegates that at present it did not have any hydrogeological specialist or cartographer at its disposal to carry out this work.

In regard to the organization of the project in its present phase delegates consequently made the following suggestions:

- Either await the setting up of a standing coordinating committee at the next OAU Council of Ministers to follow up the project;
- or fall on the services of two consultants (a hydrogeologist and a cartographer) for a period of one or two years.

On the first suggestion, delegates were of the opinion that the setting up of a standing coordinating committee was a necessary step for the launching of the project. But because most Member States were absent at the Addis Ababa meeting, some delegates felt that for the committee to be truly representative of the whole continent it was necessary to establish it in the presence of the majority of Member States. It was then suggested to wait for the next OAU Council of Ministers for such a committee to be formed.

On the second suggestion, delegates felt that if this solution was the only possibility, it would be necessary to submit to the next Council of Ministers, the financial implications of the recruitment of the two consultants and their trips to Member States so that the necessary funds could be allocated for the next co-ordinating Committee meeting if this committee was set up, or for a meeting of the present panel of experts for the follow-up of the project in its present phase.

At the end of their deliberations the delegates adopted the following recommendation :

RECOMMENDATION

THE FIRST EXPERTS MEETING ON THE PREPARATION OF THE INTERNATIONAL HYDROGEOLOGICAL MAP OF AFRICA - ADDIS ABABA 6 to 9 NOVEMBER 1978

- Considering the seriousness of drought in several african countries;
- Considering the response to be given to the plan of action of the United Nations Conference on Water Resources held at Mar del Plata (Argentina) in March 1977;
- Aware of the important role evaluation and development of underground water resources can play in the drought and desertification control projects in the various african countries;
- Considering the importance of the means to be adopted so as to secure a better knowledge of underground water resources of our continent;
- Aware of the fact that lack of adequate natural resources constitutes a major obstacle to interafrican cooperation in the evaluation and rational development of underground water resources;
- Bearing in mind Resolution CM/450 (XXV) Kampala, 18-25 July 1975, especially its operative paragraphs 8;
- Desirous of ensuring an early realisation of the aims of the above resolution

1. CONGRATULATES the OAU Administrative Secretary General for his initiative in convening the first Experts Meeting on the preparation of the International Hydrogeological map of Africa;

2. RECOMMENDS that a permanent Coordinating Committee be set up on the preparation of the International Hydrogeological map of Africa, to be composed of at least five members, each representing one of the sub-regions of the Continent;

- 8 -

3. CALLS ON the OAU Council of Ministers to provide funds for the activities of the said Committee;

4. INVITES OAU Member States as well as their National Research Centres, Universities and International specialized Agencies to cooperate closely so as to facilitate the collection of the necessary data for the preparation of the International Hydrogeological map;

5. RECOMMENDS to the OAU Council of Ministers to request the Administrative Secretary-General to approach all International Financial Institutions with a view to ensuring the practical realisation of the project ;

6. APPEALS to Member States to ensure their active participation in the preparation of the International Hydrogeological Map of Africa .

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GM/963 (XXXII)

