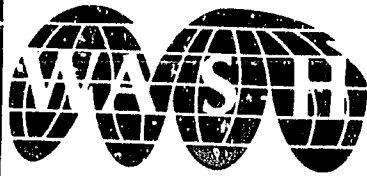


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WATER AND SANITATION
FOR HEALTH PROJECT

Operated by
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CENTRAL AFRICAN REPUBLIC IDENTIFICATION AND FORMULATION OF WATER SUPPLY AND SANITATION PROJECTS

WASH FIELD REPORT NO.158

DECEMBER 1985

The WASH Project is managed by Camp Dresser & McKee International Inc. Principal cooperating institutions and subcontractors are Associates in Rural Development Inc. International Science and Technology Institute Inc. Research Triangle Institute Training Resources Group University of North Carolina at Chapel Hill.

Prepared for
United States Embassy in Bangui CAR
and for the USAID Mission to Cameroon
and the CAR in Yaounde, Cameroon
Activity No.158-

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OF WATER SUPPLY AND SANITATION PROJECTS

Prepared for the United States Embassy in Bangui,
Central African Republic, and for the
USAID Mission to Cameroon and the Central African Republic
in Yaounde, Cameroon
under WASH Activity No. 156

by

Prescott Allen Stevens, P.E.

December 1985

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Table of Contents

Chapter	Page
ACRONYMS.....	iii
ACKNOWLEDGEMENTS.....	v
EXECUTIVE SUMMARY.....	vii
1. INTRODUCTION.....	1
2. CHOICE OF PRIORITY ACTION ZONES.....	5
2.1 Data Collection and Evaluation.....	5
2.2 Selection of Priority Action Zones.....	6
3. IDENTIFICATION OF SECTOR PROJECTS.....	11
3.1 Identification Procedure.....	11
3.2 Coverage Projects.....	11
3.2.1 Rural Water Supply and Sanitation.....	11
3.2.2 Urban Sanitation.....	13
3.2.3 Urban Water Supply.....	13
3.3 Support Program.....	13
4. FORMULATION AND PRESENTATION OF PROJECTS.....	15
4.1 Formulation of Rural Subprojects.....	15
4.2 Formulation of Urban Sanitation Subprojects.....	17
4.3 Formulation of Urban Water Supply Subprojects.....	17
4.4 Formulation of Support Program Subprojects.....	18
4.5 Preparation of Documents for the Round Table Meeting.....	18
5. FUTURE ACTIVITIES OF THE BUREAU PERMANENT.....	21
5.1 Interagency Activities.....	21
5.2 Secretariat Activities.....	21
5.2.1 Planning.....	21
5.2.2 Monitoring and Evaluation.....	23
5.2.3 Exchange of Technical Information.....	23
6. CONCLUSIONS AND RECOMMENDATIONS.....	25
 FIGURES	
1. Map of the CAR Showing Rural Subproject Areas.....	12

APPENDICES

	Page
A. Officials Interviewed.....	27
B. Consultant's Scope of Work.....	31
C. Itinerary.....	35
D. Decree Naming Members of Planning and Study Unit.....	39
E. Sector Project List.....	45
F. Rural Water Supply Execution Program.....	49
G. Form and Procedure for Preparing Subproject Data Sheets.....	53
H. Draft Data Sheets (Rural Water Supply and Sanitation in the North-eastern Prefectures).....	67
I. Current Work of National Organizations in the Water Sector.....	81
J. Current Work of External Organizations in the Water Sector.....	91
K. CNEA Reference Documents.....	97

ACRONYMS

BDEAC	Banque de Développement économique de l'Afrique centrale (Central African Bank for Economic Development)
BIRD/AID WB/IDA	Banque internationale pour Réconstruction et Développement/Association internationale de Développement (World Bank/International Development Association)
BP	Bureau permanent (Permanent Office of the National Action Committee)
CNEA	Comite national de l'Eau et de l'Assainissement (National Action Committee for Water Supply and Sanitation)
CCCE	Caisse centrale de Coop̄eration économique (French Central Fund for Economic Cooperation)
CPE	Cellule de Planification et d'Etude (Planning and Study Unit for Water and Sanitation)
CIEH	Comité interafricain pour Etudes hydrauliques (Interafrican Committee for Hydraulic Studies)
DANIDA	Danish International Development Agency
DASE	Directorat de l'Assainissement et de l'Hygiēne de l'Environnement (Directorate of Sanitation and Environmental Hygiene)
DGGR	Directorat Ḡn̄eral du Genie rural (General Directorate of Rural Engineering)
DGH	Directorat Ḡn̄eral de l'Hydraulique (General Directorate of Hydraulics)
FAC	Fonds d'Aide et de Coop̄eration (French bilateral technical assistance)
FCFA Eq	Franc de la Communaut̄e financīere africaine equatoriale (currency unit, equivalent to 0.02 French Franc)
FED	Fonds europ̄een de D̄veloppement (European Development Fund)
GOCAR	Government of the Central African Republic
GTZ	Gesellschaft fur Technische Zusammenarbeit (German Agency for Technical Cooperation)
HCP	Haut Commissariat charḡe du Plan et de la Coop̄eration économique et financīere (High Commission of Plan)

KfW	Kreditanstalt für Wiederaufbau (German Reconstruction Loan Corporation)
MSAS	Ministère de la Santé et des Affaires sociales (Ministry of Health and Social Affairs)
MTPU	Ministère des Travaux publics et de l'Urbanisme (Ministry of Public Works and Urban Development)
OMS(WHO)	Organisation mondiale de la Santé (World Health Organization)
ONG(NGP)	Organisation non-gouvernementale (Non-governmental organization)
PNUD(UNDP)	Programme des Nations Unies pour le Développement (United Nations Development Program)
SEH	Secrétariat d'Etat à l'Hydraulique (State Secretariat of Hydraulics)
SIDA	Swedish International Development Authority
SNE	Société national des Eaux (National Water Company)
UNDTCD	United Nations Department of Technical Cooperation and Development
UNICEF	United Nations International Children's Emergency Fund
USAID/WASH	United States Agency for International Development/Water and Sanitation for Health Project
ZAP	Zone d'Action prioritaire (Priority Action Zones)

ACKNOWLEDGEMENTS

The Consultant wishes to express his gratitude to staff of the U.S. Embassy in Bangui and to all of the officials of national and external organizations with whom he worked during his stay in June and August 1985 in the Central African Republic. These persons were particularly helpful in briefing him and in discussing problems and prospects for developing the water and sanitation sector of the Central African Republic. He is particularly appreciative of the interest shown by Ambassador Edmond DeJarnette and by Miss Katherine Montgomery in the purpose and in the outcome of the assignment and grateful for the cooperation of members of the CNEA Bureau Permanent, who worked with him on the joint task.

EXECUTIVE SUMMARY

Since 1982, WASH consultants have been actively engaged in assisting the Government of the Central African Republic (GOCAR) to develop its planning capabilities within the context of the International Drinking Water Supply and Sanitation Decade (1981 to 1990) and in implementing water supply and sanitation projects. Specific assistance to GOCAR has been given in establishing an interministerial National Action Committee for Water and Sanitation (CNEA); preparing a water and sanitation strategy document with the GOCAR; and developing and conducting a national water supply and sanitation seminar.

At the request of the U.S. Embassy in the Central African Republic, the Water and Sanitation for Health (WASH) Project sent a Planning Specialist to Bangui in the summer of 1985 to assist the Permanent Office of the National Action Committee for Water and Sanitation (Bureau Permanent) and the Planning and Study Unit (CPE) of the State Secretariat of Hydraulics in preparing a sectoral plan and attendant proposals for water supply and sanitation. The sectoral plan is to be presented at the round table meetings with donors which GOCAR plans to hold during 1986.

Objectives of the proposed effort included: assisting personnel of the Bureau Permanent and of the CPE in improving their skills and knowledge in sectoral and project plan formulation; reviewing available information regarding the Priority Action Zones (ZAP); developing and implementing procedures for identifying and formulating sector subprojects; and outlining central sector planning activities needed during the remainder of the Water Decade.

Staff limitations made it impractical to set up a multidisciplinary Planning and Study Unit in the State Secretariat of Hydraulics; therefore, project identification and preparation was carried out by executing agencies and by the Bureau Permanent. Following the terminology established by the Planning Commission Project Center, four general projects were identified in the water supply and sanitation sector: rural water supply and sanitation, urban sanitation, urban water supply, and support program. As of 1 September 1985, 36 subprojects had been identified, of which 8 were being implemented, 4 were under negotiation, 4 were under study, and 20 were subproject concepts.

Among the subproject ideas identified by the Bureau Permanent and the General Directorate of Hydraulics are two rural water supply and sanitation subprojects in the northeastern and southeastern Priority Action Zones. The Bureau Permanent also recommends the continuation and acceleration of the village water supply and sanitation subprojects which are under way in the central and western parts of the country, with more emphasis than heretofore on encouragement and assistance in latrine building.

The WASH consultant's principal recommendations are as follows:

1. GOCAR should negotiate new and extended bilateral and nongovernmental organizations' (NGO) subprojects as turnkey subprojects to be implemented under government guidelines and to have government professionals participating as trainees.

2. National teams should execute the most urgent new subprojects. Experienced professionals should be assisted by junior engineers serving as understudies. New professional staff and skilled workers should be supported initially through external funds but should be absorbed, as soon as possible, into central or prefectural national budgets.
3. The definition of Priority Action Zones should continue in relation to specific criteria established by GOCAR, because less than half of the total needs can be satisfied during the next five years. External logistical support should be provided for this work.
4. GOCAR should complete the formulation of identified subprojects -- 15 person-months of consultant time, and logistical support should be provided from external sources.
5. GOCAR should assign an engineer to work full time in the Bureau Permanent, and external resources should be provided for logistical support.

Chapter 1

INTRODUCTION

Since 1982, the Central African Republic has made a number of institutional changes to rationalize and strengthen the planning and execution of projects in the community water supply and sanitation sector. These institutional changes are summarized as follows:

- September 1982 The National Action Committee for Water and Sanitation (CNEA) was created by presidential decree to bring together representatives of seven ministries, the Planning Commission, the City of Bangui, and other organizations and individuals whose participation would be judged useful. The Planning Commissioner serves as chairman.
- January 1983 The Chairman of the CNEA named a Technical Subcommittee to prepare draft policy papers.
- April 1983 A Policy and Strategy Document was approved by the CNEA and signed by the President of the Republic.
- May 1983 A seminar was held in Bangui to bring together technical and administrative representatives from different parts of the country and to explain the new sector policy and strategies, to discuss regional short- and medium-term needs, and to solicit their participation in collecting field data on sector needs and resources.
- June 1983 A Short- and Medium-term Action Plan was prepared by the technical subcommittee and approved by the CNEA. This plan included a number of preparatory support activities (certain of which have been accomplished during the ensuing two-year period) and set specific three-year coverage targets, including the target of 1,000 new village water points. This action plan will be superseded by the five-year action plan which is now in preparation.
- January 1984 A Permanent Office (Bureau Permanent) to act as secretariat for the CNEA was authorized. Five of its six full-time members (a planner, an evaluator, a research specialist, an administrator/typist, and a driver) were appointed in September 1984. The engineer/coordinator has yet to be appointed; in the interim, the Director General of Rural Engineering assumes this responsibility on a part-time basis.
- July 1984 A new State Secretariat for Hydraulics (SEH) was created and a skeleton staff named. The National Water Company (SNE), which is responsible for urban water supplies, was placed under the responsibility of the SEH, but the construction of rural water supplies remains for the time being the responsibility of the Rural Engineering Directorate of the Ministry of Rural Development.

November 1984 A Planning and Study Unit (CPE) consisting of seven professional posts was created under the authority of the State Secretariat of Hydraulics (SEH), to identify and assist in preparing projects for all four subsectors. The Director General of Hydraulics, a sociologist, was appointed to the CPE by a ministerial decree, which also named the WASH planning consultant to fill temporarily the posts of planner, engineer, economist, and statistician.

March 1985 A Project Center was created within the High Commission of Plan (HCP) to coordinate all sectoral analyses and project work in preparation for the next five-year plan and for meetings with the donor community.

From the outset, CNEA has been given wide responsibilities and has been exceptionally active. These responsibilities and activities are now being intensified by the existence of a full-time secretariat. The responsibilities and composition of the CNEA, as set forth in Presidential Decree No. 82/444 of September 25, 1982, are to:

Responsibilities

- Analyze sector status and resources.
- Establish objectives and targets for the Water Decade related to existing economic and social plans and programmes.
- Identify community resources.
- Formulate policy and decide service levels.
- Identify means for minimizing constraints.
- Set out directives for programmes, for choosing priority projects, and for preparing projects.
- Collaborate with sector-executing agencies.
- Identify foreign resources needed.
- Prepare action plans.
- Monitor the national programme and propose appropriate corrective actions.

Members

- Planning Commissioner, President
 - Director General, Public Health, Vice-President
 - Director General, Rural Engineering
 - Director General, National Water Company (SNE) } —Secretaries
 - Secretary General, Social Affairs
- Ministries:
- Energy, Mines, and Geology
 - Interior
 - Agriculture and Livestock
 - Water, Forests, and Game } —(Now separated)
 - Social Affairs }
 - Public Health } —(Now combined)
 - Education, Youth, and Sport
 - Public works
- Municipality of Bangui
 - Other organizations and individuals judged to be useful.

In addition to the institutional changes enumerated above, some procedural reforms were initiated during this period. The most significant of these changes was that of policy formulation through consultation, thereby replacing an earlier dependence on analyses and judgments made by foreign experts. This shift was evidenced in the formulation of the Policy and Strategy Document, the conduct of the National Seminar in 1983, the preparation of the Short- and Medium-term Action Plan, and the outlining of a procedure for developing project proposals. The latter procedure, which was discussed with the previous WASH team in September 1984, involved six steps (see WASH Field Report No. 137), as follows:

1. GOCAR was to create a Planning and Study Unit (CPE), to set aside offices for the CPE, and to request USAID to send a planning expert to collaborate with the CPE.
2. GOCAR was to ensure the availability of necessary staff, including a planner, an economist, an engineer, a sociologist, a hydrogeologist, a statistician, a draftsman, and administrative staff as well as office equipment and transport.
3. Once organized, the CPE was to gather geographic and hydrologic maps, demographic information, and the completed questionnaires that had been distributed to regional participants at the 1983 seminar. The CPE was to establish criteria for priority interventions, to analyze the collected data in view of these criteria, and, on this basis, to select Priority Action Zones (ZAP).
4. The selected ZAP were then to be surveyed using a standard procedure, and survey results analyzed to determine the profile and the sectoral needs in each ZAP.
5. On the basis of the needs determined for each ZAP, projects were to be formulated by the CPE meeting acceptable standards of technical, social, and financial feasibility.
6. A national plan of priority action projects was to be prepared presenting the overall purpose, the project lists, and a set of project summaries in the form of data sheets.

