



Agency for International Development

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## Background

Four river basins in the Sahel cross national boundaries: the basins of the Senegal, Gambia, Niger and Chari/Logone (Lake Chad) rivers. It is important to note that these rivers in general have their sources in the more abundant rainfall areas to the South and carry significant quantities of water north to drier areas and, in the case of the Niger River, over 2,000 km. across two Sahelian countries. The effective use of the water resources in these basins will be a major factor in the long-term development of their riparian Sahelian countries. The "River Basin Areas" chart provides an idea of the sizes and the potentials of the basins.

The key elements in river basin development are the following:

- The establishment of regional river basin commissions, composed of the riparian countries, to coordinate planning efforts and develop regulatory agreements for the use of the water resources.
- 2. The development of a comprehensive plan for the major infrastructure, power production, navigation, irrigation, fishing and environmental protection requirements.
- 3. The determination of the legal/regulatory requirements and arrangements for their establishment/enforcement.
- 4. The social, economical and technical studies required to determine the feasibility of the possible projects.
- 5. The design of the projects. Some projects are regional and fall under the scope of the river basin commissions

and some are national and will be handled entirely by the member countries.

- The determination of the sources of financing for the projects, both implementation costs and long-term operational costs.
- 7. The implementation of the projects.
- 8. The continuous evaluation and general oversight of the river basin development activities, including coordination among donors contributing to these activities.

The four river basin commissions have been established. The River Basin Institutional Development chart provides a comparative view of the stage of development of each of the basins.

A description of each of the river basins followed by a summary page of the most recent activities, including AID actions, completes the report.

# Overview

It is a complex undertaking to balance the various concerns: national/regional, upstream/downstream, agriculture/power/navigation, and donor/host country. This can be illustrated by noting that the nine member Niger River Commission (NRC) has been relatively inactive for nearly two years. The other commissions have four or fewer members, and have been making slow but steady progress.

The United Nations Development Program (UNDP) has taken the lead in coordinating Sahel river basin development efforts. Comprehensive development plans are being completed for both the Lake Chad Basin Commission (LCBC) and the Gambia River Basin Commission (OMVG) under the UNDP auspices. A similar plan was to be started for the NRC, but has been stalled over the question of member country commitment to the commission.

The type of planning model being used differs for each xpr satisfies the seneral River Basin Commission (OMVS) has been pro-A ceeding under a "planning by successive appropriations" theme.

Long-term goals are established and projects are designed to meet these goals as opportunities, experience, and circumstances dictate. The OMVG has used input-output tables in food crops, livestock, and forestry sectors as a basis for selecting a basin strategy, employing systems analysis procedures to compare the alternatives. Projects will be designed and implemented according to the strategy and accompanying action plans. The LCBC plan is being developed as a long-term planning/investment program, identifying projects at the pre-feasibility level. It will be based on a technical examination of the maximum potential for development in areas of irrigation, rainfed farming, livestock, and fisheries.

Donors continue to be concerned over the planning methods and wish to have positive assurances that the long-term benefits will merit the investments. The European Development Fund (FED) has consequently proposed to fund a major study to develop an evaluation model for river basin development. It is hoped this will indicate how certain methodologies can be used to analyze the diverse factors and to identify the cohesive factors which must be satisfied in river basin management.

## RIVER BASIN

#### INSTITUTIONAL DEVELOPMENT

Basin	Regulatory Body	Comprehensive Plan	Major Project Impl.	Infra- structure <u>Constructed</u>	Plan Eval.	Sustained Progress
OMVS	х	(X)	(X)		(X)	
OMVG	x	(X)				
LCBC	х	(X)	(X)			
NIGER	(X)	•				

X Functioning (X) In Process

#### Background

The Senegal river flows 1800 km. north to northeast from its source in Guinea, through Mali, then forms the Senegal-Mauritania border to the Atlantic Ocean. The river basin has an estimated 1.6 million inhabitants, or about 16% of the total population of the four states. The annual discharge of fresh water at Bakel is 24 billion  $m^3$ , approximately  $2\frac{1}{2}$  times more than the Potomac River in Washington.

From the beginning of this century, a variety of organizations have been established to manage the resources of the Senegal River. Until independence, an organization called the MAS (<u>Mission & Amenagement du Fleuve</u> <u>Senegal</u>), headquartered in St. Louis, was charged with supervising all activities concerned with commercial and hydrological exploitation. By 1960, the newly independent national governments assumed the few tasks which MAS was still executing.