LIST OF PARTICIPANTS

<u>FIRST NAME AND FAMILY NAME</u>	<u>T I T L E</u>	<u>COUNTRY</u>
1) THADDEE MKANIRA	Assistant Director of the Geology Department, Ministry of Geology and Mining (Head of the Department of Hydrogeology)	BURUNDI
2) SOLOMON ASRAT	Lecturer in Geology Department AA. University	ETHIOPIA
3) MOSES K. MIGWI	Ministry of Water Department	KENYA
4) RAKOTONDRAINIBE J.H.	Hydrogeology Ministry of Economic and Commerce	MADAGASCAR
5) ANDRIARIVO EDMOND	Cartography Ministry of Public Work	MADAGASCAR
6) BADERI HABIB	Assistant Geologist	NIGER
7) FUNSO OLUJOHUNGBE	Chief Cartography Unit	ECA (Team Leader)
8) BERHANU ASFAM	Expert of Cartography	ETHIOPIA
9) Dr. W. F. GRIMMELMANN	Hydrogeologist Regional Adviser	ECA - A.A.
10) YILMA WOLDE EMANUEL	Civil Engineer Hydrologist	ETHIOPIA
11) GRUM LISSANN	Geologist, Ministry of Mines	ETHIOPIA
12) TANAYE GHEKAROU	Director of Cartography Ordnance Survey	NIGER
13) SAYEID ABOUZEID	Councilor- Embassy of Egypt	ADDIS ABABA
14) OMAR HILAIE	Secretary - Embassy of Morocco	ADDIS ABABA
15) ENOCH KABUNDUH	Civil Engineer Geologist Ministry of land and Water Resources	UGANDA
16) ATIVON CODJO	Civil Engineer Hydrogeologist	OUAGADOUGOU
17) BEHALAL AMBROSSE	Second Secretary Embassy of Cameroon	ADDIS ABABA

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OAU SECRETARIAT

1)	MAMADOU DIARRA	Head of Sc. & Cultural Dept.	ADDIS ABABA
2)	AKLE MOISE	Chief of Section - Drought	" "
3)	Dr. RASHEED M.A.	Director of BIS	BANGUI
4)	Dr. IDRIS NUR	Chief of the Section of Natural Resources	ADDIS ABABA

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CM/963 (XXXII)

Annex I

COUNCIL OF MINISTERS

Thirty-Second Ordinary Session

Nairobi, KENYA

23 February - 2 March 1979

DRAFT RESOLUTION

ON THE PROJECT FOR THE PREPARATION OF AN INTERNATIONAL
HYDRO-GEOLOGICAL MAP OF AFRICA

DRAFT RESOLUTION
ON THE PROJECT FOR THE PREPARATION OF AN INTERNATIONAL
HYDRO-GEOLOGICAL MAP OF AFRICA

The Council of Ministers of the Organization of African Unity meeting in its Thirty-Second Ordinary Session in Nairobi, Kenya, from 23 February to 2 March 1979,

Having examined the Report of the Administrative Secretary-General (Document CM/963(XXXII)) on the first meeting of experts on the project for the Preparation of an International Hydro-geological Map of Africa, held in Addis Ababa from 6 to 8 November 1978 in accordance with Resolution CM/Res.450 (XXV) Kampala, 18 to 25 July 1978,

Bearing in mind Resolution CM/Res.336(XIII) Mogadiscio, 6 to 11 July 1974 and CM/Res.450 (XXV), Kampala, 18 to 25 July 1975 which underlined especially the need for defining a global strategy on the continental level to combat drought and desertification in Africa and to undertake urgent and decisive actions to eradicate them,

Recalling the important recommendations of the UN Water Conference held in Mar del Plata (Argentina) from 14 to 25 March 1977, especially concerning the inventory and the evaluation of water resources and regional cooperation on the matter and a follow up of the plan of action of the said Conference,

Recalling further the important recommendations of UN Conference on Desertification held in Nairobi, from 26 August to September 1978 especially recommendations 5, 18 and 26,

Aware of the fact that the Preparation of an International Hydro-geological Map for African Continent should facilitate a better implementation and harmonization of national policies for the development of inventory projects and exploitation of the underground water resources of all Member States,

Conscious of the urgent actions to be taken on Resolution CM/Res.450(XXV), Kampala 18 to 25 July 1975.