Chapter 2

CHOICE OF PRIORITY ACTION ZONES

2.1 Data Collection and Evaluation

During the winter and spring of 1984-85, members of the Bureau Permanent, the Groundwater Study Team, and the General Directorate of Hydraulics (DGH) undertook a series of field investigations to assemble data for selecting Priority Action Zones (ZAP). The investigations covered cities, secondary centers, and villages in scattered parts of the country. Reports of these field investigations were subsequently distributed by the CNEA to governmental and external assistance agencies and have stimulated considerable interest. Reports on severe water shortage in many localities of the northeastern prefecture of Bamngui-Barré led to the provision of financial and material resources to meet the most urgent needs in this area and to its designation as a ZAP.

After the arrival of the WASH consultant in June 1985, field data were collated, mapped, and compared with hydrogeological and demographic information. (Officials interviewed by the consultant are listed in Appendix A, the Consultant's Scope of Work is found in Appendix B, and his itinerary is in Appendix C.) Progress also was made concerning the preparation of tabulated data by subprefecture showing surface areas, populations, known water resources, existing water supplies and their characteristics, prevalent water-related diseases, and so forth. Four types of field data were identified:

Type 1 data were obtained from interviews with and questionnaires completed by regional and local officials. These data yield general information on populations, economic and health conditions, reported urgent water supply needs, labor and material resources, and local willingness to collaborate in planning and improving public water supplies.

Type 2 data were obtained from interviews with individual inhabitants at water points and in their homes. These data yield information on the distance and seasonal reliability of water points; on the quantity of water carried daily to homes; on the availability of building materials such as gravel, sand, and clay; on health conditions; and on the readiness to participate in making improvements to community water supplies and sanitary latrines.

Type 3 data were obtained from the direct observations of survey and study teams. These data yield information on the depth, static water level, and flowrate of existing sources as well as their distance and approximate elevation above or below the locality center.

Type 4 data were obtained from hydrological and geophysical studies, including the examination of aerial photographs of localities, geophysical measurements, and (rarely) test pumping and soil analysis from existing wells. These data yield specific information on the optimum type, number, and location of water sources for each locality.

The analysis of available data showed that surveys and studies carried out in the Central African Republic up to now provide uneven coverage. Some general data for Type 1 are available for all prefectures, and more detailed Type 1 data have been collected during the past year for approximately 15 subprefectures. Plans have been made by the Bureau Permanent to continue these surveys at the subprefectoral level until the most important gaps in information have been closed.

Type 2 and Type 3 data were recorded for selected localities during the preliminary studies which preceded the continuing village water supply projects in the southcentral cotton growing area of Kemo-Ibingui, Ouaka, and Basse Kotto and in the northcentral prefectures of Ouham and Ibingui-Economique as well as during the study for a proposed rural water supply project in the prefecture of Ombella-Mpoko. Type 2 information was also obtained for some of the villages in Bamingui-Bangoran surveyed in connection with proposed emergency operations. The extent of Type 2 and Type 3 data which have been recorded on localities in the northwestern (Ouham-Pende) and in the western prefectures (Nana-Mambere, Haut Sangha, and Sangha-Economique) is unknown, because rural water supplies in these areas have been executed with bilateral assistance, and the responsible agencies do not regularly provide information to GOCAR on their activities.

Type 4 data have been obtained during the past year with the collaboration of the Groundwater Study Project. These data are available for most of the localities where improvements are either under way or planned in the Government-executed projects and for the localities in Bamingui-Bangoran earmarked for emergency measures. Type 4 data also are being obtained by the Groundwater Study Project for a few urban areas where water supply projects are being designed.

2.2 Selection of Priority Action Zones

GOCAR's criteria for selecting localities for priority water supply action were stated in its Policy and Strategy Document and confirmed in its Short- and Medium-term Action Plan, as follows:

1. Maintenance of existing systems: it is indispensable to give a high priority to the work needed to maintain systems already in service.
2. Strengthening of economic development projects: a high priority will be accorded to (water supply) works which contribute to the productivity of industrial and agricultural (development) projects.
3. Help for zones which are seasonally affected adversely: by drought or by other catastrophes.
4. Size of population: the higher the (benefiting) population the higher the priority.

5. Economy: the economic (viability) of proposed water supply systems should be considered, in addition to the size of the (benefiting) population, in selecting (localities for priority action).

An additional criterion that has been stressed in selecting localities for village water supply improvements in the three continuing Government-executed rural projects is a demonstrated community interest and willingness to participate actively in planning, executing, and operating water supply and sanitation facilities. This criterion is now regarded as an essential element for all village-level interventions.

The application of these criteria to the available field data permitted the following conclusions to be drawn concerning Priority Action Zones:

1. The existing piped water systems in Bangui, Bambari, Bouar, Berberati, and Bozoum, and a few other secondary centers, need to be repaired and subjected to regular maintenance. Maintenance centers also need to be created at strategic points throughout the country, with equipment and staff adequate to service the water supply systems of all urban and rural localities to be either repaired or built during the Water Decade. This objective is already well defined. In addition to the foregoing cities, maintenance centers are likely to be established in Bangassou, Ndélé, Bossangoa, and Boali.
2. Public water supplies are now being made available for certain industries (for example, breweries) and for the populations working in agro-industries such as cotton growing. Water supplies are also extensively used in village industries such as manioc processing and livestock watering. Because the labor of traditional agricultural workers accounts for half of the country's GNP, increasing their productivity through improved village water supplies is a major objective. This objective is still poorly defined in terms of specific Priority Action Zones. The future investigations by the Bureau Permanent could help to define them.
3. Most inhabitants of the northeastern prefectures Vakanga, Bamingui-Bangoran and Haute-Kotto draw water from ditches or shallow traditional wells which have been progressively more affected in recent years by low annual rainfalls and declining groundwater levels. Except for a few spring-fed gravity supplies, such as that in Ndélé, most localities in this area require modern dug wells or boreholes to ensure a constant supply of potable water. The entire rural population of these prefectures (approximately 67,000 persons) is considered to be in a Priority Action Zone. Similarly, many localities in the southeastern prefecture of Mbomou were observed to be lacking adequate water supplies. Virtually all towns and secondary centers are seriously affected by insufficient water points, and many villagers whose traditional water points are dry, use untreated river water when it is available. The subprefecture of Bakouma, with a total population of 13,000, is provisionally designated as a Priority Action Zone. The prefecture of Haut-Mbomou is reported to have

water supply deficiencies of similar character. Hence, the whole of the two prefectures of Mbomou and Haut-Mbomou are earmarked for further surveys and determination of Priority Action Zones. The future surveys by the Bureau Permanent will aim to determine areas and localities in other parts of the country which deserve priority attention based on the criteria of water shortage and/or waterborne disease.

4. The fourth criterion of priority, population concentration, seems well justified on the basis of the field observations of the Bureau Permanent and information from the National Water Company (SNE). Nearly all towns and secondary centers have a serious shortage of water points, and, regarding population, the shortage is most serious in the large towns that have piped water systems. The latter point may be observed by data in the following table:

City	Population 1,000	Subscribers*	Stand- posts*	Estimated Population (1,000)**	
				Served	Not served
Bangui	474	4,739	-	47	427
Bambari	45	192	18	11	34
Bouar	42	258	1	3	39
Berberati	39	343	2	4	35
Bozoum	19	62	2	2	17

*Source: Soci t  nationale de l'Eau.

**Assuming 10 users per house connection, 500 users per standpost.

This objective is fairly well defined. All towns and secondary centers are Priority Action Zones, except for the few secondary centers having reasonably adequate coverage.

5. The fifth criterion requires that priority be given to the most economically viable of the water supply projects proposed to serve agglomerations of population. The existing piped water systems, which as noted above serve almost exclusively house connections, are self-financing and have tariffs which vary from 104 FCFA/m³ to 208 FCFA/m³ (\$0.24-0.48/m³) in Bangui and up to 360 FCFA/m³ (\$0.86/m³) in Berberati. Public standposts have in the past not been satisfactorily managed and failed to recover costs. Present planning for greatly increasing urban water coverage through so-called "social connections" includes consideration of at least two optional methods of cost recovery. Continuing and planned rural schemes require that users share the costs, at least of maintaining the systems, and this objective is expected to be better defined following an institutional study recently proposed by the International Development Association. The application of

this criterion in selecting Priority Action Zones is, therefore, dependent on further studies and decisions on cost-recovery procedures.

Chapter 3

IDENTIFICATION OF SECTOR PROJECTS

3.1 Identification Procedure

The procedure for identifying sector projects proposed by the National Action Committee for Water and Sanitation (CNEA), which is described in Chapter 1 of this report, was modified. Since it was impractical to set up a single project study unit (as was intended through the creation of the CPE in the State Secretariat of Hydraulics (see Appendix D)), most projects were identified by the planning staff of the governmental executing agencies. The Bureau Permanent of the CNEA undertook the role of coordinator and provided liaison during preliminary discussions about project scope and definition between the Planning Commission Project Center and the executing agencies. The impracticability of setting up project study units has been experienced also in the current planning cycle in other sectors. Because of the widespread shortage of technical staff, planning, study, and sometimes even design functions have been typically carried out directly by agency executive officers.

In accordance with the terminology established by the Planning Commission Project Center, four general projects were identified in the water supply and sanitation sector as follows:

- Projet EAR: Eau et Assainissement Rural (Rural Water Supply and Sanitation)
- Projet AU: Assainissement Urbain (Urban Sanitation)
- Projet EU: Eau Urbaine (Urban Water Supply)
- Projet PA: Programme d'Appui (Support Program).

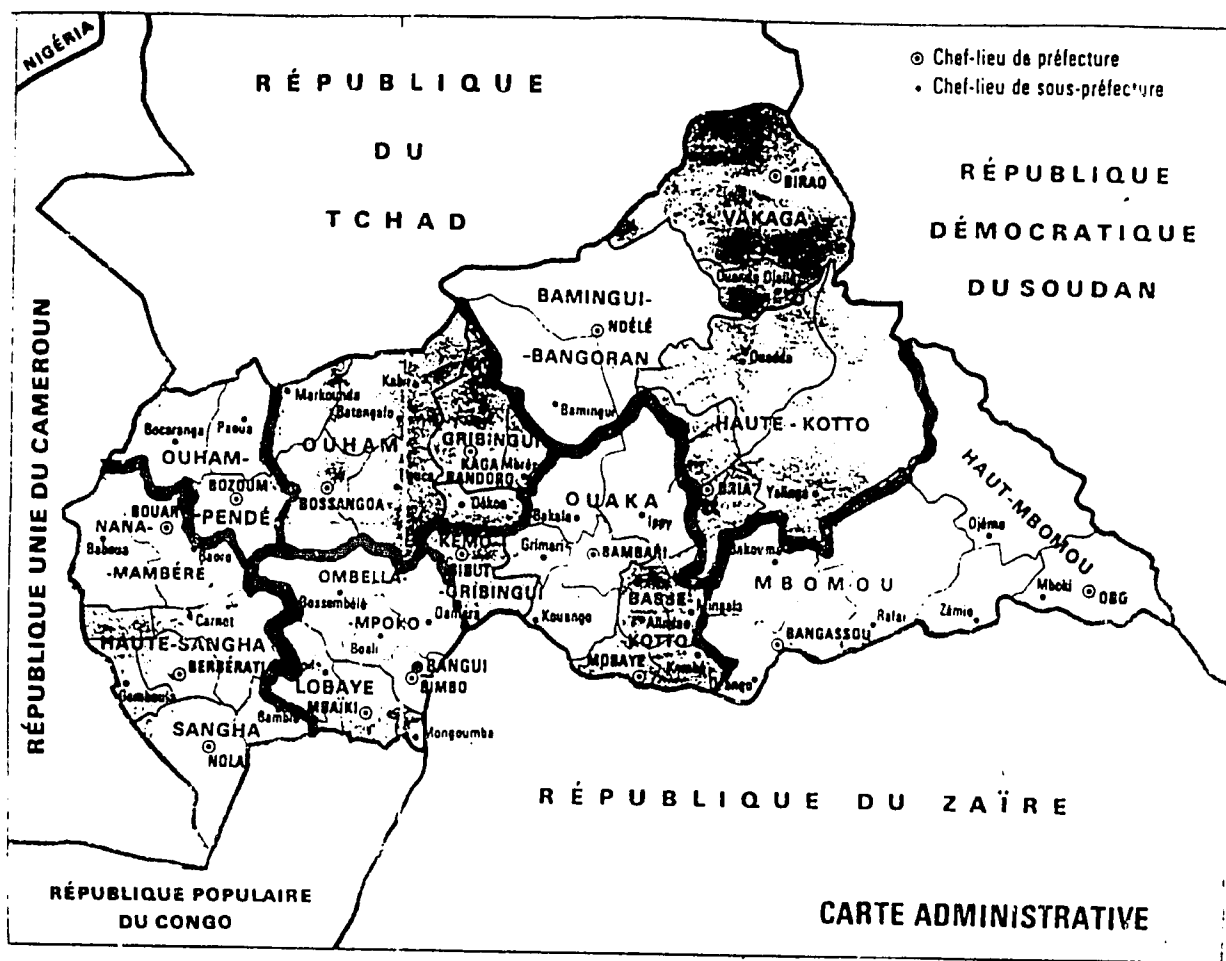
Within each of the four general projects are a series of specific subprojects. The subprojects and subproject ideas submitted by sector agencies have been classified under the foregoing projects and are being assigned subproject "code numbers" by the Project Center. As of 1 September 1985, 36 subprojects were identified in the water supply and sanitation sector, of which 8 were being implemented, 4 were under negotiation, 4 were under study, and 20 constituted project ideas (see Appendix E).