The riparian countries, shortly after independence, realized that their individual and limited efforts to use their water resources would not result in a coherent, systematic program and decided that a common development effort was required. In Bamako in 1963, the riparian states of Guinea, Mali, Mauritania and Senegal established the <u>Comite Inter-Etate pour 1</u> Amenagement du Bassin du Fleuve Senegal. This organization evolved into <u>1</u>'Organisation des Etats Riverains du Fleuve Senegal (CERS) which existed until 1971, when Guinea withdrew. The current organization, <u>Organisation pour la Mise</u> en Valeur du Fleuve Senegal<sup>44</sup> (OMVS), was formed in 1972 with the membership of Mali, Mauritania and Senegal. (See attachment for OMVS structure.)

The OMVS Council of Ministers reconfirmed at that time that the first stage of the integrated development of the Senegal River Basin be based on a regulated flow of 300m<sup>3</sup>/sec. downstream from the proposed Manantali Dam and the design, construction and operation of the following works form the regional infrastructure for the Senegal River Basin:

- 1) a multipurpose regulatory and hydro-electric dam at Manantali,
- a dam at Diama in the Delta to arrest salt water intrusion and provided water for irrigation,
- a river and seaport at St. Louis, Senegal and a river port at Kayes, Mali,
- 4) the improvement of points of call along the Senegal at Rosso, Richard Toll, Dagana, Posor, Boghe, Kaedi, Matam, Bakel, and Ambidedi and the river bed sills.

Subsequent agreements among the three States through the OMVS mechanism concern the common ownership and operation of the regional infrastructure and the joint guarantee of the states for the loans obtained by the OMVS for constructing the infrastructure. In addition, the OMVS States have agreed to prepare an integrated development plan for the Senegal Basin. Basin Coordination

The development of the Senegal Basin will continue to involve a mix of national and regional activities, that is, the OMVS devoted to mainstream activities and the national governments occupied with the utilization of the waters of the Senegal River for productive purposes.

The governments have created institutions at the national level for Mali, SONADER for Mauricania and SAED for Senegal) to conceive, design, construct and manage agricultural projects on their parts of the Senegal Basin. There is also an interest in establishing at OMVS<sub>X</sub> a coordinating system which would make possible the harmonization of agricultural development in the three countries.

The role of the OMVS in overall basin development has been limited to general agreements on the objectives of an integrated development plan, and on the components, ownership and financial responsibilities for the mainstream infrastructure..

# Diama and Manantali Dams

The most important role given to OMVS recently is that of obtaining financing for the construction of the two mainstream dams, the anti-salinity barrage at Diama and the upstream river flow regulation dam at Manantali, Mali. Techincal studies dating back to the 1960's indicated the feasibility of the two dams, thus the OMVS established at the time of its formation in 1972 the goals of building the two dams. By November, 1979, pledges of financial support reached \$513 million from more than 10 donors of the \$643 million estimated requirement for the complete financing of both dams. OMVS estimates the irrigated agriculture potential resulting from the construction of the two dams at 375,000 ha.

A combination of factors has delayed the progress toward construction of the dams: a) Some donors insist that construction not begin until pledges are committed for the total amount required for both dams. b) A rather strong technical opinion has emerged that the regulation of river flow by the Manantali Dam may serve the same purpose as the Diama Dam, making the Diama Dam superfluous. In addition, the extent of the salinity problems for projected irrigation projects around the Diama Dam is unclear. c) A considerable portion of the financing for the dams comes from OPEC countries in the form of loans (7 yr. grace period, 20 year repayment, 5-7% interest), The SPEC countries have registered concern over the slow rate of increasing irrigation development along the river, thus have not reconfirmed their commitments.

Related to this, the World Bank and FAC have been concerned about the organization and management capabilities of the national irrigated agriculture development institutions. Thus it is not clear that the benefits will be sufficient to meet the repayment obligations.

The principal technical studies upon which the decision to build the two dams was based are the following:

- Feasibility Survey for the Regulation of the Senegal River -. Senegal-Consult, Switzerland, 1970.
- Program Integre de Development du Bassin du Senegal, Norbert Beyrard, France, 1974.
- Global Evaluation of the Regional Development Programme (Global Study), Sir Alexander Gibb & Partners, England, 1978.

