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Cameroon: Water Supply and Sewerage Sector Study

(In Two Volumes)

Volume I: Text

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CURRENCY EQUIVALENTS

Monetary Unit	=	CFA Franc (CFAF)
1 CFA Franc	=	US$0.0044
1 US$	=	CFAF 225.00

FIVE-YEAR PLANS

Third	1971-1976
Fourth	1976-1981
Fifth	1981-1986

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SUMMARY AND INITIAL GOVERNMENT REACTIONS

General

0.01 Cameroon has a population of 6.3 million increasing at 2.2% annually. About 35% of the urban population and 22% of the rural population are estimated to be adequately served with water. Sewerage systems are practically non-existent. Most towns have embryonic storm drainage systems but usually in the form of unlined ditches with no protection.

0.02 The organization of the water supply sector is highly fragmented. The Ministry of Mines and Energy operates eight systems in the NW and SW Provinces. The Government has delegated the operation of the 13 principal systems in the rest of the country to the Société Nationale des Eaux du Cameroun and four small systems are operated by municipalities. The Ministry of Agriculture is responsible for rural water supply.

Issues

0.03 The principal issues are: (a) the definition of sector objectives in terms of the percentage of the population to be served and water quality; (b) the provision of an adequate institutional and legal framework; (c) improvement of recruitment, training and conditions of employment; (d) the revision of tariffs; and (e) the identification and execution of necessary pre-investment, technical, managerial and economic studies. All of these issues should be tackled with the long-term goal of applying unified policies in the sector and overcoming the present organizational fragmentation of the sector.

Proposals

A. Objectives

0.04 The proposed objective for urban water supply is to serve the whole urban population by 1986 (end of the Fifth Five-Year Plan). The estimated investment requirements are about CFAF 15 billion over the period 1976-1986 or about CFAF 1.5 billion per year, which is twice the planned level of the current Five-Year Plan. A phased programme is proposed which concentrates initially on centres which already have water supply systems and those for which studies are available.

0.05 In rural water supply, it is proposed that the Government at least maintain the present level of investment (about CFAF 0.2 billion per year) in order to supply practically all the rural population by the end of the century. The Government, however, should consider doubling annual investment by 1980 to advance to 1990 the time by which essentially complete coverage of the rural population could be achieved. The programme could be staged in line with Government priorities regarding the small administrative centres, the Northern Plains, the resettlement areas and the Western Highlands.

0.06 In urban sewerage and drainage, the absence of cost data make it difficult to propose an investment programme. The general provision of sewerage and drainage seems of low priority although certain needs are

evident in Douala and Yaoundé. The programme included in the current Five-Year Plan has not been implemented and the amounts provided (CFAF 1200 million) are almost certainly inadequate for the needs. Existing master plans should be updated with a view to project implementation during the next Five-Year Plan (1976-1981). The major impact on rural sanitation should come through continued public health education on improved methods of excreta disposal and the development of self-help projects.

B. Organization

0.07 The main problems in rural water supply are financial rather than organizational and in the short-term the development of sewerage and storm drainage is of relatively low priority. The basic organizational problems therefore relate to urban water supply and three alternative solutions are proposed for the short and medium term: (a) strengthening the Ministry of Mines and Energy while maintaining its present functions; (b) transfer of responsibilities for water systems in the NW and SW Provinces to SNEC; and (c) creation of a new autonomous water supply authority, owned by the Government. In the longer term, where extension of service to the lower-income population and the formulation of unified sector policies will become increasingly important, solution (c) is to be preferred. If so, there are arguments for establishing a national water supply authority as soon as possible to operate the systems in the NW and SW Provinces. As expertise is gained, the responsibilities of the authority could be expanded to take in additional urban water supply systems, sewerage and, if desirable, rural water supply.

C. Recruitment, Training and Conditions of Employment

0.08 To meet the objective of providing water supply to the whole urban population by 1986, it is estimated that 300 people will have to be recruited and trained annually over a 10 year period. While SNEC has some training facilities, the Government should decide on a recruitment programme and the possibility of establishing a permanent training institution. No specific proposals are made with regard to conditions of employment because it is recognized that this is a matter of general Government policy with implications beyond the water supply sector. However, differences between conditions of employment within the sector should be recognized as a fundamental problem especially if the Government adopts the long-term objective of sector unification.