3.2 Coverage Projects

3.2.1 Rural Water Supply and Sanitation

The General Directorate of Rural Engineering (DGGR) identified the two subprojects in the southcentral cotton-growing area and the northcentral area Ouham and Ibingui-Economique, which are now in operation, as well as the subproject now under study in the southwestern area (Lobaye and Ombella-Mpoko). The Bureau Permanent and the General Directorate of Hydraulics have identified two new village-level subprojects in the southeast (Mbomou and Haut-Mbomou) and in the northeast (Vakaga, Bamingui-Bangoran, and Haute-Kotto) based on the criteria of water shortage and waterborne disease. The Bureau Permanent also is recommending that the two government-executed subprojects described above,

Figure 1. Map of the CAR Showing Rural Subproject Areas



<u>Subproject Area</u>	<u>Construction & Maintenance Center</u>	<u>Prefectures</u>
Southcentral	Bambari	KI Kémo-Ibingui UK Ouaka BK Basse-Kutto
Southeastern	Bangassou	MB Mbomou HM Haut-Mbomou
Northeastern	Ndélé	HK Haute-Kotto VK Vakaga BB Bamingui-Bangoran
Northcentral	Bossangoa	IE Ibingui-Economique UA Ouham
Northwestern	Bouar	UP Ouham-Pendé
Western	Berberati	NM Nana-Mambéré HS Haute-Sangha SE Sangha-Economique
Southwestern	Boali	LB Lobaye MP Ombella-Mpcko

which are due to end in 1987 and 1988, respectively, be extended and possibly accelerated. It also recommends that the two village-level subprojects in the northwestern and western areas, which are being directly executed under bilateral arrangements, be expanded to include encouragement and guidance in latrine-building, extended in time at least to the end of the Water Decade and accelerated to cover Priority Action Zones within this period. (See Appendix F, "Rural Water Supply Execution Program.")

3.2.2 Urban Sanitation

The Municipality of Bangui has identified three urban sanitation subprojects, whose scope and definition were discussed at an interagency meeting during the WASH consultant's assignment. The Ministry of Health and Social Affairs (MSAS) has identified an additional subproject to repair the wastewater and solid waste disposal units of the main hospital in Bangui.

Urban sanitation deficiencies were reported from virtually all towns and secondary centers. The Ministry of Public Works and Urban Development (MTPU) has included drainage and sewerage in the long-range plans for cities having piped water supplies, but has not identified immediate subprojects, or even subproject studies, because it seems unlikely that development funds will be allocated to drainage or sewerage schemes outside of Bangui during the next five years. The Policy and Strategy Document states that 60 percent to 70 percent of the urban inhabitants use latrines; therefore, no special program for urban latrinization has been identified.

3.2.3 Urban Water Supply

The National Water Company (SNE) has identified seven subprojects in various stages of preparation. Three of these are under negotiation, and four were recently identified in discussions with the International Development Association. These subprojects concern Bangui and 17 other cities and secondary centers. Water supplies for three other towns are under study under the responsibility of the General Directorate of Rural Engineering (DGGR). The Bureau Permanent has proposed that feasibility studies be undertaken for water supplies in ten additional towns for construction after 1990. The implementation of all of these projects would provide safe water for all towns in the country with more than 4,000 inhabitants.

3.3 Support Program

The Groundwater Study Project, in operation since 1984, has already contributed significantly to the success of several rural and urban water supply subprojects, to the formation of national specialists in hydrogeology and geophysics, and to the beginning of a national data bank of groundwater information. Two complementary subprojects have been identified: the preparation of a National Hydrogeological Map and Commentary based on existing records and a National Inventory of Water Resources and Master Plan for Water Resource Utilization based on a field investigation. The last two subprojects were identified by the General Directorate of Hydraulics (DGH).

An institutional study that will make recommendations to improve the management, operation, maintenance, and cost recovery for rural water supply installations was identified during GOCAR's recent discussions with the International Development Association (IDA). The Bureau Permanent has identified a training subproject which focuses heavily on other in-service training activities in the Central African Republic and in neighboring countries.

The Department of Sanitation and Environmental Hygiene (DASE) of the Ministry of Health and Social Affairs has identified three subprojects: a program to inform and educate users about water and sanitation facilities; a program of drinking water quality surveillance; and a program to provide water and sanitation facilities for selected schools, clinics, and marketplaces. The first of these (locally called a "popularization campaign") will be closely related to the results of the institutional study mentioned earlier.

Assistance has been provided by UNDP and USAID to the CNEA for the first-year activities of the Bureau Permanent. This assistance included office equipment, transport, logistical supplies, and provisions for study travel. The continuation of assistance to the Bureau Permanent has been identified as an important input for developing the sector during the remainder of the Water Decade.

A number of the new subprojects which have been identified require preparatory consultant work before they can be presented for the consideration of funding agencies. Consultants are needed to prepare feasibility studies for the smaller subprojects and to prepare terms of reference for more extensive studies of the larger subprojects. All of these consultantships would be desirable during the next 12 months or so, and they are therefore combined into a single subproject comprising a civil/hydraulic engineer for seven months, and a civil/sanitary engineer and a socio-economist each for four months, together with suitable logistic support.

Chapter 4

FORMULATION AND PRESENTATION OF PROJECTS

4.1 Formulation of Rural Subprojects

In view of the serious setbacks experienced in executing rural water supply subprojects during the 1970s, GOCAR has taken special pains to ensure that thorough preparatory work precede all construction in new subprojects. Four basic requirements must be present:

1. Expert staff, appropriate equipment, and adequate funds to construct the facilities
2. Adequate staff, equipment, and funds to provide periodic control of the operation and maintenance of the facilities from a regional maintenance center
3. Villagers' agreement and capability to contribute effectively to the improvement, operation, and maintenance of the facilities
4. Optimum choice of type and siting of the water source.

The first two requirements and the procedures for the second two requirements are agreed on when the subproject is approved. The first two requirements are in place, and the second two are implemented when the subproject starts. The feasibility study in each subproject area covers a representative sample of communities to obtain Type 2 and Type 3 data (see Chapter 2 of this report) and revises the preliminary estimates of staff, materials, time, and costs. It also evaluates specific regional constraints (such as roads, communications, and construction materials) and confirms the main subproject elements and procedures. The estimates of staff, materials, time, and costs are based, as far as possible, upon the experience of other rural subprojects which are under execution, with appropriate modifications to allow for changes and contingencies. The World Bank Water Supply and Sanitation Project Preparation Handbook (Vol. 1) chapter on rural water supply subprojects was used by the Bureau Permanent in determining this approach.

The work of the Groundwater Study Project to date seems to confirm that geophysical measurements will significantly enhance the success rate, both in tubewell construction and in dugwell construction, under the conditions prevailing throughout most of the Central African Republic. This means that except where perennial springs can be used, or in the rare localities where useful conclusions can be drawn from the examination of existing tubewells or dugwells, geophysical measurements will be advisable before the final decision is made on the type of well and on its siting.

Although the geophysical studies for a village well will usually be completed in either a half day or one day, they will normally be made only after a subproject has been funded and initiated and after the villagers' willingness to cooperate has been assured. The process is in fact an iterative one that consists of:

1. Contacting village authorities and inhabitants, explaining the proposed work, and obtaining local views
2. Making visitations to and examining all possible water points, including elevated perennial springs, together with village authorities
3. Discussing options with villagers and village authorities and obtaining their commitment in principle
4. Conducting geophysical studies, if indicated, and discussing revised options with village authorities
5. Before construction, the village must establish a maintenance account, appoint a waterminder (fontainier), and agree to a standard procedure of operation and maintenance that includes periodic visits by technicians from the Regional Maintenance Center to inspect the facilities and to replace worn parts.

On the basis of the foregoing approach, the Bureau Permanent formulated most of the subprojects which had been identified (see Section 3.1). The experience of all of the continuing subprojects indicates that 60 water points annually per construction team is a reasonable average. The Bureau Permanent, therefore, used this information in its estimates. The staff, equipment, and costing of the northcentral area subproject (assisted by UNICEF and the Italian Government) were used for estimating purposes. Cost projections (based on 1985 costs in FCFA) used two factors: 600 million FCFA (\$1.43m) for prospection equipment, construction equipment and office, camping, transport, and maintenance equipment, all to be purchased the year before operations are due to start and 300 million FCFA (\$0.71m) annually per construction team, for international and local staff costs, fellowships, expendable materials, installed equipment, and operating costs.

The cost of staffing and operating the maintenance center during the construction period is included in the second cost factor. The cost factor used for basic equipment compares well with estimates for the southcentral cotton area subproject and the southwestern subproject proposal which is now under study by the Japanese Government. The cost figure for yearly operations per construction team gives an average of 5 million FCFA (\$12,000) per installed well or other water point. If the equipment is amortized over five years, the average cost per installed water point is 7 million FCFA (\$16,700).

The Bureau Permanent assumed that a water point will serve, on the average, 250 inhabitants (although GOCAR's ultimate objective is to provide a water point for each 150 inhabitants). On this basis, the per-capita investment, including amortized equipment and minor repairs during the construction period, is 28,000 FCFA (\$67), which approximates the IDA estimate of \$70/capita. The village maintenance account, initially 50,000 FCFA or approximately 2,000 FCFA per family, will need to be replenished when replacement parts are purchased and is likely to require several thousand FCFA annually per family.

Of the seven rural subprojects identified, the Bureau Permanent had prepared summary subproject documents in the form of data sheets for five of them by 1 September 1985. The remaining two subprojects which are located in the

northcentral area and in the northwestern area, should be prepared in collaboration with officials of the present subprojects. Similarly, the other two subprojects proposed for continuation (in the southcentral and in the western area) should be revised in collaboration with the officials of the present subprojects. Finally, the subproject proposed for the southwestern area of the country should be revised in view of further discussions with the Japanese Government.

4.2 Formulation of Urban Sanitation Subprojects

The Bangui storm drainage system, whose design and construction was begun 15 years ago under a UNDP/WHO-assisted subproject, and extended 10 years ago with French bilateral assistance, is in serious need of revision and extension to take care of newly urbanized parts of the city. The small sanitary sewerage system, which serves the center of the city, also requires repair and extension. Municipal solid waste collection has been practically nonexistent for several years. Industrial effluents flow untreated into the watercourses. Sewage from the central hospital is discharged into an open city drain. Provisions for urban sanitation are virtually absent from other urban centers in the country.

Four subprojects have been formulated for the coming five years: (1) equipment for the emergency repair of broken drains in Bangui; (2) trucks and other equipment needed to reinstate solid waste collection and sanitary disposal in Bangui, (3) repair of sewage and refuse treatment facilities at the Bangui central hospital, and (4) a general study of the Bangui storm drainage system. The Bureau Permanent has proposed that the latter study should be comprehensive, that is, that it should cover all of the city's waste disposal problems and produce a staged program for addressing them that will satisfy health, economic, and aesthetic criteria. The terms of reference for the study will be discussed in the near future with representatives of the International Development Association (IDA), which may assist with construction costs when the study is ready.

4.3 Formulation of Urban Water Supply Subprojects

All of the new subprojects identified under the responsibility of the SNE require consultant assistance for their preparation totalling approximately nine months. The National Water Company (SNE) is preparing terms of reference for these consultancies. As pointed out in Section 2.2, the greatest problem regarding population is the lack of access to safe water in the large cities having piped water systems which reach only 10 percent of the population. Subprojects to extend coverage in these five cities alone could affect more than half a million people. The Bureau Permanent has put the SNE in direct contact with the project center in the High Commission of Plan (HCP), in order to coordinate the records of subprojects and subproject designations. The Bureau Permanent also has approached UNDP and the French Embassy to inform them of the need for consultant resources to prepare urban water supply subprojects. In order to develop a complete record of current subprojects, the Bureau Permanent has requested the German Embassy and the Swedish Consulate to provide information to the CNEA on the current status of the water supply subprojects that they are supporting.

4.4 Formulation of Support Program Subprojects

The State Secretariat of Hydraulics (SEH) is responsible for formulating the new groundwater study subprojects and the institutional study on village water supplies. External consultant assistance is envisaged to prepare the terms of reference for these activities. In addition, the Bureau Permanent and the National Water Company (SNE) are preparing plans of operation for training activities. It may be advisable, therefore, to combine these into a single subproject. The Bureau Permanent has prepared a proposal for continued UNDP support to its activities over the coming five years. If UNDP support is unavailable with respect to addressing these needs, the proposal will be presented to the Round Table Meeting with donors in March 1986.

The Department of Sanitation and Environmental Hygiene (DASE) is reformulating its previous proposal for a health education subproject. This subproject will be coordinated with the results of the institutional study on rural water supplies. The DASE also is reformulating its earlier proposal for drinking water quality surveillance to place more emphasis on the procedures, staffing, and articulation of this activity. The DASE is formulating the subproject to provide potable water and latrines for selected schools, clinics, and markets. The Bureau Permanent has formulated a request for \$150,000 to pay for 15 person-months of consultants (7 person-months for a civil-hydraulic engineer and 4 person-months each of civil-sanitary engineer and socio-economist), plus logistic support.

4.5 Preparation of Documents for the Round Table Meeting

GOCAR is planning to invite donors familiar with the Central African Republic to a preliminary Round Table Meeting in March 1986, at which time the development strategy and important subprojects will be presented and discussed. The Five-Year Plan will be completed in July 1986, and a more formal Round Table Meeting with a larger number of donors will be held in November 1986.

The Project Center in the High Commission of Plan (HCP) requested sector planning units and executing agencies to submit the following documents (see Appendix G):

- o Sector policy documents
- o List of main projects and subprojects, indicating the status of advancement of each subproject (that is, idea, study, negotiation, or execution)
- o Information about each subproject (including those under execution) on special data sheet forms
- o For each subproject idea, the terms of reference for studies which need to be undertaken as well as their cost
- o For each subproject under study, the feasibility study (or a report on the study)

- For each subproject under negotiation, the financing plan, the execution program, and tender documents
- For each subproject under execution, a progress report.

As of 1 September 1985 the following documents are available for the water supply and sanitation sector:

- Policy and Strategy Document (May 1983)
- Short- and Medium-term Action Plan (1983)
- List of Projects and Subprojects as of 1 September 1985
- Fifteen Draft Data Sheets (see Appendix H)
- Fourteen Data Sheets (in preparation)
- Supporting documents for subprojects (incomplete).