The Senegal-Consult report was a study of potential dam sites. The Beyrard report presented a 61 year operations study of proposed reservoirs at Diama and Manantali assuming staged construction. The two dams were studied essentially as separate projects, thus the bibb study was to carry out a technical and economic evaluation of the Diama and Manantali projects as complementary works. The Gibb report concluded that the two dams were justified, but these findings did not gain complete acceptance among donor organizations.

### The Organization for the Development of the Senegal River (OMVS)

Date of establishment: The Convention establishing the OMVS was signed at Nouakchott, Mauritania, on 11 March 1972.

Executive Head: High Commissioner

Administrative Head: Secretary-General

Headquarters: P.O. Box 3152, 5, Place de l'Independance, Dakar, Senegal.

Official working language(s): French

Membership: Mali, Mauritania and Senegal.

<u>Objectives</u>: The OMVS is responsible for the application of the Convention relating to the status of the Senegal River signed on 11 March 1972, for promoting and coordinating studies and work aimed at the development of the resources of the Senegal River Basin in the national territories of the States members of the Organization and for carrying out any technical or economic mission which the member States might wish to assign to it.

Institutional structure and functions: The Conference of Heads of State and Government is the policy-making organ of the Organization. It examines and approves recommendations made to it by its subordinate Council of Ministers. Its decisions which must be unanimous are binding on all the member States.

The <u>Council of Ministers</u>, which is composed of representatives of the member States, is primarily an institution for planning and supervision and may be assisted by technical and economic organs. It is to prepare and propose general policy measures concerning the objectives of the Organization. It is to approve the budget of the institutions and organs of the Organization and is responsible to the Conference of Heads of State and Government. The recommendations and acts of the Council are taken and done unanimously.

The office of <u>High Commissioner</u> was created with broad powers delegated to it by the Council of Ministers. The High Commissioner acts on behalf of the Council of Ministers with full negotiating powers between the two annual sessions of the OMVS.

The administrative organ of the Organization, namely the Executive Secretariat, functions under the supervision of the <u>Secretary-General</u> who is responsible for the implementation of the decisions of the Conference of Heads of State and Government and the Council of Ministers.

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Observations: The OMVS replaced the Organization of Senegal River States (OERS). The OERS, which had consisted of Guinea, Mali, Mauritania and Senegal, and whose objectives had included cultural and political as well as economic co-operation, came to an end on 29 November 1971 after Guinea had boycotted its meetings for a year and Senegal resigned from it. The Organization which now operates without Guinea, is open to all riparian States of the Senegal River. The objectives of the OMVS are, generally speaking, limited to the same economic objectives as the Inter-State Committee for the Development of the Senegal River Basin which had been established in July 1963 between Guinea, Mali, Mauritania and Senegal and which in its turn, had been replaced by the OERS with its wider objectives. RIVER BASIN SUMMARY: OMVS

Date: March 7, 1980

- A. Current Status (Narrative): OMVS activity has been exceptionally intense since November, centered on taking the actions necessary to complete the financing of the two dams. The OMVS Donor's Conference November 27-30 in Dakar resulted in decisions to build the Manantali dam to a retention level of 208 m. and to defer indefinitely the right bank dike at Diama. Sharp criticism over the rate of irrigation develo ment resulted in recommendations calling for a realistic up-date of the integrated agriculture development plan, studies on manpower and mechanization, and regular informational meetings for donors on progress. Following this meeting the OMVS Council of Ministers met with donors in Paris on December 19 to reach an understanding on "effective implementation of the regional program". A new schedule for issuing construction contracts was outlined in the meeting July 1980 for the Diama Dam and April 1981 for the Manantali Dam. Other events: High Commissioner Mamadou Aw was replaced by Mauritanian Moctar Ould Haiba Dit Cheibani in December; and the three Heads of State laid the foundation stone for the Diama Dam on December 12.
- B. Current Activities:

	Descr	iption	Dates		Actions	<u>Control</u>
1.	OMVS_Integr	cated Development	April	a)	Completed PID Design	USAID/Dakar
	PID (625-06	521)(\$14 m.)		b)	Review and Authorize	SFWA
2.	OMVS Fiscal	L Allocation PP	April		Complete PP Design	USAID/Dakar
3.	Projects:					
	628-0505,	OMVS Agronomic	June 30		Prepare PP amendment	USAID/Dakar
	628-0620.	Data and Inst. Dut.			proposing research program	
	a)	Survey/Mapping	Мау 30	a)	Decision to amend authori- zation adding \$1.5 m. to cover cost over-run	DR, SFWA Crawford
	b)	Hydraulic Systems	June 30	b)	Freparation of PP amend- ment based on CH <sup>2</sup> M Hill rep	USAID/Dakar
	628-0617,	Environmental Assessment	April		OMVS Council of Ministers approved report, \$282,000 in final costs being pre- pared by CN	Crawford

# C. Comments:

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AID assistance to the OMVS integrated development planning is expected to help OMVS meet the conditions' necessary to obtain full financial commitments for the two dams.