1. CONGRATULATES the Administrative Secretary-General for the initiative he has taken to convene the first meeting of experts on the Preparation of an International Hydro-geological Map for Africa;
2. ENDORSES the recommendations of the first experts meeting;
3. DECIDES on the setting up of a Standing Coordinating Committee of the said project at two members per region (one hydrogeologist and one cartographer);
4. DECIDES that the following Member States be members of the Committee and be called upon to appoint highly qualified specialists to serve on it;

North Africa	East Africa
West Africa	Southern Africa
Central Africa	
5. DECIDES to appoint the inter-African Hydraulic Studies Committee based in Ouagadougou, Republic of Upper Volta, as principal Technical Adviser for the Standing Committee and to be technically responsible for the Preparation of the International Hydro-geological Map for Africa;
6. AUTHORIZES the Advisory Committee on Budgetary and Financial Matters to in collaboration with the General Secretariat to provide a special yearly appropriation of US\$ 63,296.00 for the activities of the Standing Coordinating Committee in connection with the Project for Preparation of the International Hydro-geological Map of Africa;

7. CALLS on the Administrative Secretary-General to urgently contact all UN specialised ~~institutions~~, all institutions on Afro-Arab Co-operation and other sources of financing for the necessary funds for the realisation of the said project;
8. CALLS on all specialised institutions of the UN family especially UNESCO, ECA, UNEP and UNDP to cooperate closely with the Standing Coordinating Committee for the Project for the Preparation of the International Hydro-geological Map of Africa so as to ensure a maximum efficiency;
9. APPEALS to all Member States as well as their national research institutions and universities to participate actively in the project for the establishment of the international Hydro-geological Map for Africa by especially cooperating with the work of collecting and analysing the necessary data for the said project.





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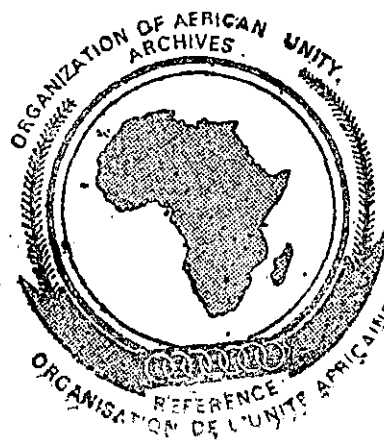
Addis Ababa

COUNCIL OF MINISTERS
Thirty-Second Ordinary Session
Nairobi, Kenya
23 February - 2 March, 1979

CM/963 (XXXII)

Annex II

FINANCIAL ASSESSMENT OF THE FUTURE ACTIVITIES OF THE
STANDING CO-ORDINATING COMMITTEE FOR THE PROJECT



FINANCIAL ASSESSMENT OF THE FUTURE ACTIVITIES OF THE
STANDING CO-ORDINATING COMMITTEE FOR THE PROJECT

At the present phase of the organization of the project, it is patent that for the standing Co-ordinating Committee to successfully accomplish its task, it should adopt a system of holding at least two meetings a year. It should however be noted that a budget appropriation of US\$27,853 had already been made within the 1979/80 budget to cover a meeting of 8 experts in Addis Ababa. The General Secretariat suggested that for the 1979/80 financial year, the Standing Committee, in addition to the meeting already provided for in the budget, should hold a second meeting and that the budget estimates should cover the eleven experts of the Standing Committee (10 experts representing the different sub-regions of the Organization and one expert from the ICES). In this way, the following will constitute estimates for the meetings of the Standing Co-ordinating Committee for the Establishment of the International hydrogeological Map of Africa (Ref. document CM/933 (XXXII) Part I, page 173, chapter I, code 828):

Meetings (2) of the Standing Co-ordinating Committee for the project on the establishment of the International Hydro-logical Map of Africa (5 days).



11 EXPERTS

Air tickets, economy class,	
(1,125 X 11)	US\$ 12,375
Per Diem (28 X 5 X 11)	1,540

6 INTERPRETERS

Air tickets, economy class	
1,277 X 6	7,662
Salaries (116 X 5 X 6)	3,480
Per Diem (28 X 5 X 6)	840

3 TRANSLATORS

Air tickets, economy class,	3,831
1,277 X 3	
Salaries (80 X 3 X 5)	1,200
Per Diem (28 X 3 X 5)	420
Transportation	300

Total...	US\$ 31,648
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X 2
<u>63,296</u>

1979-03

Report of the OAU Secretary-General on the Preparation of the Hydrogeological Map of Africa

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