It is believed that all subprojects being proposed are consistent with national development goals and sector development goals. The total additional funds being sought during the period 1986 to 1990 is 20.0 billion FCFA (\$47.6m), broken down among the main projects, as follows:

<u>Project</u>	<u>Billions of FCFA</u>	<u>Millions of Dollars</u>	<u>Percent</u>
Rural Water and Sanitation	13.5	32.1	67.5
Urban Sanitation	1.3	3.1	6.5
Urban Water Supply	4.4	10.4	22.0
Support Program	<u>0.8</u>	<u>2.0</u>	<u>4.0</u>
Total	20.0	\$47.6	100.0%

Chapter 5

FUTURE ACTIVITIES OF THE BUREAU PERMANENT

5.1 Interagency Activities

During the period June-August 1985, the Bureau Permanent, assisted by the WASH consultant, undertook the task of assisting sectoral agencies in identifying and formulating the subprojects that will constitute the sectoral program of the National Development Plan 1986-1990. This task will continue for another year and will include preparations for a round table meeting in March 1986, the revision and completion of the sector program in the National Plan in July 1986, and preparations for an expanded round table meeting in November 1986.

The recent activities of the Bureau Permanent have clearly shown the importance of its liaison function between the sectoral executing agencies and the central planning organisms, on the one hand, and between the executing agencies and the potential external financing agencies on the other hand. These liaison activities have brought to light various ways in which the CNEA and its Bureau Permanent might improve sector work. Such improvements may be realized by:

- Interpreting the planning methodologies to the executing agencies
- Interpreting the requirements for preparing large sector projects to the planning organisms (preparation of such projects requires several person-years of expertise over one or two years of time and costs several hundreds of millions of FCFA)
- Continually informing donor agencies about all sector needs, including software needs
- Requesting bilateral and nongovernmental organizations that are either executing or studying water supply subprojects to provide regular information to the GOCAR on these activities.

The current water sector work of national and external agencies is summarized in Appendices I and J, respectively.

5.2 Secretariat Activities

During the coming five years, the Bureau Permanent will perform staff work for the CNEA in planning, monitoring, and evaluating programs and projects; in exchanging technical information; and in maintaining a documentation center.

5.2.1 Planning

During the first half-year of its existence, the Bureau Permanent worked as a team in carrying out a series of field investigations covering 13 subprefectures, with the aim of defining Priority Action Zones. As noted in Chapter 2 of this report, this activity produced useful information for

program and project development. It is, however, incomplete both in scope and coverage. These investigations should be continued, with the specific aim of defining:

- o Zones where improved water supply would improve the productivity of traditional agricultural workers
- o Zones in the populous parts of the center and west that deserve priority based on the criteria of water shortage and/or waterborne disease.

The results of these investigations should be brought to the attention of the rural subproject directors in Bambari, Bossangoa, and Berberati so that their future operations may, as much as possible, be concentrated in Priority Action Zones.

In a similar way, the investigations of the Bureau Permanent should be brought to the attention of the executing agencies responsible for urban subprojects to assist them in determining priorities. The larger cities in most cases will probably have priority, but there may be some cases where health and economic conditions will be considered to have overriding importance. In this connection, it was noted in Section 3.2.2 that no specific subprojects have been identified in urban sanitation outside of Bangui other than latrines for a few hospitals, schools, and marketplaces. With the collaboration of the Department of Sanitation and Environmental Hygiene the Bureau Permanent should collect relevant information from towns and secondary centers, and prepare preliminary proposals for addressing the most urgent urban sanitation deficiencies before the end of the Decade.

The projects and subprojects that are finally included in the National Plan 1986 to 1990 will constitute GOCAR's plan for the International Drinking Water Supply and Sanitation Decade. This plan, if carried out, will result in making potable water available to approximately 40 percent of the country's population by the end of 1990, as shown in the following table:

Community Water Supply	Population	Population	Percent Served 1985	Population	Add'l.	Population	Percent Served 1990
	(millions) End 1985	(millions) Served 1985		(millions) End 1990	Popu- lation Served 1986-90	(millions) Served 1990	
Total	2.7	0.3	11.0%	3.0	0.9	1.2	40.0%
Villages	1.6	0.2	13.0	1.7	0.5	0.7	41.0%
Towns & Secondary Centers	1.1	0.1	9.0	1.3	0.4	0.5	38.0%

During 1989, the Bureau Permanent will have to prepare the sector plan for the period 1991 to 1995.

5.2.2 Monitoring and Evaluation

The Bureau Permanent will need to develop a plan for routine monitoring of project accomplishments based on a study of the periodic reports from field subprojects and a comparison of the works completed with the yearly targets indicated in their plans of operation. In addition, the Bureau Permanent should undertake annually one or more special evaluations. The following list was suggested during the WASH consultant's visit:

- 1986: evaluation of the results of the two round tables
- 1987: study and evaluation of two rural subprojects to ascertain to what degree they are meeting their technical, economic, social, and health objectives
- 1988: evaluation of the newly instituted method of "social connections" in the Bangui water distribution system
- Early 1989: evaluation of the training program
- Late 1989: collect statistics of forecasted accomplishments of all subprojects 1986 to 1990 and analyze the results for inclusion in the CAR Water Decade Report and the 1986 to 1990 Five-Year Plan Evaluation
- 1990: study and evaluation of Bangui sanitation (that is, the effectiveness of the urgent repairs undertaken to the drainage system, the operation of the solid waste collection system expected to be instituted in 1986-87, and the results and decisions taken following the completion of the master planning study expected to be carried out during 1987-88.)

5.2.3 Exchange of Technical Information

The Bureau Permanent has created a small reference library of publications which it intends to make available to technical staff of executing agencies in Bangui. It intends to expand the library with additional titles whenever possible (see Appendix K). This library will eventually include copies of all technical reports on water resources, water supplies, waste disposal, pollution control, and related subjects concerning the Central African Republic. When the program of the Bureau Permanent is well established, it might issue a periodical newsletter for field staff regarding subprojects, staff movements, operational problems and solutions, and technological innovations. Articles for the newsletter would be invited from staff and advisers of executing agencies as well as from regional and municipal officials. The Bureau Permanent has been encouraged to establish contact with the WASH Project in Washington, D.C. and the International Reference Centers on water supplies at the Hague and on waste disposal at Dubendorf, Switzerland.

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

During the next few years, a shortage of professional staff will be the greatest constraint to sector development in the Central African Republic, largely due to governmental restrictions on new positions and on hiring staff. The most urgent needs at present are for engineers, hydrogeologists, geophysicists, technicians, and a skilled work force for prospecting and constructing village water supplies and for repairing and maintaining village and town water supply systems. Other staffing needs will be felt before the end of the Decade. To complete the subprojects that are already approved, initiate the urgent new subprojects, and gradually form a cadre of national specialists, the GOCAR will be obliged to use all available resources, to rely heavily on external teams in the short run, and to train specialists to staff subprojects and services in the long run.

Recommendation 1: GOCAR should negotiate new bilateral and NGO subprojects essentially as turnkey projects, executed by foreign teams but conforming to governmental guidelines, which include training elements for national professionals. Continuing bilateral and NGO subprojects should be expanded, accelerated, include training elements, and should conform to governmental guidelines.

Recommendation 2: GOCAR should use national teams, with international advisers where necessary, to execute the most urgent new subprojects. These national teams should comprise qualified professionals, having junior engineers and recent graduates as understudies. New professional staff and skilled workers on these subprojects should be supported initially through external funds but should be absorbed as soon as possible into central or prefectural national budgets.

All prefectures in the country contain rural and urban Priority Action Zones. In the underpopulated northeastern area all localities are considered Priority Action Zones, while many villages in the populous central and western areas will be designated Priority Action Zones in order to support traditional agriculture or to combat drought and disease. All large towns and most secondary centers have extensive Priority Action Zones. It is essential to select Priority Action Zones for action over the next five years, because less than half of total needs can be satisfied during that time.

Recommendation 3: The Bureau Permanent of the CNEA should continue to collect and analyze all available data relevant to the designation of Priority Action Zones and carry out appropriate field investigations related to the priority criteria. USAID, UNDP, or other external agencies should consider providing logistical support for the field investigations.

Twenty new subprojects have been identified for inclusion in the five-year sector program, but many of them require external consultant assistance to complete their formulation, and all require careful review and revision.

Recommendation 4: Fifteen person-months of consultant time and logistical support should be provided from external sources during the next 12-18 months. The Bureau Permanent should continue to provide liaison between external agencies, governmental executing agencies and the High Commission of Plan (HCP) in the formulation of projects.

A full schedule of technical and organizational activities is foreseen during the next five years for the CNEA and its Bureau Permanent, including planning, monitoring, evaluation, exchange of technical information and liaison activities.

Recommendation 5: As soon as possible, GOCAR should assign an engineer to work full time in the Bureau Permanent. In addition, UNDP or some other external agency should continue to provide logistical and other support to the Bureau Permanent.

APPENDIX A
Officials Interviewed

OFFICIALS INTERVIEWED

<u>ORGANIZATION</u>	<u>TITLE</u>	<u>NAME</u>
Water and Sanitation for Health Project	Director	Leo. A. St. Michel
	Deputy Director	Dr. Dennis B. Warner
	Sr. Project Officer	Craig Hafner
	Consultant	Dr. Pierre R. Leger
	Consultant	Thomas C. Leonhardt
USAID, S+T/H/W	Health Officer, Envir.	Charles H. Witten
US Embassy Bangui	Ambassador	Edmond DeJarnette
	Deputy Chief of Mission	Douglas Hartwick
	Acting AID Officer	Katherine Montgomery
High Planning Commission	High Commissioner	Guy Darlan
Planning Commission Project Center	Economist	Pierre Kotiga
	Economist	Charlemagne Pissara
	Adviser(World Bank)	Peter Beach Warren
State Secretariat of Hydraulics	Secretary of State	Remy Adelaya
General Directorate of Hydraulics	Director General	Jean Koyo-Nede
	Director of Hydraulics	Faustin N'Telnoumbi
	Chief Village Wat.Sup.	Apollinaire Youma-Delegue
National Water Society SNE	Project Engineer	Pierre Batera
	Adviser	Xaver d'Iribarne
	Chief of Studies&Stat.	Joseph Tekpe
General Directorate of Rural Engineering	Director General	Jean Privat Mbaye
	Engineer	Fidele N'Gouanze
Groundwater Study Project	National Director	Etienne M'Peco
	Adviser (UNDTCD)	Jean Claude Lachaud
Northcentral Village Water Supply and Sani- tation Project (Bossangoa)	National Director	Thierry Servoutou
Directorate of Sanita- tion and Envir. Hygiene	Director	Dr. Dieudonne Silinguia
	Chief Health Inspector	Honorat Ouilibona-Cockcist
Bangui Municipality	Director of Tech. Serv.	Noel Gbeba
CNEA Permanent Bureau	Coordinator-Engineer	Jean Privat Mbaye (pro tem)
	Dir. Planning Division	Albert Vivien Demane
	Dir. Monit&Eval Div.	Jean Prosper Wamokonzia
	Dir.Res.&Doc. Division	Mathieu Goyeko

<u>ORGANIZATION</u>	<u>TITLE</u>	<u>NAME</u>
Bangui Tubewells Ex- ploitation Project	Consultant (UNDP)	José V. de Carvalho
UNDP	Dep. Resident Repres. Asst. Resident Repres. Program Officer Roundtable Adviser	Farouk Tarzi Henri Coeur-Bizot Ulrika Heidegger Jorge Manuel Geraldo Simões Moita
UNICEF	Program Officer Country Representative	Saliou Ladjouan Marie Touré N'Gom
WHO	National Prog. Coord. Laboratory Adviser Inter-country W.S. Adv.	Prof. Georges Pinerd Agbenu Aguessy Daniel Valéry
German Embassy	First Secretary	Udo Wehner
Swedish Consulate	Consul	François Epaye
French Embassy	Director FAC	M. Peccoud
CAR National Television	News Director	Salvador Mbeleko

APPENDIX B
Consultant's Scope of Work

CONSULTANT'S SCOPE OF WORK

1. Assist personnel of the Bureau Permanent (within the CNEA) and the Planning and Study Unit (within the State Secretariat of Hydraulics) to improve their skills and knowledge in sectoral and project plan formulation.
2. Review the available information which has been collected for the Priority Action Zones.
3. Prepare a work plan for his work in the CAR.
4. Assist the Bureau Permanent in establishing criteria for the identification of potential projects for submission to a donors' meeting in late 1985 (now 1986).
5. Prepare terms of reference for the preparation of project proposals for the donors' meeting.
6. Assist the Bureau Permanent and the Planning and Study Unit in the preparation of the project proposals for the donors meeting.
7. Assist the Bureau Permanent and the Planning and Study Unit in identifying future planning actions and in the preparation of a work plan to carry out such planning.
8. Prepare a final report with appropriate recommendations to the CNEA and USAID concerning future actions to be taken in the Water Decade program.

APPENDIX C

Itinerary

APPENDIX

ITINERARY

- 29-31.6.85 Briefing with WASH staff and former activity consultants
- 4.6 Initial meetings with Embassy and Permanent Bureau staff
- 7.6 Meeting with State Secretary of Hydraulics
- 8.6 Initial meetings at UNDP and UNICEF
- 10.6 Initial meeting with Director General of Hydraulics
- 11.6 Meeting with WHO Coordinator; initial meeting at SNE
- 12.6 Initial meeting with UNDP/UNDTCD Groundwater Project
- 15.6 Initial meeting with UNDP Roundtable Adviser
- 17.6 Initial meeting with World Bank Adviser to Project Center
- 21.6 Initial meeting with Bangui Municipality Chief Engineer
- 22.6 Initial meeting at Directorate of Sanitation and Environmental Hygiene; field visit Bangui drainage system & dump
- 24.6 Meeting at Planning Commission Project Center
- 25.6 Interagency meeting re Bangui sanitation planning
- 26.6 Briefing Ambassador on first part of assignment
- 28.6 Meeting with High Commissioner of Plan
- 6.8 Second part of assignment: initial meeting at Embassy
- 13.8 Initial meeting with television staff re proposed program about the CNEA (not realised during consultant's stay)
- 20.8 Meeting with Swedish Consul
- 22.8 Meeting with German Chargé d'Affaires
- 26.8 Initial meeting with WHO Intercountry Water Supply Adviser
- 27.8 Final meetings at UNDP and UNICEF
- 30.8 Meeting at French Embassy
- 2.9 Final briefing High Commissioner of Plan, WHO Intercountry Engineer and Embassy staff.

APPENDIX D

Decree Naming Members of
Planning and Study Unit

DECREE OF 21 NOVEMBER 1984 NAMING THE MEMBERS OF THE
PLANNING AND STUDY UNIT FOR THE IDENTIFICATION AND
FORMULATION OF WATER SUPPLY AND SANITATION PROJECTS
SIGNED BY THE STATE SECRETARY OF HYDRAULICS

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-0-

CABINET

Ministère d'Etat chargé

Développement Rural

ARRETE N° 159/SEH/CAB.r

SECRETARIAT D'ETAT A L'HYDRAULIQUE

REGISTRE

4760

24-11-84

PORTANT NOMINATION DES MEMBRES DE LA
CELLULE DE PLANIFICATION ET D'ETUDE.