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#### \*Background

The Niger River flows approximately 4,000 kilometers from its source in Guinea through Mali, Niger and Nigeria and empties into the Gulf of Guinea. Tributaries of the Niger originate in the Ivory Coast, Upper Volta, Benin, Cameroon and Chad, making a total of nine riparian countries. The annual volume of water flowing through Niger is 32 billion m<sup>3</sup>, and the river **b**uilds to a discharge of 175 billion m<sup>3</sup> annually by the time it reaches the sea.

The nine countries established the River Niger Commission (RNC) in 1963 through the "Act of Niamey". It's purpose is to promote the coordinate studies and programs to exploit the RNC basin resources. Further agreements delineated the RNC composition, mandate and legal functions (see Attachment 2 for RNC structure). Several studies were sponsored by the RNC following its formation, including an AID-financed "Niger River Commission Study" (1968), a general study of the river, its hydrology and development potential.

The RNC Council of Ministers recognized in 1974 that the Commission's planning efforts had been piecemeal, the result of specific and uncoordinated interventions by various bilateral donors. They accordingly charged the Executive Secretary with the responsibility to secure the necessary donor assistance required to prepare an indicative plan for the development of the water, land and human resources of the basin.

AID, CIDA and the World Bank developed separate analyses which were examined at the June 1976 meeting of the Council of Ministers. The CIDA report was adopted at the basic working document. Through a series of meetings with the RNC and interested donors, the last taking place in Paris in

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January, 1977, a broad general plan of study and institutional support was developed. A five year Action Program estimated at \$27-30 million was developed with the two goals of: a) producing an Indicative Plan and Investment program for basin development activities and b) strengthening the RNC's technical and managerial capacity.

The January 1977 meeting was called by the UNDP at the request of the RNC, and was attended by the UNDP, AID, CIDA and FAC. The donors pledged contributions of \$13.5 million in support of a two year first phase program of strengthening the RNC secretariat by providing technical assistance, training, and conducting a diagnostic study to determine the information and analysis needed to prepare a basin-wide development plan. The RNC member state obligation was a commitment to support the RNC budget.

Although some training has been conducted under the project, some member countries have not paid their dues, prohibiting implementation of the project. Meetings of the Council of Ministers in 1978 and the Heads of State in January, 1979, have not resulted in a resolution of the issues. Basin Coordination\_

The current president, Sekou Toure of Guine- is actively engaged in the institution-building process of RNC. The UNDP has continued to play a central role in encouraging the RNC and the member countries to establish a functional commission. The Executive Secretary in the RNC headquarters in Niamey has also continued to function.

Merber state projects which have an effect on a neighboring state have been coordinated through inter-state committees. Mali and Niger are coordinating mainstream dam projects located on either side of their border,

and Niger and Nigeria are working together on navigation matters.

The significance of water resources development has also influenced the formation of national offices to coordinate in-country projects. The major potential of the large inland delta in Mali was the reason for the very early (1932) establishment of the <u>Office du Niger</u>, which is primarily concerned with irrigated agriculture development. Niger has recently created the <u>Office National des Amenagements Hydro-Agricole</u> (ONAHA) to pursue the goal of developing the estimated 44,000 ha. of potentially irrigable land, at an annual rate of 2,000 ha.

It is anticipated that the projected Indicative Plan to come from the diagnostic study of the multi-donor project will outline the requirements for a coordinated effort to develop the water, land and human resources potential for the basin.

# The River Niger Commission (RNC)

Date of establishment: The Agreement establishing the River Niger Commission with respect to navigation and transport on the River Niger was signed at Niamey on 25 November 1964 and amended on 2 February 1968 and 15 June 1973.

Administrative Head:

Executive Secretary.

Headquarters: P.O. Box 729, Niamey, Niger.

Official working language(s): English and French.