D. Tariffs

0.09 Before tackling the tariff issue, the Government should decide on its social objectives and the proportion of costs to be recovered by water charges. In the NW and SW Provinces, the average tariff level is too low and only a small percentage of billings is collected. It is proposed that collection procedures should be drastically improved and the tariff level raised. The tariff structure in the NW and SW Provinces should be simplified but it does at least take some account of the limited ability of the lower-income population to pay. Changes in tariff structure are proposed for the water systems

operated under concession agreements in Cameroon's other provinces so as to facilitate the extension of water supply to the lower-income groups. Inter-regional differences in tariff levels and structures exist at present due to Government policies and variations in costs. In the long-term, there is no reason why different principles should be applied to tariff structure in different regions. Three alternative approaches are proposed towards tariff levels: (a) different levels in different systems based on differences in cost; (b) a uniform level nationally based on the average cost of all systems; and (c) an intermediate solution to permit some income redistribution from richer to poorer areas or as part of regional development policy.

E. Studies

0.10 Seven studies are proposed to tackle the issues identified and to evaluate and implement the proposals made. They are contained in Study Data Sheets 001 to 007.

Government Reactions

0.11 On the basis of a summary of a draft version of the Report, the Ministry of Mines and Energy and the Ministry of Agriculture have unofficially accepted most of the proposals summarized above or else included them as issues to be studied further. The two Ministries are specifically recommending as Government policy:

- Objectives. (i) The provision of water supply to the whole urban population by 1986 with essentially the phasing proposed in the Report. (Towns not yet studied would be studied during the Fourth Plan and projects implemented during the Fifth Plan; towns for which studies exist or where construction has started would be commissioned before or during the Fourth Plan; the timing of extensions to existing systems has not been detailed except that all extensions would be completed by the end of the Fifth Plan); (ii) Investment in rural water supply to be maintained at CFAF 0.2 billion during the Fourth Plan; (iii) All principal administrative centres to receive systems during the Fourth Plan and smaller administrative centres by the end of the Fifth Plan.

- Organization. The creation of an autonomous water supply authority as soon as possible to operate the systems in the NW and SW Provinces. In the longer term, this would form the nucleus of a national authority to manage all water supply systems and possibly sewage systems in Cameroon.

- Training. The creation of a section in the National School of Technology to train technicians in water supply and sewerage.

- Tariffs. Increases in water supply tariff levels in the NW and SW Provinces to achieve greater financial viability; improvement of revenue collection, especially from municipalities; encouragement of private connections.

- Studies covering

(i) a national policy for water supply, with particular reference to the objective of extending water supply to the lower-income population. The

study would also consider appropriate water quality standards and the adoption of uniform tariffs within the SNEC systems to facilitate the longer-term integration of these systems within the national water supply authority;

(ii) the general question of management of urban water supply systems (institutions, organizations, finance and training);

(iii) sewerage and drainage in the main urban centres, particularly Douala, Yaoundé, Maroua and Victoria. The study would establish master plans and feasibility studies for the first stage of works. The study would further examine organization, with particular reference to the possibility of placing the management of sewage and drainage systems under the autonomous national water supply authority;

(iv) assistance, in the form of technicians and equipment, to the Ministry of Agriculture to prepare and implement a countrywide programme of rural water supply.

0.12 These studies correspond to the proposed Study Data Sheets 001, 002, 003, 005 and 007. The principle of Study Data Sheet 004 (Pre-Investment Study of Small Administrative Centres) has been maintained although the counterpart agency will probably be the Ministry of Mines and Energy rather than the Ministry of Agriculture. Study Data Sheet 006 (Pre-Investment Studies for Medium-Sized Towns) has not been explicitly retained although the bulk of these studies will be required in some form if the proposed programme for urban water supply is to be implemented.