-0-

ARRIVE LE 24-11-84
Registre S: N° 194/2684

LE SECRETAIRE D'ETAT A L'HYDRAULIQUE

DGGH A

FA
Cabinet
text
1/11

Les Actes constitutionnels n°s 1 et 2 des 1er et 22 Septembre 1981 ;

Le Decret n° 84/012 du 23 Janvier 1984, portant nomination ou confirmation des membres du Comité Militaire de Redressement National et son additif n° 84.249 du 27 Juillet 1984 ;

Le Decret n° 84.319 du 19 Septembre 1984, fixant les attributions du Secrétaire d'Etat à l'Hydraulique et portant organisation du Département de l'Hydraulique ;

(/U L'arrêté n°158/SEH/CAB du 21 Novembre 1984 portant création d'une cellule de planification et d'Etude au sein du Comité National de l'eau et de l'assainissement ;

Sur proposition du Secrétaire Général du Comité National de l'eau et de l'assainissement.

A R R E T E

ART. 1er : Sont nommés membres de la Cellule de planification et d'Etude du Comité National de l'eau et de l'assainissement les fonctionnaires et agents dont les noms suivent :

1°) Economiste planificateur en matière de ressources en eau, Ingénieur Conseil, Statisticien : CONSULTANT, USAID;

2°) Sociologue : KOYO-NEDE Jean Séraphin, Directeur Général de l'Hydraulique.

ART. 2.- : Le Dessinateur et les Secrétaires Dactylographes seront mis à la disposition de la cellule de planification et d'Etude par le bureau permanent du Comité National de l'eau et de l'assainissement.

COURRIER A L'ARRIVEE
Registre le 24-11-84

ART. 3.- : Le présent arrêté qui prend effet à compter de la date de sa signature sera enregistré et communiqué partout où besoin sera.

AMPLIATIONS :

Fait à Bangui, le 21 - 11 - 84

- CAB.....1
- Haut Commissariat Coopération Economique et Financière.....2
- Ministère Travaux Publics et Urbanisme.....1
- Ministère Développement Rural.....1
- Ministère Transport et Aviation Civile.....1
- DGH.....1
- DG SNE.....1
- CHRONO.....2



- CAPITAINE Rémy ADELAYE -

APPENDIX I:
Sector Project List

SECTOR PROJECT LIST
CENTRAL AFRICAN REPUBLIC
FIVE YEAR PLAN 1986-1990
WATER SUPPLY AND SANITATION SECTOR
PROJECTS AND SUBPROJECTS
(AS OF 2 SEPTEMBER 1985)

Code Number	Subproject description	Exec. Agency	Exter. Finan. Agency	Start Year/ Present Status	Approx. Cost MFCFA
Total additional funds to be sought (ie, for ^{sub} project ideas and subprojects under study)					20010
<u>Project EAR (Rural Water Supply and Sanitation)</u> Total funds sought					13500
	Southcenter(KI,UK,BK)150 waterpts	DGGR	BDEAC	85exec	2400
	Southcenter extension 350 pts	...	...	88idea	1200
	Southeast(MB,HM) 240 pts	...	...	87idea	1800
523.058.01	Northeast(VK) 20 wells	DGGR	UNDP	86exec	150
524.039.01 } 524.059.01 }	Northeast(VK,BB,HK) 248 pts	...	...	87idea	1800
524.035.01	Northcenter(IE,UA) 200 pts	DGGR	UNICEF	85exec	1500
	Northcenter extension 120 pts	...	...	89idea	600
523.034.01	Northwest(UP) 20 pts	...	GTZ	84exec	310
	Northwest extension 300 pts	...	...	86idea	1500
	West(NM,HS,SE) 350 pts	NGO	SIDA	81exec	1800
	West extension 240 pts	NGO	...	89idea	1800
	Southwest(LB,MP) 440 pts	DGGR	Japan	87study	3600
<u>Project AU (Urban Sanitation)</u> Total funds sought					1320
	Bangui solid wastes collection	Munic	...	86study	500
	Bangui repair stormwater collectors	Munic	...	86study	500
525.041.01 } 525.041.02 }	Bangui general study wastes managm	Munic	IDA	87idea	220
	Bangui centr.hospital wastes disp.	DASE	...	86idea	100

** exec = under execution study = under study
negot = under negotiation idea = subproject idea

Code Number	Subproject description	Exec. Agency	Exter. Finan. Agency	Start Year/ Present Status	Approx. Cost MFCFA
<u>Project EU (Urban Water Supply)</u>		Total funds sought			4365
523.034.01	Paoua & Bocaranga(pop.17000)	...	KFW	86study	765
523.058.01	Birao(pop.4000) 25 wells	DGGR	UNDP	86exec	60
	Five cities(pop.125000) *	SNE	DANIDA	86negot	6000
522.057.01	Bangui devel. existing boreholes	SNE	UNDP	86negot	115
522.031.01	Bangui extend distrib. system	SNE	CCCE	86negot	2200
	Bangui extend produc. system (including groundwater)	SNE	IDA	88idea	330
	Bangui dist,(exten.proj.CCCE)	SNE	IDA	88idea	1100
	Twelve cities(pop.255000)**	SNE	IDA	88idea	1320
522.037.01	10000 "social" connections (see note on SNE in Appendix.I.)	SNE	IDA	88idea	550
	Feas. studies 10 cities(pop.68000) ***	SNE	...	91 idea	300
<u>Project PA (Support Program)</u>		Total funds sought			825
521.030.01	Groundwater studies & training	DGGR	UNDP	85exec	250
521.036.01	National hydrogeological map	DGH	CIEH	86negot	30
	Nat.water resources inventory and master plan	DGH	IDA	87idea	220
	Professional training	CNEA	IDA	87idea	220
	Institutional study of rural WSS and popularization campaign	DGH/DASE	IDA	86idea	110
521.055.01	Support for CNEA/BP	CNEA	UNDP	84exec	25
	Extension support CNEA/BP	CNEA	UNDP	86idea	100
	Surveillance of dr.water quality	DASE	...	88idea	50
	WSS for 30 "focal" establishments	DASE	...	86idea	60
	Funding for various studies	CNEA	...	85idea	65

*Bossangoa, Bangassou, Carnot, Mbaiki, Ndélé

**Extension and rehabilitation: Bambari, Bouar, Berberati, Bozoum(pop.145000) new systems: Bria, Batangofa, Alindao, Kaga Bandoro, Ippy, Dekoa, Kembé, Mbaye (pop.110000)

***Bossombélé, Bouca, Grimari, Nola, Baoro, Baboua, Obo, Ouango, Zémio

APPENDIX F
Rural Water Supply Execution Program

AIEPA VILLAGEOIS: PROGR. DE REALISATION

Projet. No. et centre (future)	Pré- fec- ture rela- ges	Pop. vil- la- ges	Nmb. pts d'eau à réaliser par an. stade, agence de financement; nmb./type équipes de construction*								
			Besoin app. avant							après 1990	
			tot. **	proj.	1986	1986	1987	1988	1989		1990
Bambari	KI	51	204	1404	30	60	110	120	120	904	
	UK	142	568		150	exc: BDEAC	350	idée		4 ans	
	BK	158	632		1	régie	1	rég.	1	contr	2r. 2c
(Bangas- sou)	MB	94	376	488	-	-	60	60	60	60	248
	HM	28	112				240	idée			4 ans 1 régie
523.058.01 524.059.01 (Ndélé)	HK	26	104	268	-	20	62	62	62	62	-
	VK	19	76			exc: PNUD	248	idée			terminé
	BB	22	88			1	régie				
524.035.01 Bossango	IE	66	264	1072	20	60	60	60	60	60	752
	UA	202	808		200	UNICEF			120	idée	6 ans 2 régie
523.034.01 (Bouar)	UP	208	832	832	20	60	60	60	60	60	512
					GTZ	300	idée				4 ans 2con
Berberati	NM	145	580	1448	150	60	60	60	120	120	878
	HS	166	664		350	SIDA			240	idée	5 ans
	SE	51	204		2	ONG			4	ONG	6 ONG
(Boali)	LB	121	484	896	-	-	80	120	120	120	456
	MP	103	412				440	Japan			4 ans 2con
TOTAL		1602	6408	6408	220	260	442	532	602	602	
TOTAL A REALISER					PENDANT LA DIEPA 2658(41.5%)					APRES 1990 3750(58.5%)	

*Les équipes de construction sont engagées par le gouvernement en régie, par le donateur en contrat, ou par ONG.

**Le besoin en points d'eau est estimé à 1 point pour 250h, comme premier étape vers l'objectif d'un point pour 150h.

APPENDIX G

Form and Procedure for Preparing Subproject Data Sheets

FORM AND PROCEDURE FOR PROJECT DATA SHEETS
ESTABLISHED BY THE PLANNING COMMISSION PROJECT CENTER

Part 1: Data Sheet Form

Part 2: Explanation of Data Sheet Form

Part 3: Note on Documentation for the Roundtable Meetings

Part 1: DATA SHEET FORM

HAUT COMMISSARIAT CHARGE DU PLAN ET DE LA
COOPERATION ECONOMIQUE ET FINANCIERE

REPUBLIQUE CENTRAFRICAINE
UNITE - DIGNITE - TRAVAIL

FICHE DE PROJET - TABLE RONDE MULTI-SECTORIELLE 1985

- A. RENSEIGNEMENTS GENERAUX. No. de Code :
1. Intitulé du Projet :
 2. Classement Economique
Secteur :
Activité :
 3. Localisation
Préfecture :
S/Préfecture :
 4. Tutelle
Ministère :
Service :
 5. Maitre d'Oeuvre :
 6. Date Fiche Etablie : Date Fiche Deposés Plan :
Date Fiche Approuvée: Date Fiche Controlée :
 7. Stade d'Avancement :
 8. Coût total du Projet (F CFA millions aux prix de 1985) :
dont Devises : %, equivalent à F CFA millions:
 9. Financement Approuvé Accord de Principe A Rechercher
Budget National
Coopération Extérieurs
Privés Nationaux
Privés Extérieur
 10. Durée de l'Operation Début : Fin:
Fiche établis par : visée par :

FICHE DE PROJET - TABLE RONDE MULTI-SECTORIELLE 1985

B. ANTECEDANTS ET JUSTIFICATION

NO. DE CODE :

1. Antécédants du projet :

2. Justification du projet (contente politique sectorielle) :

C. OBJECTIFS DU PROJET

FICHE DE PROJET - TABLE RONDE MULTI-SECTORIELLE 1985

D. DESCRIPTION DU PROJET.

No. de Code :

1. Aspets techniques :

2. Aspets économiques :

3. Aspets institutionnels :

FICHE DE PROJET - TABLE RONDE MULTI-SECTORIELLE 1985

D. DESCRIPTION DU PROJET (suite).

No. de Code :

4. Aspects sociaux :

5. Risques du projet:

6. Contraintes du projet :

7. Liens avec d'autres projets :

FICHE DE PROJET - TABLE RONDE 1985

E. COUT TOTAL DU PROJET (F CFA millions, aux prix de 1985)

Nature	Total Global	1986-1990	Devises \$	Devises en FCFA
1. Etudes	_____	_____	_____ \$	_____
2. Infrastructure	_____	_____	_____ \$	_____
3. Batiment	_____	_____	_____ \$	_____
4. Equipement	_____	_____	_____ \$	_____
5. Vehicule	_____	_____	_____ \$	_____
6. S/Total	_____	_____	_____ \$	_____
7. Assist. Techn.	_____	_____	_____ \$	_____
8. Bourse/Formatn	_____	_____	_____ \$	_____
9. Autre Personnel	_____	_____	_____ \$	_____
10. Fonds Roulement	_____	_____	_____ \$	_____
11. _____	_____	_____	_____ \$	_____
12. S/Total	_____	_____	_____ \$	_____
T O T A L				

F. PROGRAMMATION ANNUELLE DU COUT TOTAL DU PROJET
(F CFA millions, aux prix de 1985)

Nature	Avant 1986	1986	1987	1988	1989	1990	Après 1990
1. Etudes	_____	_____	_____	_____	_____	_____	_____
2. Infrastructure	_____	_____	_____	_____	_____	_____	_____
3. Batiment	_____	_____	_____	_____	_____	_____	_____
4. Equipement	_____	_____	_____	_____	_____	_____	_____
5. Vehicule	_____	_____	_____	_____	_____	_____	_____
6. S/Total	_____	_____	_____	_____	_____	_____	_____
7. Assist. Techn.	_____	_____	_____	_____	_____	_____	_____
8. Bourse/Formatn	_____	_____	_____	_____	_____	_____	_____
9. Autre Personnel	_____	_____	_____	_____	_____	_____	_____
10. Fonds Roulement	_____	_____	_____	_____	_____	_____	_____
11. _____	_____	_____	_____	_____	_____	_____	_____
12. S/Total	_____	_____	_____	_____	_____	_____	_____
T O T A L							

INITITULE : _____ No. de Code : _____

G. MOYENS A METTRE EN OEUVRE - PROGRAMMATION DES RESSOURCES HUMAINES

1. Personnel Nécessaire à la Marche du Projet

Catégorie	Nombre Total	Nombre à Recruter	Commentaires
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
TOTAL			

2. Programmation Annuel du Personnel Nécessaire à la Marche du Projet

Catégorie	1986	1987	1988	1989	1990	Région Croisière
1. _____	_____	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____	_____
6. _____	_____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____	_____
TOTAL						

INTITULE : _____ No. de Code : _____

G. MOYENS A METTRE EN OEUVRE - PROGRAMMATION DES RESSOURCES HUMAINES

3. Besoins en Formation de Personnel

Categorie	Nombre à Former	Avant 1986	1986	1987	1988	1989	1990	Après 1990
1. _____	_____	_____	_____	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____	_____	_____	_____
6. _____	_____	_____	_____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____	_____	_____	_____
T O T A L								

4. Description Sommaire des Programmes de Formation et de la Source de Recrutement des Candidats

Catégorie	Description Sommaire du Programme de Formation	Organisme de Formation Source de Recrutement Candidats
1. _____	1. _____	0: _____ S: _____
2. _____	2. _____	0: _____ S: _____
3. _____	3. _____	0: _____ S: _____
4. _____	4. _____	0: _____ S: _____
5. _____	5. _____	0: _____ S: _____
6. _____	6. _____	0: _____ S: _____
7. _____	7. _____	0: _____ S: _____
8. _____	8. _____	0: _____ S: _____

INTITULE : _____ No. de Code : _____

H. RESULTATS ATTENDUS DU PROJET - PRODUCTIONS ET AUTRES REALISATIONS

1. Productions Annuelles Attendues du Projet (en quantité)

No	Produit	Unite	1986	1987	1988	1989	1990	Region Croisiere
1	_____	_____	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	_____	_____	_____	_____
8	_____	_____	_____	_____	_____	_____	_____	_____

Codes pour Marché Visé :

- | | | | |
|---|-----------------------------|---|-------------------|
| 1 | Marché Exportation - UDEAC | 6 | Marché Local |
| 2 | Marché Exportation - CEE | 7 | Auto-consommation |
| 3 | Marché Exportation - Autres | | |

2. Projections Annuelles Attendues du Projet (en millions de F CFA de 198_)

No	Produit	Prix Unitaire	1986	1987	1988	1989	1990	Région Croisiere
1	_____	_____	_____	_____	_____	_____	_____	_____
2	_____	_____	_____	_____	_____	_____	_____	_____
3	_____	_____	_____	_____	_____	_____	_____	_____
4	_____	_____	_____	_____	_____	_____	_____	_____
5	_____	_____	_____	_____	_____	_____	_____	_____
6	_____	_____	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	_____	_____	_____	_____
8	_____	_____	_____	_____	_____	_____	_____	_____
TOTAL								

METHODOLOGIE DE PREPARATION DES FICHES
DE PROJETS (PARTIE DESCRIPTIVE)

A. Renseignements généraux : Identification du Projet

(1) L'intitulé.