Membership: Benin, Cameroon, Chad, Guinea, Ivory Coast, Mali, Niger, Nigeria and Upper Volta.

Objectives: This intergovernmental Commission is to encourage, promote and co-ordinate studies and programmes relating to the use and development of the resources of the Niger River Basin. For these purposes, the Commission acts as liaison between the member states, collects, evaluates and disseminates information on the river basin, examines related projects prepared by member States, recommends proposals for common studies and projects, supervises the implementation of studies and projects, prescribes regulations governing navigation of the river and formulates on behalf of the member States, requests for financial and technical assistance.

Institutional structure and functions: The bodies of the Commission are a Council of Ministers and an Executive Secretariat.

The <u>Council of Ministers</u> is the advisory body of the Commission. Its membership is made up of one Minister from each member State. It meets once a year and elects its Chairman from among its members.

The <u>Executive Secretariat</u> is the executive body of the Commission. The Council of Ministers appoints an Executive Secretary from a list of candidates nominated by the member States. The duties and powers of the Executive Secretary are determined by the Council of Ministers, to which he is responsible.

The activities of the Commission have been confined mainly to addressing basin-wide planning for the integrated development of the Niger River Basin.

Observations: The Act of Niamey signed in October 1963 in which the member States agreed to co-operate in the navigation of the River Niger and in their efforts for the economic development of its basin. was followed the next year by the Agreement establishing the Commission.

The member States of the Commission include not only the riparian States of the Niger River but also those of its tributaries and other waters feeding such tributaries.

### Date: March 7, 1980

#### A. Current Status (Narrative):

The Braft Final Report of the Lake Chad Basin Development Study was completed in January, 1980, by DHV Consulting Engineers, and is scheduled to be reviewed in late March by the Ad-Hoc Consultative Committee. The LCBCVheadquarters was expected to be re-established in N'Djamena' late February. According to Executive Secretary Chief Olafolabi, Chief Olafolabi also resumed the LCBC quest for pledges to the 10 projects listed by the SCET International short-term mission. Chief Olafolabi and continue to delay LCBC in resuming hormal activities. The Project Grant Agreement for the AID contribution of \$400,000 to the UNDP Study was signed on December 31, 1979.

### B. Current Activities:

	Description	Dates	Actions	Control
1.	Lake Chad Basin Development Study, Draft Final Report	March 24-28	Ad-Hoc Consultative Com- mittee review	Zobrist, Maxweil
2.	AID Review of above	• March 17	Prepare instructions for AID representative	SFWA, Maxwell
3.	AID/LCBC Projects a. 625-0005, LCBC Institu- tional Development (\$14.75)		Pending completion of study and stability in Chad/Documentation pend-	
	b 625-0010, LCBC Livestock & Mixed Agr. (\$5.5)		Ing	USAID/Yaounde USAID/N'Diamona
	c. 625-0534, Two Roads	Mar Apr.	Review by LCBC	LCRC, IISAID/"
	d. 625-0501, Telecom.	February	Final links to Maiduguri and N'Djamena	USAID/N'Djamena

### GAMBIA RIVER BASIN DEVELOPMENT OFFICE -OMVG

#### Background

The Gambia River is 900 km. in length and drains a basin with one of the highest population densities in the Sahel, an area of 70,000 km<sup>2</sup> with 1.5 million people. The source of the Gambia river, like the Senegal and Niger rivers, is the mountains of Guinea. It discharges an annual amount of 9 billion m<sup>3</sup> into the Atlantic Ocean, nearly equal to the discharge of the Potomac at Washington, D.C.

Upon Gambian independence in 1965, Senegal and The Gambia established an Inter-State Ministerial Committee to coordinate matters of common interest. The "Agreement on the Integrated Development of the Gambia River Basin" in 1968 directed the Executive Secretariat of that committee to prepare a basin development program. The UNDP subsequently conducted a Hydrological and Topographic Studies project.

By 1974 the two governments recognized that more effective, dynamic coordination and control required a much stronger involvement of technicians rather than simply a coordination among policy makers. Thus they signed a new "Convention on the Establishment of the Coordinating Committee for the Development of the Gambia River Basin" in April, 1976. This led to a further convention in June, 1978, to establish the the Organisation for the Development of the Gambia River Basin (OMVG). The OMVG headquarters were established in Kaolack, Senegal, mid-way between Dakar and Banjul.