I. INTRODUCTION

The Study

1.01 At the request of Government and in the framework of the IBRD/WHO Cooperative Programme, a mission composed of Messrs. P. Vallet and L. Laugeri from WHO, and of R. Bates and W. Schaefer from IBRD, visited Cameroon in January-February 1974. The mission was assisted by Mr. V. Lopez-Castillo, the WHO resident sanitary engineer. The mission's objectives were (i) to evaluate the existing situation in the water supply, sewerage and drainage sector; (ii) to consider development plans for the sector over a twenty-year period (1974-1993); (iii) to identify problems likely to restrict progress; and (iv) to consider and discuss with national officials some alternative solutions to these problems. On the basis of the findings of the mission, a draft report was prepared by IBRD and WHO. The Government received a summary version of the report in English in June 1974 and in French translation in August 1974. The Government's written comments were received in January 1975 and discussed with the Government in Yaoundé by Messrs. R. Bates, L. Laugeri and V. Lopez-Castillo in April 1975. This final version of the report takes into account the modifications requested by the Government and the agreements reached during discussions.

1.02 The report considers rural and urban water supply of equal importance, in view of the present and projected rural and urban populations in Cameroon. Sewerage and drainage are practically non-existent in the country and, in view of other demands on scarce resources, the general provision of sewerage and drainage was considered to be of low priority. Sewerage problems were therefore examined only as logical continuations of water supply developments, with cost estimates based on comparable cases in other African countries. Investment in drainage was given high priority only for some large cities which have serious flooding problems.

1.03 Due to lack of reliable data some of the figures used in the report are best estimates. The mission has discarded improbable data at the cost of some information gaps. Some of the data collected by the mission and appearing in the appendices are estimates collected directly during field trips to Douala and to the North and the West of Cameroon, where more than twenty cities and a number of rural communities were visited. In Yaoundé, the mission received full assistance from Government officials concerned, in particular the Direction of Energy and Water (Ministry of Mines and Energy), the Direction of Programmes (Ministry of Plan) and the Direction of Génie Rural (Ministry of Agriculture). The mission has also used as background information recent economic and agricultural surveys by IBRD.

Definition of "Urban" and "Rural" Population

1.04 In Cameroon, the official definition of the "urban" population includes all centres of more than 3,000 inhabitants, all administrative centres, and certain centres which have development prospects combining industry and agriculture. It should be emphasized that for the purposes of this report, a different definition has been adopted to include only those with populations in excess of 6,000 inhabitants. This difference in definition is largely pragmatic and arises out of technical consideration of the water supply, sewerage and storm drainage sector. It is considered that centres with populations exceeding 6,000 inhabitants appropriately warrant water supply systems of the urban type, in terms of their size, population density, other infrastructure and type of dwelling.

1.05 Thus, centres with populations between 3,000 and 6,000 inhabitants as well as the agro-industrial development centres have been classified as "rural" in this report because they exhibit the characteristics of rural centres in water supply terms. In the same way, the 75 small administrative centres listed in Table II of Annex I are classified as "rural". Their combined population is estimated at only 170,000 of which 40% had populations of less than 1,000 in 1968. Correspondingly, the Génie Rural has been and should continue to be active in these centres until the Ministry of Mines and Energy is prepared to undertake this kind of service and until the need for an urban-type water supply system has been demonstrated.

Background Information

1.06 The Federal Republic of Cameroon, which was formed on 20 October 1961, became the United Republic of Cameroon in May 1972, with the merging of the French-speaking former East Cameroon and the English-speaking former West Cameroon (now called the NW and SW Provinces). Both languages are recognized officially. Per capita GNP is about US$200 although only US$75 in rural areas. The Republic has a population of about 6.3 million, increasing at about 2.2% annually, and an average population density of 13 per sq. km. with large regional differences (Annex I). Some 4.6 million people (about 70% of the total population) live in rural areas. Because the prospects in agriculture are reasonably good, migration from rural areas to the urban centres is not as acute in Cameroon as in some other African countries (the urban population growth rate is around 7% per annum, about three times the national average instead of five times or more in some other African countries).