= Formulation du Projet en fonction du problème à résoudre.

(7) Le stade d'avancement.

= L'un des cinq stades de la vie d'un projet :

- a) - Idée de projet
- b) - Projet à l'étude
- c) - Projet en négociation
- d) - Projet en exécution
- e) - Réalisation des projets.

B. Antécédants et justification = Définition du problème ou besoin.

(1) Antécédants.

- a). Nature du problème à résoudre ou du besoin à satisfaire ;
- b). Causes et conséquences ;
- c). Situation ou état actuel ;
- d). Etudes ou travaux déjà entrepris ou effectués.

(2) Justification.

= Contexte de la politique sectorielle et des orientations du Gouvernement.

- a). Evolution prévisible du problème
- b). Conséquences
- c). Aspects ou éléments de la politique sectorielle
- d). Aspects ou élément des orientations du Gouvernement.

C. Objectifs du Projet

Objectifs immédiats ou directs
Objectifs à terme ou induits.

D, Description du projet = montage ou mise en oeuvre du projet.

(1°) - Aspects techniques

= Montage ou déroulement technique des orientations. OPERATIONS

(2°) - Aspects économiques :

a). Etude du ~~marotté~~ MARCHÉ

b). Comparaison Avantages - Coûts

c). Rentabilité économique

(3°) - Aspects institutionnels

a). Répartition des compétences et des responsabilités

b). Propositions de mesures indispensables à prendre

(4°) - Aspects sociaux

= Impact sociologique du projet sur le milieu

(5°) - Risques du projet

= Aléas et imprévus

(6°) - Contraintes du projet

= Difficultés ou obstacles dont il faut tenir compte

(7°) - Liens avec d'autres projets

= Projets complémentaires dans leur exécution et relevant de secteurs différents.

CENTRALE DES PROJETS

Pierre KOTIGA.-



Préparations pour la Consultation Sectorielle

Le gouvernement centrafricain a décidé de tenir une consultation sectorielle, avec ses bailleurs de fonds extérieurs en novembre 1985.

Les secteurs concernés sont les suivants:

- - Santé
- - développement rural
- forêts
- - transports
- télécommunications
- énergie
- eau et assainissement
- - petites et moyennes entreprises

Les documents à préparer pour cette consultation sont de quatre ordres: l'analyse macro-économique, les politiques sectorielles, les programmations sectorielles, et les projets.

Concernant la présentation des projets, la Centrale des projets est directement responsable. L'objectif de la consultation sectorielle est de présenter aux bailleurs de fonds ces projets, sous forme de fiches de présentation.

Ces fiches de présentation, après avoir décrit et justifié les projets, doivent montrer les besoins en financements extérieurs. Le niveau des informations disponibles diffère selon le stade d'avancement des projets et l'intervention souhaitée des bailleurs de fonds extérieurs. Le niveau de l'information nécessaire est dicté par les résultats attendus de la part des bailleurs de fonds.

Aux fiches de présentation des documents préparés pour les consultations devront s'ajouter à la demande éventuelle des bailleurs les documents complets eux-mêmes.

Le cycle des projets est le suivant:

<u>Etat d'avancement</u>	<u>Documents devant être disponibles à la fin du cycle</u>	<u>Interventions souhaitées de la part des bailleurs de fonds</u>
Idee de projet	Fiche d'identification, termes de référence des études, évaluation des coûts des études	Accord sur les termes de référence, financement des études, intérêt pour le projet
Projet à l'étude	Etude de faisabilité	Intérêt pour le projet et mission d'évaluation, accord sur le projet, engagement de financement
Projet en négociation	Pln de financement, programme d'exécution, dossiers d'appel d'offre	Financement effectif
Projet en exécution	Rapport d'exécution	Poursuite et éventuellement augmentation des financements
Réalisation des projets	Evaluation ex-post	Financement des études

APPENDIX H

Draft Data Sheets

(Rural Water Supply and Sanitation in the Northeastern Prefectures)

REPUBLIC CENTRAFRICAINE
FICHE DE PROJET-TABLE RONDE

A. RENSEIGNEMENTS GENERAUX

No. de Code: 524059.01

A.1 Intitulé du projet: AEPA rural dans les préfectures du Nord

A.2 Classement économique:

Secteur: Eau et assainissement

Activité: AEPA rural

A.3 Localisation: Vakaga, Bamingui -Bangoran, Haute Kotto

A.4 Ministère: Développement Rural

Service: Directorate de Génie Rural

A.5 Maître d'oeuvre: Directorate de Génie Rural

A.6 Date de fiche:

A.7 Stade d'avancement: Idée de projet

A.8 Coût total du projet(MFCFA prix 1985): 1800
dont devise 90 %, équivalent à MFCFA 1620

A.9 Financement	Approuvé	Accord de principe	A rechercher
Budget national	-	180	-
Coop. extér.	-	-	1620
Privés nation.	-	-	-
Privés extér.	-	-	(ONG?)

A.10 Durée de l'opération: de janv.1987 à fin 1990

Fiche établie par: DGGR

Fiche approuvé par: Sec.Gén. CNEA

B. ANTECEDENTS ET JUSTIFICATION

B.1 Antécédents du Projet

Les 70000 habitants des villages des préfectures nord-est de Vakanga, Bamingui-Bangoran et Haute Kotto éprouvent toujours plus de difficulté à s'approvisionner en eau. Cette situation est due à la baisse progressive des niveaux de l'eau souterraine, et à la diminution depuis plusieurs années de la pluviométrie annuelle. Les conséquences se manifestent dans la maladie, la diminution de capacité de travailler et enfin l'exode des familles vers le sud. La plupart des villages manquent totalement de sources adéquates d'eau potable, ainsi que des dispositifs pour l'élimination hygiénique des excréments. Une enquête entreprise en janvier 1985 en Bamingui-Bangoran a documenté l'état des choses dans une grande partie des villages, et une enquête actuellement en cours en Vakanga va identifier les communautés les plus touchées; aucune enquête n'a pas été faite en Haute Kotto.

B.2 Justification du Projet

Les villageois sans un appui gouvernemental ne sauront pas résoudre ce problème, et vont vraisemblablement quitter leurs villages en plus grand nombre pour chercher de meilleures conditions au sud. L'appui gouvernemental est bien justifié dans ce cas, puisqu'il s'agit d'une zone soumise à la sécheresse qui, selon la politique établie pour le secteur, doit être considéré prioritaire.

C. OBJECTIF DU PROJET

L'objectif immédiat du projet est d'assister les villageois de Vakanga, Bamingui-Bangoran et Haute Kotto à trouver et à améliorer des sources d'eau potable à proximité de leurs centres, et à construire des latrines hygiéniques. Les objectifs à long terme sont d'améliorer la santé de la population, de leur fournir les moyens de développer des industries locales, et de favoriser la stabilité sociale des villages.

D. DESCRIPTION DU PROJET

D.1 Aspects techniques

Le projet sera doté des ressources en équipement, en expertise et en main d'oeuvre spécialisée pour localiser et aménager 248 points d'eau (sources, forages avec pompe à main, ou puits) et pour équiper 1488 latrines (cabinets à fosse améliorés, ventilés). Une période initiale d'à peu près un an sera consacré aux actions préparatoires, y compris la fourniture de l'équipement et véhicules, la préparation aux centre de projet du garage et de l'atelier, le recrutement et la formation spécialisée du personnel, le recrutement des conseillers étrangers, et le début des contacts avec les villageois et des enquêtes géophysiques et hydrogéologiques. L'étude hydrogéologique préalable inclura l'examination des photographies aériennes et des sources d'eau actuelles dans les zones retenues pour les opérations pendant les premiers mois du projet.

Les opérations de construction (forage, aménagement des sources, ou puisard) vont démarrer dans les communes vers la fin de la première année du projet, de préférence au commencement de la saison sèche, et vont continuer pendant trois ans. Pendant cette période tous les villages auront la possibilité de s'équiper. Après la terminaison des constructions nouvelles, l'équipement lourd sera transféré pour renforcer la capacité d'une autre équipe (probablement celle de Bambari).

Le point d'eau dans chaque village sera de préférence une source naturelle aménagée, sinon un forage équipé d'une pompe à main. Une assistance technique pour la construction d'un puits moderne par la population pourra être fournie par le projet si les conditions hydrogéologiques sont favorables; dans ce cas, l'approfondissement progressif du puits dans les années suivantes sera prévu. Selon l'expérience d'autres projets en RCA, il est prévu que pas plus que 20% des points d'eau seront des sources.

Une enquête technique sera menée dans chaque localité, commençant par une révision des photos aériennes et une recherche sur le tas (dans un rayon approprié du centre de la localité) pour une source aménageable. A défaut, un ou plusieurs emplacements de forage seront identifiés en consultation avec les responsables du village et marqués avec des bornes distinctes. Les mesurages géophysiques de résistivité des sols seront faits si indiqués.

Dans chaque localité où il y a une école ou un dispensaire, des latrines (en unités de six) seront construites; en plus, un assistance technique sera offert aux familles qui veulent construire des latrines privés.

Toutes les installations seront conçues pour être robustes, faciles à utiliser et à entretenir, et peu coûteuses.

Les moyens de construction vont utiliser au maximum la main d'oeuvre locale. Les matériaux de construction et les pièces de réchange nécessaires pour une période d'une année seront toujours maintenus en stock à l'atelier du projet à N'délé.

Pendant les quatre ans du projet un système d'entretien des installations sera créé, en trois volets, tous les trois engageant la participation des membres de la localité: (Après la période du projet, le suivi de l'entretien sera prise par les autorités préfectorales.)

(a) Une personne sera nommée par chaque localité et formée par l'équipe du projet en "gardien" ou "fontanier". Il doit assurer le maintenace journalier des installations (nettoyage et petits réparations).

(b) Périodiquement, au moins tous les trois mois, un membre de l'équipe du projet inspectera chaque installation; à cette occasion il remplacera certaines pièces; par exemple, les robinets et les cuirs de soupape des pompes à main seront remplacés, chaque an.

(c) Les grosses réparations seront entreprises par l'équipe du projet le plus vite possible après notification.

D.2 Aspects économiques

Aucune localité ne sera équipée par le projet si elle n'a pas marqué son accord d'assistance et de participation aux réalisations. Il est estimé que chaque point d'eau coûtera en moyen MFCFA 7.3, y compris les coûts d'expertise et d'entretien et de réparation pendant la durée du projet. L'entretien après la période du projet coûtera environ 5%, MFCFA 0.3 par an.

Comptant en moyen 25 familles ou 250 habitants par point d'eau, l'investissement sera environ FCFA 30000 par tête ou FCFA 300000 par famille, et l'entretien sera environ FCFA 1500 par tête ou FCFA 15000 par famille. Un "fonds de réparation" sera créé dans chaque localité auquel les utilisateurs vont contribuer pour l'achat des pièces et des matériaux nécessaires. La contribution initiale est fixée à FCFA 2000 par famille, avec un minimum de FCFA 50000 qui doit être maintenu.

Si la population d'une localité dépasse 600 personnes, et surtout si les maisons sont très dispersées, un deuxième point d'eau peut être construit. Pour les plus grands villages, le nombre de points d'eau sera décidé selon les circonstances. Dans une localité où une source sera aménagée, une adduction gravitaire, menant l'eau près de l'école, le dispensaire, le marché ou une concentration de maisons, sera considérée si la distance est courte (1000-1500m) et si la topographie la permet. Le coût d'une adduction avec réservoir et quelques bornes fontaines sera comparable avec le coût d'un forage équipé avec une pompe à main.

Enfin, selon les critères retenus, les localités ayant déjà une installation qui aura besoin d'une réparation auront la priorité. Aussi, selon les critères, les localités pouvant développer une industrie (par exemple, l'élevage de bétail, la construction, etc.) auront la priorité pour un nouveau système d'eau.

D.3 Aspects institutionnels:

L'institution clef du projet est la communauté, qui finalement est "maître d'ouvrage". Le désir de la communauté d'améliorer ses facilités et sa volonté de coopération sont les bases de l'établissement des objectifs dans le travail, notamment la contribution de chaque partenaire et le calendrier d'exécution. L'engagement pris pour la participation de la population doit prévoir des actions spécifiques par les agents de la communauté, de la préfecture et des services centraux concernés. La communauté doit notamment engager un ouvrier habile (normalement à plein temps) comme "gardien" ou "fontanier" qui assurera l'entretien journalier des installations. L'équipe du projet, et plus tard la préfecture, doit assurer le maintenance préventif et les grosses réparations; ils vont aussi instaurer un système de surveillance de la qualité de l'eau sous l'égide du Ministère de la Santé et des Services Sociaux. Le garage au centre du projet disposera d'un atelier équipé pour l'entretien et la réparation de l'équipement de forage, des véhicules, et des installations dans les localités.