The primary purpose of OMVG is to focus administrative responsibility for developing and sharing the Gambia River water resources ad to encourage projects for increasing producation and productivity in agriculture, livestock and forestry. The structure of the OMVG interwith a conference of the Heads of States which decides on general economic policies for the development of the OMVG. A Council of Ministers elaborates development policies and approves OMVG budgets. A Permanent Water Commission defines the principles for the sharing of the Water. A High Commissioner appointed by the Heads of State direction the OMVG and controls its funds.

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The operating parameters and detailed functions of OMVG are expected to evolve with time. Complementary bilateral agreements on agriculture, forestry, fisheries and navigation/transport also guide the OMVG operation.

### Basin Development Plan

In 1977 the UNDP was requested by the SeneGambia Coordinating Committee to organize a multidonor effort to develop a comprehensive plan for the development of the basin. Support for this study was provided by AID, FAC, ODM, and the UNDP. The draft final report was accepted by the OMVG Council of Ministers in June, 1979. The Basin strategy and a Five Year Action Plan were subsequently developed in late 1979.

The national policies/objectives reflected in the plan include the following:

 <u>Crop Production</u>: For both The Gambia and Senegal the basic thrust is to: a) promote diversity in crop production, b) increase rural income, and c) to reduce or eliminate the costly imports of bulk grains.
 <u>Livestock</u>: Both Senegal and The Gambia intend to: a) reduce or eliminate imports of animal products, b) improve herd off-take rates by better husbandry practices, and c) integrate the development of livestock

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with agriculture. In addition, Senegal wishes to replenish its livestock . . herds depleted by the drought.

3. Forestry: The common objectives are to a) introduce the management of natural forests, b) establish/augment plantation programs, c) improve fuel efficiency of wood, and d) introduce and exploit alternative energy sources. In addition, Gambia intends to exploit the mangrove forests above the barrage site and manage those below the barrage site.

Strategies were developed through the use of madels in each of the three sectors above and computer calculations projected the results into 1985, 1990 and 2000. The immediate construction of the Yelitenda antisalinity barrage near Farafenni was assumed in the calculations and the construction of the upstream Kekreti dam was projected for 1987. A summary of the strategies selected and the results anticipated is as follows:

1. <u>Agriculture</u>: For rainfed agriculture, the total basin area will set a pace of an annual upgrading of 3% of the farmers from traditional to improved agricultural practices and an annual upgrading of 1½% of the farmers using moderately improved practices to employing intensive high-yielding agricultural practices. Small perimeter irrigation development is planned for Senegal, while swamp reclamation and more intensive irrigation around the barrage is planned for The Gambia. By the year 2000 the irrigated areas are expected to be 8,800 ha. for Senegal and 15,400 ha. for The Gambia. The eventual irrigated area provided by the anti-salinity barrage will be 24,000 ha. and by the Kekreti dam will be 29,000 ha. Total grain crop surplus is

projected by the year 2000 at 6,200 tons for The Gambia and 65,600 tons for the Senegal portion of the basin.

2. Livestock: In The Gambia, projects will be developed to improve the extension, marketing and credit systems to overcome problems of poor animal health, farmer-herder competition, and land degradation caused by overgrazing. By moving completely into improved animal husbandry practices by the year 2000, the forage land requirements should diminish by over 25% (200,000 ha.), the total livestock revenues increase from under \$6 million to \$15 million (in 1977 prices), and meat consumption increase from 3,370 kg. to 14,110,000 kg.

In Senegal, the five different ecological zones in the basin area require different approaches. Although only in the Sine Saloum area will an effort be made to apply improved technology, by the year 2000 the cattle herd size will increase from 528,000 head to 814,000 head, total livestock revenues will increase from \$8.1 million to \$28.3 million<sub>X</sub> (1977 prices), and livestock meat production will increase from 4,900,000 kg. to 16,800,000 kg.

3. Forestry: Both The Gambia and Senegal aim to limit the degradation of basin lands and to provide wood products in sufficient quantity for the basin population. Between 1976 and 2000, plantations and forest management should result in increases in: a) exploitable wood volume in The Gambia from 390,000 m<sup>3</sup> to 2,150,000 m<sup>3</sup> and in Senegal from 2,150,000 m<sup>3</sup> to 5,430,000 m<sup>3</sup>, b) plantation areas in The Gambia from none to 94,500 ha. and

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in Senegal from none to 84,000 ha., and c) managed forest parcels in The Gambia from none to 147,000 ha. and in Senegal from none to 840,000 ha.