1.07 Urban population densities are low (about 80/ha in Douala, generally less elsewhere), and as a result urban infrastructure costs are comparatively high (the usual urban population density in Africa is more than 150/ha). The rural population tends to concentrate along axes such as roads or streams which could make easier the provision of basic sanitary services. However, the provision of basic sanitary facilities has so far been inadequate and there is a high incidence of water-borne diseases. This has been a matter of official concern for several years, as reflected in the current (Third) Five-Year Plan, which makes provision for a major effort in the improvement of sanitary facilities in urban and rural areas. In urban water supply, the projects currently under way will at best maintain the present low level of service during the next decade, and there has been hardly any progress in recent years in sewerage and drainage. Rural water supply, starting from a still lower level of service, has been progressing more rapidly.

1.08 External assistance to the water supply sector has mostly taken place through bilateral agencies. Assistance from international technical and financial agencies in the field of water supply, sewerage and drainage has been limited to (i) a UNDP-assisted project for groundwater investigation in the northern region and (ii) an IBRD loan (604-CAM), made in 1969, to assist in the development of water supply for the cities of Douala and Yaoundé.

II. PRESENT SITUATION

General

2.01 Only 25% of the total population of Cameroon is estimated to be adequately served with drinking water. Sewage disposal, where provided, is mostly by septic tanks (sewerage is confined to a few districts of the larger cities, some of which also have storm drainage systems, generally inadequate). The high incidence of water-borne diseases reflects these poor basic hygienic conditions, which originate essentially from a lack of organization and resources in the sector. The institutional, legal and financial situation in the fields of water supply and sewerage, urban and rural, is described in detail in Annex II.

Organization

2.02 The organization of the water supply, sewerage and drainage sector is highly fragmented. The "Direction des Programmes" of the Ministry of Planning is involved in the entire sector, because it provides general investment guidelines, it is responsible for execution of the National Five-Year Plan and it seeks sources of external finance for the investment programme. The recently created Ministry of Mines and Energy has countrywide responsibility for urban water supply and sewerage. It has two Directorates which are concerned with water resources: that of Mines and Geology for groundwater, and that of Water and Energy for surface water. It supervises urban water supplies in general, but has also direct responsibility for planning, construction and operation of the eight urban water supply systems in the NW and SW Provinces. The Government has delegated the operation of the 13 principal urban water supply systems in the rest of the country to SNEC 1/ under a concession agreement. Four small systems are operated by municipalities. Rural water supply is the responsibility of the "Direction du Génie Rural" of the Ministry of Agriculture. The "Direction de l'Urbanisme et de l'Habitat" in the Ministry of Equipment and Urbanization is responsible for planning urban infrastructure, including storm drainage. Another department of the same Ministry ("Direction de la Construction") is responsible for construction, while the municipalities are responsible for operation and maintenance. The responsibilities for sewerage seem to be ill-defined. While the Ministry of Mines and Energy nominally has countrywide responsibility, the Ministry of Equipment and Urbanization seems to consider that some aspects of sewerage fall within its mandate for urban infrastructure.

Staffing

2.03 The staffing level and effectiveness of the various sector organizations differ considerably. As far as water supply is concerned, the Ministry of Mines and Energy does not have sufficient staff or the training facilities to execute its various tasks adequately. SNEC, on the other hand, offers better working conditions, remuneration and fringe benefits. It is also able to call upon the commercial and computer services of its majority shareholder Electricité du Cameroun 2/ under an agreement to this effect. Consequently,

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1/ Société Nationale des Eaux du Cameroun.

2/ Electricité du Cameroun (EDC) has recently been merged with Energie Electrique du Cameroun and the West Cameroon Electricity Corporation to form a national power entity, the Société Nationale d'Electricité du Cameroun (SONEL). However, all references to EDC in this report apply equally to SONEL.

SNEC is adequately staffed and well organized. The "Direction du Génie Rural", despite shortage in equipment and staff, has been reasonably successful in fulfilling its functions, and its organization constitutes a sound basis for further development. At present, the Ministry of Mines and Energy, the "Direction de l'Urbanisme et de l'Habitat" and the Municipalities are too short-staffed to have any appreciable impact on the sewerage and storm drainage sector, even in cities where provision of these facilities has theoretically been of high priority for some time.