En ce qui concern les latrines, il est à noter que la construction des latrines par l'équipe du projet sera entreprise spécifiquement dans les cas où l'on peut assurer que l'entretien sera fait correctement, soit par la commune, soit par l'école, soit par le dispensaire.

D.4 Aspects sociaux:

Comme il est exposé ci-dessus, la communauté sera pleinement associée dans la planification, la réalisation et l'entretien des installations construites par le projet. Cela implique un sens de responsabilité de la part des utilisateurs, ainsi que des représentants préfectoraux et centraux. Dès les premiers contacts avec les autorités locales et les membres des communautés, les membres de l'équipe du projet veilleront à ce que leurs interlocuteurs comprennent les objectifs du projet et le rôle que doit jouer chacun pour assurer sa réussite.

Il est à espérer que les mécanismes de coopération

formés dans ce projet pourraient être exploités ultérieurement par les communautés pour accomplir d'autres entreprises.

D.5 Risques du projet:

Le projet n'est pas sans risques. Il dépend en grande partie de l'acceptation active - de l'empressement - des citoyens des communautés à coopérer. Il dépend également de l'efficacité et l'efficience du soutien fourni par les services centraux, c'est à dire une réponse appropriée, opportune et adéquate à chaque question et à chaque appel pour assistance. Vu les échecs soufferts par le passé, le Gouvernement est déterminé à faire tous ses efforts pour réussir à l'avenir.

D.6 Contraintes du projet:

A part le besoin de financement externe, le plus significative contrainte du projet est le manque dans les cadres gouvernementaux de personnel spécialisé pour entreprendre et diriger les enquêtes et les travaux. Pour surmonter cette contrainte il est envisagé d'engager et former le personnel nécessaire en temporaires sur le budget du projet, et plus tard de les insérer aux postes vacants selon les possibilités budgétaires du Gouvernement.

L'autre majeure contrainte est le manque d'information, presque total à l'heure actuelle, sur les eaux souterraines dans la République Centrafricaine, ce qui oblige une approche très prudente, avec^{des} investigations ponctuelles dans pratiquement chaque localité. Cette approche a été néanmoins justifiée dans plusieurs autres pays, où il a été démontré que l'amélioration du taux de réussite dû aux investigations préalables a amplement compensé l'augmentation du coût unitaire des forages.

L'expérience initiale dans le projet "UNICEF" semble confirmer ce point: une tentative dans la même région sans enquête géophysique a échoué 8 fois sur 9, tandis que dans le projet "UNICEF" avec enquêtes préalables, 6 sur 7 premiers forages ont réussi.

D.7 Liens avec d'autres projets:

Le présent projet sera étroitement lié avec les autres projets d'approvisionnement en eau potable et d'assainissement en zones rurales exécutés par la DGR, sous la surveillance du Comité National de l'Eau et de l'Assainissement. Il est en particulier lié au projet du Nordcentre (le projet assisté par l'UNICEF) avec lequel il partage les mêmes objectifs, et en grande partie les mêmes procédures.

Il est prévu que l'expertise en géophysique sera fournie au projet, soit directement par le projet 521.030.01 (Etude des eaux souterraines, en cours) ou par le projet AID (Inventaire des ressources en eau et plan directeur, à l'étude), soit par nomination au projet d'un géophysicien national déjà formé.

Le projet sera également lié avec la programme de surveillance de la qualité de l'eau de boisson et avec l'étude institutionnelle et campagne de vulgarisation (AID) tous deux au stade d'idée de projet.

E. COUT DU PROJET (MFCFA AUX PRIX 1985)

<u>Nature</u>	<u>tot.glob. 1986-1990</u>		<u>Devises%</u>	<u>Devises</u>
1. Etudes	-	-	-	-
2. Infrastructure	-	-	-	-
3. Bâtiment	40	40	-	-
4. Equipement	500	500	100	500
5. Véhicule	125	125	100	125
6. s/total	665	665		625
7. Assist. tech	500	500	100	500
8. Bourse/format.	10	10	100	10
9. Autre personnel	190	190	50	95
10. fonds roul.	360	360	88	315
11. Imprévus	75	75	100	75
12. s/total	1135	1135		995
Total	1800	1800	90	1620

F. PROGRAMMATION ANNUELLE DU COUT TOTAL DU PROJET (MFCFA)

<u>Nature</u>	<u>avant</u>						<u>après</u>
	1986	1986	1987	1988	1989	1990	1990
1. Etudes	-	-	-	-	-	-	-
2. Infrastructure	-	-	-	-	-	-	-
3. Bâtiment	-	-	10	10	10	10	-
4. Equipement	-	500	-	-	-	-	-
5. Véhicule	-	125	-	-	-	-	-
6. s/total	-	625	10	10	10	10	-
7. Assist. tech.	-	-	125	125	125	125	-
8. Bourse/format.	-	-	5	5	-	-	-
9. Autre personnel	-	-	45	45	50	50	-
10. fonds roul.	-	-	20	20	20	20	-
11. Imprévus	-	-	20	20	20	15	-
12. s/total	-	-	285	285	285	280	-
Total	-	625	295	295	295	290	-

G. MOYENS A METTRE EN OEUVRE - PROGRAMMATION DES RESSOURCES HUMAINES

G.1 Personnel nécessaire à la marche du projet

Catégorie	nmbr nmbr à		note
	tot.	recrut.	
1. Ingén./hydrogéol.	1	1	disponible sans expérience
2. Géologue	1	1	disponible sans expérience
3. Techniciens	3	3	disponibles sans expérience
4. Assist. foreurs	2	2	non-disponibles
5. Plombiers	2	2	disponibles
6. Maçons	6	6	disponibles
7. Mécaniciens	2	2	disponibles
8. Chauffeurs	8	8	disponibles
9. Techn. de dév. commun.	1	1	disponible
10. Commis	3	3	disponibles
11. Gardiens	248	248	disponibles sans formation
Total	277	277	

G.2 Programmation annuelle nécessaire à la marche du projet

Catégorie						Régime de
	1986	1987	1988	1989	1990	Croisière
1. Ingén./hydrogéol.	..	1	1	1	1	-
2. Géologue	+	1	1	1	1	-
3. Techniciens	-	3	3	3	3	1
4. Assist. foreurs	-	2	2	2	2	-
5. Plombiers	-	2	2	2	2	1
6. Maçons	-	6	6	6	6	1
7. Mécaniciens	-	2	2	2	2	1
8. Chauffeurs	-	8	8	8	8	2
9. Techn. de dév. com.	-	1	1	1	1	1
10. Commis	-	3	3	3	3	1
11. Gardiens	-	82	144	206	248	248
Total	-	111	173	235	276	257

Budgets locaux

G.3 Besoin en formation de personnel:

Catégorie	à former	avant					après
		1986	1986	1987	1988	1989		1990
1. Ingén./hydrogéol.	1	-	1	-	-	-	-
2. Géologue	1	-	1	-	-	-	-
3. Techniciens	3	-	3	-	-	-	-
4. Assist. foreurs	2	-	2	-	-	-	-
5. Plombiers	2	-	-	2	-	-	-
6. Maçons	6	-	-	6	-	-	-
7. Mécaniciens	2	-	-	2	-	-	-
8. Chauffeurs	8	-	-	8	-	-	-
9. Techn. dév. com.	1	-	1	-	-	-	-
10. Commis	3	-	-	3	-	-	-
11. Gardiens	248	-	-	82	62	62	-
Total	277	-	8	103	62	62	-

G.4 Description Sommaire des Programmes de Formation et de la Source de Recrutement des Candidats:

Catégorie	Descr. sommaire du progr. de form.	O=organ. de formation S=source de recrutement	
1. Ingén./hydr.	expér. avec proj. rural voyage 1 mois	O=524.035.01 ou autre	S=avis de recrutement
2. Géologue	expér. avec proj. eaux souterraines	O=521.030.01	S=avis de recrutement
3. Techniciens	expér. avec proj. rural	O=524.035.01 ou autre	S=avis de recrutement
4. Assist. for	cours théorique et pratique 1 mois	O=521.030.01+524.035.01	S=avis de recrutement
4,5,6,7. Plom, Maç, Mécan, chauff.	expér. avec ce projet	O=ce projet	S=publicité
9. Techn. de. com.	exp. proj. rural	O=524.035.01 ou autre	S=publicité
11. Gardiens	cours prat 2 sem. au centre du proj.	C=ce projet	S=localité

H. RESULTATS ATTENDUS DU PROJET

H.1 Production annuelle attendue du projet(en quantité):

<u>Produit</u>	<u>unité</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>Régime Croisière</u>
1. sources amén.	source	-	7	7	7	7	(projet terminé)
2. sys. grav.	Km	-	5	5	5	5	-
3. for. + pompe	le pompe	-	45	45	45	45	-
4. puits amén.	puits	-	5	5	5	5	-
5. latrines	latr.	-	372	372	372	372	-
6. gardiens formés	gard.	-	82	82	82	82	-
7. nouv. localités part.	loc.	-	82	82	82	82	-
8. population habit. couverte	habit.	20500	20500	20500	20500	20500	-

H.2 Production annuelle attendue du projet (en MFCFA):

<u>Produit</u>	<u>unité</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>régime croisière</u>
fonds d'entretien collectés (FCFA 50000 par loc.)	MFCFA	-	4.1	4.1	4.1	4.1	(selon besoin)

APPENDIX I

Current Work of National Organizations
in the Water Sector

CURRENT WORK OF NATIONAL ORGANIZATIONS IN THE WATER SECTOR

1. The Planning Commission

In collaboration with about twenty ministerial "planning cells" the Planning Commission's new Project Center has been working since six months on the elements of the Government's Five Year Plan 1986-1990. The main features of the Plan will be presented in March 1986 to a roundtable meeting with donors who are well acquainted with the country. Their reactions will be taken account of in the final version of the Plan, which is due in July 1986. A more formal roundtable meeting, to which a larger group of donors will be invited, is planned in November 1986.

There has been considerable recent activity to evolve sectoral policies and strategies and to formulate projects. Realistic articulation and interrelation of elements is still lacking in some sectors, but is relatively advanced in the water and sanitation sector. The Project Center's primary work is to prepare documentation for the roundtable meetings, in order to persuade donors to support national development activities with loans and grants. Donors have become exigent, and need evidence that projects are relevant and feasible. It is expected that donors' representatives at the meetings will ask detailed questions about projects. The Government's presentation will describe elements of the national economy, external trade, current budgets, and sectoral policies and will present both ongoing and proposed new projects.

Project data sheets will be presented to facilitate the review, but each data sheet should be supported by a full documentation.

Projects considered ready for financing should be supported by feasibility studies, and project ideas should be supported by terms of reference for feasibility studies. The Project Center is acquiring electronic data processing equipment, in order to process the project files. It holds regular meetings with

sectoral planners to assist them in preparing the requested project documentation.

2. The State Secretariat of Hydraulics

The State Secretary welcomed the continued interest and support to the CAR Government's water supply and sanitation program by the American authorities; he stressed the difficulties faced by his technical departments in identifying and developing a viable program and projects under the Government's present serious financial and manpower restrictions and said practical suggestions are needed. The Director General emphasized his department's needs for trained specialists in engineering and management, in order to staff central services and eventually, as prefectural governments develop, to provide them with technical staff on loan or on transfer. Many young CAR professionals although qualified cannot be employed because the Government has been obliged to place severe restrictions on the recruitment of staff. The Government will welcome the agreement of external support organizations to pay for national specialists during the execution of development projects. Such young nationals would either be absorbed in Government service, or would continue to benefit sector development by entering the private sector as consultants or contractors.

The DGH, who is a sociologist, believes that villagers who have alternative water sources will refuse to change to "safe" sources unless they are easily accessible, and considers villagers' acceptance and participation absolutely essential in village water supply projects. He noted that villagers in areas which have benefitted from governmental rural development efforts have improved their excreta disposal practices and are generally cooperative.

3. The National Water Company SNE

SNE, formed in 1975, is responsible for planning, constructing and operating all urban water supplies in the CAR (i.e., agglomerations of over 10000 inhabitants, of which there are at present about 20). The central and regional staff includes the following personnel:

6 directors	12 plumbers
3 engineers	6 plumbers aids
5 center chiefs	2 masons
3 bureau chiefs	2 masons aids
7 team leaders	43 temporary employees
7 section leaders	1 painter
5 plant operators	1 painters aid
10 service chiefs	3 messengers
8 plant assistants	2 assistant accountants
14 guards	2 secretarias
10 drivers	2 storemans aids
22 workmen	2 office aids
68 specialists agents	

Five urban water supply systems are in operation, in Bouar, Bambari, Berberati, Bozoum and Bangui. To these may be added the gravity system in N'Delé and the handpump systems in Bocaranga and Paoua, built and operated by the General Directorate of Rural Engineering, as well as the small system existing at Mongoumba.

Projects have been prepared for funding by the Danish Government for the towns of M'Baiki, Carnot, Bossangoa, Bangassou and N'Delé. Preliminary studies have been made for eight other towns: Bria, Batangfo, Alindao, Kaga Bandoro, Ippy, Dekoa, Kembé and Mobaye.

The SNE does not issue an annual report. The following information was provided on the five piped systems in 1984:

City	Pop	Water Source	M ³ prod.	M ³ sold	subscribers	Public fountains	rate FCFA/M ³
Bouar		river	182,998	146,372	258	1	208
Bambari		river	181,604	142,648	192	18	208
Berberati		spring	75,698	47,027	343	2	360
Bozoum		river	17,592	10,280	62	2	300
Bangui		river	7,141,437	3,590,773	4,739	...	104*

*for <15M³/month, 208 for 15-1000M³/month and 169 for over 1000 M³/month

All water treatment plants and all legal connections ^{are} metered. Meters are changed when they stop functioning, and are repaired at Bangui, where calibration equipment is available for all meter sizes in use. Un-accounted for water is still high in Bangui. The network has been checked with modern leak detection equipment, SNE staff trained ⁱⁿ its use, and efforts are under way to reduce leaks. The water loss in treatment plant filters in Bangui is normal (about 5%).

Bangui storage reservoirs at present total 9000 m³. Present plans call for increasing this by 4500 m³. A loan of FCFA 2 billion is under discussion with the Caisse Centrale de Cooperation Economique for this project. The existing treatment plants of 900 and 600 m³ per hour respectively are adequate for the near future. Large non domestic consumers are the three breweries which consume about 30000 m³/month (10% of total) and the military establishments which consume nearly 60000 m³/month (20% of total).