The Five Year Action Plan is a detailed investment plan, including the pre-investment studies required, the types and costs of the studies and projects required for agriculture, livestock and forestry, the complementary transportation studies and projects anticipated, and suggestions on the institutional development of OMVG. Specific project elements will be negotiated with interested donors.

# RIVER BASIN SUMMARY: OMVG

### Date: March 7, 1980

# A. Current Status (Narrative):

The OMVG Council of Ministers met January 28 to consider the Final Report of the Gambia River Basin Development Study, including the Draft Five Year Action Plan. The High Commissioner, Malik John, expected that the report and the Action Plan would be approved, along with the Terms of Reference for four urgent studies: Cartography and Topography, Environmental Assessment, Agronomic Research, and Pedologic and Irrigated Agriculture. The Yelitenda Barrage construction contract is expected to be issued at about \$70 million in late 1980 or early 1981.

# B. Current Activities:

	Description	Dates	Action	18	Control
1.	AID Project Paper	May 15	a. Design OMVC Project	3 Development	Crawford, Zobrist COR/Gambia
•		July 30	b. Approval of	f PP	Crawford, DR
2.	Donor Meeting	June	AID/W prepartic	are instructions ipation	Maxwell, Zobrist Crawford

## Background:

The two principal rivers flowing into Lake Chad, due Logone and the Chari, originate over 1500 km. south in the mountains of the Central African Republic. These two rivers and the other smaller rivers discharge approximately 43 billion  $m^3$  into the lake annually, maintaining its balance as a fresh water lake. While the geographic basin stretches far into the Sahara and Libyan deserts to the north and into the tropical zones to the south, the "Conventional Basin" covered by the LCBC centers on Lake Chad and extends only 450 km. to the south. Thus the CAR and southern Chad are both excluded from the basin authority.

The four riparian countries of Nigeria, Chad, Cameroon and Niger signed a convention in May 1964 establishing the LCBC. The main function of LCBC was to be the regulation and control of water utilization.

In October 1973 the same member states concluded another agreement to establish a Development Fund. An accompanying protocol, signed in Yaounde, amended Appricle XVI of the Statutes which: (a) established each state's annual contribution to the Fund at a rate of 1/1,000th f their respective national budgets, (b) conferred on the LCBC the power to "negotiate and accept foreign loans and gifts to the Fund," and (c) conferred on the LCBC the function of "execution and maintenance of specific development projects". The latter item has served as the authority for the commission to go beyond regulatory functions and into project implementation.

The Commission has carried out various study and survey projects on the agricultural resources and potential of the region and the possibility of developing these resources with the assistance of various donor organizations. Following the CILSS/Club meeting in Ottawa in May 1977 the Executive Secretary of the LCBC urged the UNDP to coordinate a multinational assistance program for the development of the Lake Chad Basin.

The UNDP organized two meetings at a technical level in Rome (July 1977) and in Paris (August 1977) in which various donors met (UNDP, FAO, ECA, FAC, FED, Italy, Netherlands, AID). At these meetings and at a following meeting in Paris (September) at the executive level a work program was designed and the Ad-Hoc Consultative Committee of donors was organized.

A short-term mission organized by UNDP consisted of specialists from SCET INTERNATIONAL (Paris) and Charles T. Main International (Boston) with the purpose of preparing a portfolio of "bankable" projects. Eight projects were selected and presented in a comprehensive report.

The Consultative Committee met in Rome in May, 1978, to review the projects and prepare a final report. This report was subsequently accepted by the LCBC during their 25th session in Niamey in October, 1978, and by the donors during the September Ad-Hoc Consultative Committee meeting in Rome. Ten projects were accepted, and support for portions of them were obtained during a Donor's Conference following the Consultative Committee meeting.

Also during the May meetings, the UNDP selected a consortium of three firms (DHV Consulting Engineers - Netherlands; Gannett, Fleming, Corddry and Carpenter Engineers and Planners - U.S.: and SOGREAH Consulting Engineers - France) to develop a long-term, comprehensive plan for the basin, the Lake Chad Basin Development Study. The final report of this study was completed in January, 1980.

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The political disruption and lack of security in Chad since the February 1979 fighting in N'Djamena have also interrupted the LCBC activities. As a result, the headquarters office has not been functioning in strength in N'Djamena, projects have been suspended, and participation in the long-term planning has been weak.