Population Served and Standards of Service

2.04 The population at present receiving a potable water supply is summarized in the following table:

	Population (millions)		
	Urban	Rural	Total
1) Total Population	1.7	4.6	6.3
2) Population in centres served with water	1.1	2.0	3.1
3) Population estimated to be adequately served	0.6	1.0	1.6
4) (3) as percentage of (1)	35%	22%	25%

Standards of service vary considerably. In broad terms, the concession areas served by SNEC receive treated water on a reasonably continuous basis (interruptions in supplies occur in some areas due to insufficient production capacity). SNEC, however, is primarily a commercially oriented enterprise and therefore tends to concentrate on water services to industry and the higher income population. The urban systems in the NW and SW Provinces are of an entirely social nature. Presently sewerage in Cameroon is confined to a few new development areas (an old system in Douala is no longer in service), but treatment is generally inadequate or non-existent. Elsewhere sewage disposal, where provided, is by septic tanks emptied by private contractors. Most towns have embryonic storm drainage systems normally in the form of unlined ditches with no protection. The systems in Douala, Yaoundé and Victoria in particular are quite inadequate for the needs. A more detailed discussion of sewerage and drainage is in Annex II, para. 13.

Legislation

2.05 There has not been any updating of the colonial legislation for the protection of water resources and control of their uses except the law of 3 July 1963 (complementary to that of 18 November 1955); under this new law, a number of expenditures for hygienic improvements became compulsory, under the responsibility of the municipalities. On the fiscal side, an enabling bill of 11 July 1962 authorizes the municipalities to establish and collect lump-sum annual taxes for water supply and solid waste disposal (the tax on water can be adjusted to the consumption if this is metered). These laws, which concern only the former East Cameroon, were later supplemented by legislation

governing SNEC. The law of 1 June 1971 which provided for the establishment of the former West Cameroon Urban Water Authority probably constitutes the most recent and adequate basis for further developments of legislation in the sector.

Costs, Tariffs and Finances

2.06 The significant difference between the commercial concept of the concession arrangement and the social concept applied in the systems operated by the Ministry of Mines and Energy, largely accounts for the noticeable differences in service (see para. 2.04) and costs, tariffs and the financial situation. The concessionaire's operating costs tend to be higher due to higher staff salaries, the high cost of sub-contracted services and also higher allowances for depreciation and renewal of fixed assets. Tariffs are higher since, under the concession arrangement, the average tariff must cover these higher operating costs and also provide funds for future investment, whereas the average tariff level in the NW and SW Provinces covers only a small part of the (lower) operating costs. Moreover, SNEC's collection is much more effective. The overall result is that average receipts in the SNEC systems are about CFAF 70/m3 compared to about CFAF 7/m3 in the NW and SW Provinces 1/ and the financial situation of SNEC is sound whereas the financial situation of the systems in the NW and SW Provinces requires heavy Government subsidies (over 60% of cash operating costs).

1/ Average receipts in the NW and SW Provinces would have increased to CFAF 31/m3 if local authorities had paid for standpipe consumption.

III. ISSUES AND RECOMMENDATIONS

General

3.01 The principal issues requiring Government consideration and action for development of the sector appear to be: (a) the definition of sector objectives, in terms of the percentage of the population to be served and quality of the service by the end of each Five-Year Plan (Investment programmes and financing plans must be prepared accordingly); (b) the provision of an adequate institutional and legal framework, so that the agencies involved in future sector activities will be competent to execute the selected investment programmes; (c) improvement of recruitment, training and conditions of employment; (d) the revision of existing tariffs, so that the average tariff level reflects the cost of water sold and the tariff structure reflects social and economic objectives of the Government; and (e) the identification and execution of necessary pre-investment studies, as well as studies of the technical, managerial and economic aspects of the sector (national , multilateral and bilateral agencies likely to provide technical and financial assistance should be identified accordingly).

Sector Objectives and Proposed Investment Programme

3.02 In water supply, the Twenty-Fifth World Health Assembly (May 1973) established the following global objectives for developing countries: 100% of the urban population (60% through public standpipes) and 25% of the rural population to be served with safe water by 1980. Cameroon has already almost attained the objective for its rural population (22%) but falls short of the objective for its urban population (presently 35% served). Furthermore, based on present trends, the percentage of urban population served in 1976 is likely to fall even below the present level.