The SNE encourages private connections and until recently discouraged public standposts. New procedures are under consideration whereby municipal authorities will grant concessions to operators who will charge users of standpost water.

4. Bangui Tubewell Exploitation Project

In 1984 16 tubewells were drilled in different parts of Bangui with Swedish bilateral assistance. The intention was to develop them for use with handpumps to relieve the shortage of water in certain districts. The responsible Government services experienced difficulty in developing the wells and sought assistance from UNDP. The UNDP consultant concluded that 14 of the wells are probably usable. The water is corrosive (pH as low as 4.1) and stainless steel equipment should be used. These wells are about 50m deep and draw water from the overburden. (A deeper aquifer has recently been discovered underlying the city, which may be exploited in the future as an additional source for the city water system.) Based on the consultant's findings, UNDP financing of the handpump installations was anticipated in the near future.

5. General Directorate of Rural Engineering

To date all government-executed village water supply systems were built under the supervision of the DGCR. The DGCR has on its staff 6 hydraulic engineers and 12 construction engineers, who carry out village water supply work in addition to other functions.

6. Groundwater Study Project

This project is carried out by the DGCR with an adviser from the UN Department of Technical Cooperation for Development, who is a geophysicist-hydrogeologist. The principal activities during the first year of the project have been: hydrogeological and geophysical observations to support planning for emergency relief of water supply shortage in Bamingui-Bangoran Prefecture; geophysical measurements for siting tubewells in villages of Ouham Prefecture selected for village water supplies in the ongoing Northcentral Area Project; hydrogeological measurements to support the ongoing shallow wells project in Vicaga Prefecture (Birau); hydrogeology training activities in collaboration with the Bangui University; hydrogeological and geophysical studies at Bossangoa to find suitable sites for large yield wells for the planned new town water supply system; hydrogeological and geophysical measurements in the Southcentral (Cotton growing) Area Project; and methodological research and inservice experience of national counterpart staff.

The principal geological formations to be investigated are the fractures in the crystalline rock ("socle") which covers the greater part of the country, the sandstones in the southwest (Sangha and Haute-Sangha) and in the northcenter (Bamingui-Bangoran and western Haut-Kotto), and the Congo and Chad basins, respectively at the southern and northern edges of the country. The latter basins generally have relatively shallow continuous aquifers.

The bedrock areas in Ouham (Northcentral Project area) can usually furnish tubewells with enough water for village supplies (up to 1 m³/hour). The sandstone areas often have deep aquifers.

Small perched aquifers are often evidenced by mudholes and have been more or less developed by villagers; improved water points can sometimes be developed in such aquifers with dugwells or driven wells.

The Project's results in Cuham, where all tubewells sited with geophysical measurements were successful, seem to justify such site studies. It was noted that neither of the projects in the west, directly executed by bilateral and NGO teams, utilizes geophysical prospection, but their success rates are not known.

7. Northcentral Area Village Water/sanitation Project

The project construction and maintenance center is installed at Bossangoa, where it has the full support of prefectural authorities. A garage and maintenance shop have been organized. Virtually all the equipment shown in the plan of operations has been delivered, except the handpumps which will be procured as needed.

Difficulties were experienced in the early months of the project due to equipment lost or damaged en route. Some staff positions, national and international, have been vacant for more or less extended periods. Nevertheless the field work is proceeding according to the plan, and it is hoped to regain some of the lost time.

Following a successful initial contact with the representatives of a locality (as evidenced by their agreement to participate, and a cash deposit of CFA 25000), geophysical measurements are made, optional drilling sites are marked, villagers' preference is ascertained, and drilling is undertaken. In rock a 50m well is drilled in 1-2 days; in mud it takes longer. At end June 1985 a total of 7 wells had been drilled, of which one with a yield of only 300 l/hour was rejected. Up to that time no suitable springs had been found in the villages surveyed, no latrine construction had been undertaken, and the existence of a school or dispensary had not been required as a prerequisite. The minimum population coverage for the first water point had been raised from 300h (as shown in the plan of operations) to 350h, and additional water points were being allowed for units of 350h. It was believed that when operations were proceeding smoothly, 2 wells could be drilled per week except in periods of heavy rains.

8. Southcentral (cotton growing area) Project

About ten wells are reported to have been completed at end August; no operational report is available.

9. Direction of Sanitation and Environmental Hygiene

The Ministry of Health and Social Affairs plans to strengthen its program of health education and information in order to sensitize populations to the need to improve and protect their sources of drinking water and to build latrines, and in order to instruct them about the means available for doing so. This health education program should be aimed not only at rural populations, as in the past, but also at urban populations, with special emphasis on populations who will benefit from projects planned in the near future.

The Health Ministry also proposes to undertake a program of drinking water quality surveillance. The only such activity at present is the occasional testing of the Bangui piped water supply by the Pasteur Institute. This testing is carried out under contract with the SNE; it is regarded by the Health Ministry as satisfying the need for control by the water company, but not fulfilling the responsibility of the health authorities to control the quality of water reaching consumers. Interest was expressed in using the membrane filter technique in remote parts of the country, and the WASH consultant provided information on this subject.

10. Bangui Municipality

The Bangui urbanization plan of 1972 provides the planning framework for sanitation improvements. The town center has a system of covered drains. Development of the area between the center and the airport during the 1960s necessitated the construction of a drainage canal from the north down to the river. The first survey and construction was accomplished with the assistance of a WHO/UNDP project in the early 1970s. In the mid-1970s an engineering study was undertaken, and the African Development Bank financed the first stage of the proposed construction at

a cost of FCFA 1.8 billion. Many parts of the town have since been subject to severe flooding, often after only moderate rains.

The Municipality has blamed both deficiencies in design and construction for these problems: for instance, the main collector east of the Avenue des Martyrs appears to have been underdimensioned and many lateral drains which were not lined with cement quickly become clogged with vegetation. Secondary drains were not included in the original study, nor was the new part of the town to the east of La Colline.

Cleaning, vegetation removal and minor repairs have been undertaken recently by the Municipality, mainly near the center, but this has not been completed because of lack of equipment and funds, and flooding after storms remains severe. The Municipality proposes to complete the repair of damaged drains and to seek funds for updating the engineering studies and eventually for carrying out the indicated new construction (estimated to cost FCFA 10 billion or more).

Refuse has not been collected regularly in Bangui for more than five years; piles of refuse can be seen at almost every street corner, and much of it falls into the stormwater drains, further impeding the flow of water. The Municipality plans to reinstate refuse collection, to institute sanitary landfills in certain low areas, and to offset the cost with a monthly tax on homeowners of about 1000 FCFA.

The creation of an "urban land development fund" for all urban areas in the country, together with an expert urban land planning unit, has been proposed as a means for ensuring rational land development and properly drained lots.

Certain health hazards of present wastes disposal practices have been noted: the SNE raw water intake in the Oubangui River is downstream from an important sewer outfall; much of the soil in Bangui is clayey and hence not suitable for the present practice of septic tank effluent disposal by irrigation; the main city hospital's wastewater at present flows untreated through the city's open drains; the various industries and the abattoir discharge their wastes untreated into the Oubangui River; and the majority of private wells inside the town, when tested, were found to be contaminated.

APPENDIX J

Current Work of External Organizations in the Water Sector

CURRENT WORK OF EXTERNAL ORGANIZATIONS IN THE WATER SECTOR

1. United Nations Development Program

UNDP is helping the CAR Government to prepare for the planned roundtable meetings in 1986, notably by providing the services of a consultant economist. In relation to the water/sanitation sector a UNDP program officer maintains liaison with the CNEA and the Permanent Bureau.

The UNDP/WHO project to assist the start-up of CNEA activities foresaw UNDP support during one year after which the Government would assume full support. A vehicle, a motorcycle, a photocopier and some supplies, as well as a study tour for the Director General of the CNEA have been financed from this project. The Government is requesting that UNDP assistance be continued throughout the remaining five years of the Water Decade.

UNDP finances the UNDTCD assistance to the Government's Groundwater Study Project, which has been extended from an initial 2 year period to a three year period.

UNDP finances WMO assistance to the Ministry of Transport and Aviation for the creation of meteorological and hydrological services. This is a two-year project intended to reestablish activities formerly carried out by the French Government through ORSTOM.

UNDP finances FAO assistance to the General Directorate of Rural Engineering for the renovation and construction of dugwells in the vicinity of Birao (Vakaga Prefecture). This is a one-year project.

UNDP Office of Project Execution has provided consultant help to study the equipping of tubewells in Bangui (see Appendix E, section 4.)

2. United Nations Children's Fund

UNICEF collaborates with the Government in planning and managing the village water supply project in the northcentral prefectures of Ouham and Ibingui-Economique. External financing is by UNICEF and the Italian Government. In view of UNICEF's extensive experience in running such projects, the project formulation is being in large part adopted for other new projects proposed by the Government during the next five years. UNICEF has expressed interest in possibly managing the new project being proposed in Bamingui-Bangoran, and expects to have available additional funds for this purpose.

UNICEF is helping the development of professional staff in the new State Secretariat of Hydraulics by assigning junior technical staff to the project as trainees. UNICEF also plans to associate in the project work as many as possible of the organizations which are currently active in the field of community development, such as the Rural Education and Training Center, various NGOs, religious missions, ACADOP and SOCADA, women's associations, the Department of Social Affairs, urban services and the Youth Movement.

3. World Health Organization

WHO administers the UNDP funds provided to support the CNEA and the Permanent Bureau; the WHO laboratory adviser provides liaison with the CNEA.

The WHO intercountry adviser on water supply and sanitation, who is based in Yaoundé, provides technical advice and support to Governmental sector agencies in the course of his visits to the CAR once or twice a year. During his most recent visit in August 1985 he participated in discussions on the preparation of sector projects for the roundtable meetings. A WHO economist, also based in Yaoundé, recently prepared outline terms of reference for institutional and manpower studies for the CNEA.

4. World Bank (International Development Association)

The Bank has recently discussed with the Government the identification of several subprojects in the water sector, all of which the Government has included in its current project list. Most of these subprojects require preparatory consultant work for which the Bank does not have funds. The Bank is understood to be preparing a water supply and sanitation sector study to be ready in the near future.

5. United States Government

The US Agency for International Development through the Water and Sanitation for Health Project has provided a series of consultantships in planning for water sector development beginning in 1982. The Embassy in Bangui, which requested, and has strongly supported these consultantships, has also provided direct assistance to the Government in its planning efforts, and has funded a number of small village water supply schemes during the same period.

6. French Government

The FAD is supporting the Government's national planning efforts and has expressed interest in supporting the Government's planning for the water sector, possibly through the provision of some of the consultant services required to prepare investment projects.

7. Government of the Federal Republic of Germany

The current phase of the water supply and sanitation project in the northwest (Ouham Pendé) has been terminated; some additional field work may be foreseen. Extension and upgrading of the water supplies of the towns of Paoua and Bocaranga has been discussed with the CAR Government. No operational reports are available in French.

8. Japanese Government

During recent discussions with the CAR Government a team of Japanese water supply specialists reviewed the Government's request for assistance in developing a village water supply project in the southwestern prefectures of Lobaye and Mbella Mpoko, and agreed to continue processing the request.

9. Swedish Government

The Swedish Consul was unable to provide the Permanent Bureau any report or statistical information on the large project in the west supported by SIDA and carried out by a non governmental organization. It is understood that two drilling rigs are in use, a drill in the northern hard rock and a cable tool apparatus in the shallow overburden in southern forest areas, and that about 150 successful tubewells have been constructed since the project started about four years ago.

10. Danish Government

The Danish Government has financed studies leading to a proposal for a FCFA 6 billion urban water supply project for the towns of Bossangoa Bangassou, Barnot, Mbaiki and Ndélé, which is now at an advanced stage of negotiation (total benefitting population 125000h).

11. European Economic Community

The Permanent Bureau was unable to obtain any information on FED planned activities in the water sector.

APPENDIX K
CNEA Reference Documents

COMITE NATIONAL DE L'EAU
ET DE L'ASSAINISSEMENT
DOCUMENTS DE REFERENCE

- CATEGORIES: E-Approvisionnement en eau potable
 A-Assainissement
 P-Planification
- P.01 OMS Comité d'experts de l'assainissement (Rapport sur la première session 1950)
- P.02 OMS Eau potable et assainissement, 1981-1990: Vers une meilleure santé (2 exemplaires) /
- P.03 OMS Les plans nationaux pour la Decennie: reponse à huit questions
- P.04 OMS Manuel du techicien sanitaire (par Lanoix et Roy)
- P.05 OMS Mesures d'hygiène simples contre les maladies intestinales (par Rajogopalan et Shiffman)
- P.06 OMS Evaluation rapide des sources de pollution de l'air, de l'eau et du sol
- P.07 OMS Catalogue des organisme de soutien extérieurs
- P.08 BIRD Water supply and sanitation project preparation handbook: volume I: Guidelines, volume II Case Studies
- P.10 OMS Liste des publications 1947-1979, et supplement 1980-1984
- E.01 OMS Les approvis ionnements publics en eau (Rapport d'un comité d'experts)
- E.02 OMS Approvisionnement en eau des zones rurales et des petites agglomeratios (par Wagner et Lanoix)
- E.03 OMS La filtration lente sur sable (par Huisman et Wood)
- E.04 OMS Technique et contrôle du traitement des eaux (par Cox)
- E.05 OMS Surveillance de la qualité de l'eau de boisson
- E.06 OMS Guidelines for drinking water quality: Volume I: recommendations
- E.07 OMS Directives de Qualite pour l'Eau de Boisson. Volume 1: recommandations

- A.01 OMS Evacuation des eaux usées des collectivités
(Rapport d'un comité d'experts)
- A.02 OMS Evacuation des excreta dans les zones rurales et
les petites agglomérations (par Wagner et Lanoix)
- A.03 OMS Procédés technologiques adaptés à l'assainissement
des petites localités européennes (Rapport d'un groupe
de travail)
- A.04 OMS Collecte et évacuation des eaux usées des collectivités
(par Okun et Ponghis)
- A.05 OMS Bassins de stabilisation des eaux usées (par Gloyna)
- A.06 OMS La réutilisation des effluents: méthodes de traitement
des eaux usées et mesures de protection sanitaire
(Rapport d'une réunion d'experts)
- A.07 OMS Réduction, traitement et élimination des déchets solides
(Rapport d'un comité d'experts)