### Basin Development Plan

The Lake Chad Basin Development Study posed alternative plan strategies in the Interim Report. and -and -and with the LCBC and representat. f the member countries (except Chad), selected strategies for each country. These-strategies formed the basis for the statistical projections in the Draft-Final-Report. The minimum target was the "Present Policy Scenario", the already ambitious development policies of the member countries and the LCBC. Four policy options were explored, the maximum feasible development rates of irrigation, rainfed farming, animal husbandary and fisheries.

Niger wished to pursue the "Present Policy Scenario" with more irrigation. Cameroon requested the consultants to work out a development strategy based on the "Maximum-All Scenario". Comments could not be obtained from Chad and written comments were not obtained from Nigeria, thus the "Presont Policy Scenario" was used in the calculations for each. These strategies determined the statistical projections presented in the Draft Final Report.

The basis of all strategies is food sufficiency during "normal" years. The strategies thus lay considerable emphasis on the expansion of irrigation. Statistics were projected in the various sectors to the year 2000, such as in the following table from the report on irrigation:

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Country	Already in operation (ha)	Under con- struction (ha)	Projected/ Planned (ha)	Total in year 2000	
Chad	4.300	6,200	34,500	45,000	
Cameroon	5,500	6,300	32,200	44,000	
Nigeria	2,900	47,000	78,100	128,000	
Niger	100	-	2,900	3,000	
Total basin	12,800	59,500	147,700	220,000	

Projected irrigation development

As a result of the strategies selected, 147 projects were listed and described at a cost of \$4.46 billion (Regional - 34, Chad - 40, Cameroon - 28, Nigeria - 28, and Niger - 17). The table below shows the investment distribution.

Distribution of investments per country

US \$ million

Country	1980	- 2000	1980	- 1985	8	
Chad Cameroon Nigeria Niger	988.4 731.2 2,404.8 332.9	(22.1%) (16.4%) (54.0%) ( 7.5%)	364.1 218.2 833.7 110.2	(24.0%) (14.4%) (54.3%) ( 7.3%)	36.8 29.8 34.3 33.1	
Total basin	4,457.3	(100%)	1,516.2	(100% <u>)</u>	34.0	

Illustrative Basin production figures are as follows:

	Present	2000
Cereals (1000 t.)	1250	2570
Cotton (1000 t.)	110	310
leat (1000 t.)	85	150

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Recurrent costs were in 'uded in project costs, if they could be calculated, varying between 7% and 15% of the total investments. Projects required in the support sectors were also included in the investment plan, including transport, health and education. Health and Education projects accounted for 28% of the investment costs to 1985 and 44% to the year 2000.

This plan will not be in final form until each country has an opportunity to prepare detailed comments and participates in a comprehensive review. A final development plan should be complete before the end of CY 1980.

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#### Date: March 7, 1980

## A. Current Status (Narrative):

The Braft Final Report of the Lake Chad Basin Development Study was completed in January, 1980, by DHV Consulting Engineers, and is scheduled to be reviewed in late March by the Ad-Hoc Consultative Committee. The LCBCVheadquarters was expected to be re-established in N'Djamena' late February. According to Executive Secretary Chief Olafolabi, Chief Olafolabi also resumed the LCBC quest for pledges to the 10 projects listed by the SCET International short-term mission. Chief Olafolabi and the logovernment operations in N'Djamena continue to delay LCBC in resuming normal activities. The Project Grant Agreement for the AID contribution of \$400,000 to the UNDP Study was signed on December 31, 1979.

# B. Current Activities:

	Description	Dates	Actions	Control
1.	Lake Chad Basin Development Study, Dratt Final Report	March 24-28	Ad-Hoc Consultative Com- mittee review	Zobrist, Maxwell
2.	AID Review of above	March 17	Prepare instructions for AID representative	SFWA, Maxwell
3.	AID/LCBC Projects a. 625-0005, LCBC Institu- tional Development (\$14.75)		Pending completion of study and stability in Chad/Documentation pend- ing	
	<ul> <li>b 625-0010, LCEC Livestock</li> <li>&amp; Mixed Agr. (\$5.5)</li> <li>c. 625-0534, Two Roads</li> <li>d. 625-0501, Telecom.</li> </ul>	Mar Apr. February	Review by LCBE Final links to Maiduguri and N'Diamena	USAID/Yaounde USAID/N'Djamena LCBC, USAID/" USAID/N'Djamena