3.03 To assess the implications of achieving the World Health Assembly objectives by the end of the successive Five-Year Plans, projections for urban water demand were prepared for 1981, 1986, 1991 and 1996 (Annex II). Supply of water for 100% of the urban population by 1981 is estimated to require a sustained annual production growth rate in the period 1976-1981 of between 17% and 21% (depending on the mix of supply from public standpipes and house connections). To assume such a development seems unrealistic since 32 towns, which presently have no water supply, have not yet been studied. A more realistic target for urban water supply is to serve 100% of the urban population by 1986 (Annex III). This is estimated to require an average annual production growth rate during the period 1976-1986 of between 11% and 13% and to involve a total investment (in 1974 prices) of CFAF 15 billion (US$ 67 million), that is, an average of CFAF 1.5 billion (US$6.7 million) per year (compared to the provision of CFAF 0.75 billion (US$3.3 million) per year in the current Five-Year Plan). Capital costs for urban water supply are estimated at CFAF 5000 (US$22) per person served 1/. This level of investment therefore extends service to about 250,000 new consumers annually.

3.04 An investment programme to achieve the objective of supplying 100% of the urban population by 1986 could be phased as follows (see Annex III): (a) from 1974 to 1976, extension of service to the towns which already have a

1/ The estimate was made during the main mission in January 1974 (see Annex III Table 1 for details). Since then, in Cameroon as elsewhere, construction costs have increased considerably and the figure will have to be revised periodically. It is also based upon modest design standards.

system ("Towns I") and construction of new systems in 7 towns for which studies are ready ("Towns II"); (b) from 1976 to 1981, continuation of service extensions in "Towns I", and construction of new systems in 8 "Towns II"; (c) after 1981, construction of new systems in 6 more "Towns II" and in 32 towns for which studies have not been undertaken up to now ("Towns III"). The Government should decide on these or other targets for urban water supply. It should also decide on minimum acceptable water quality standards to be applied nationwide, although it would be desirable to do so on the basis of a modest study, perhaps conducted with the assistance of WHO. Appropriate water sampling and monitoring procedures should also be established. There are deficiencies in the existing systems, in particular inadequate capacity (leading to intermittent supply) and lack of treatment facilities. The Government should carefully examine systems found to be deficient; it is probable that in many cases water quality can be substantially improved at low cost (e.g. by the provision of chlorination) and this should be done wherever possible. In the longer term, until the objective of supplying 100% of the urban population with a continuous supply of water meeting the accepted standards can be achieved, the Government must decide on the allocation of its investments between, firstly, extending supply to areas which at present have none, and secondly, improving the quality of existing supplies.

3.05 Government has the following short-term objectives for rural water supply: (a) to supply the 75 small administrative centres 1/ (b) to supply as soon as possible 100% of the population of the Northern Plains (c) to serve the rural resettlement areas being created by the Government and (d) to continue the extension programme already started in the Western Highlands. It is estimated that by continuing the present level of public investment of about CFAF 0.2 billion (US$889,000) per year (in 1974 prices), essentially the whole rural population can be supplied with water by the end of the century, when the rural population is expected to stabilize at around 5 million. (Public funds for rural water supply average about US$5-6 per person served. This level of investment therefore extends service to about 160,000 people annually). However, since the basic constraints in expanding rural water supplies appear to be financial, the Government should consider accelerating this programme if possible. A doubling of the annual level of investment by 1980, for instance, would provide 100% service to the rural population by 1990.

3.06 Although the lack of precise data make it impossible to formulate explicit sector objectives for urban sewerage and storm drainage and for rural sanitation, certain guidelines for development can be suggested. The general provision of sewerage and storm drainage in urban centres is at present of low priority, bearing in mind other demands on scarce resources. However, the Douala and Yaoundé systems need improvement, which will not be fully met by the measures which can be implemented in the framework of the budget provisions of US$5 million 2/ in the current Five-Year Plan. It is proposed that the existing master plans for these two cities be updated, so as to provide a sound basis for planning further investments. The Government should undertake an inventory of existing facilities and present and future needs as soon as possible in order to prepare an investment programme for these and possibly

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1/ As explained in paras. 1.04 and 1.05, these are classified as urban by the Cameroonian Authorities but are treated as rural in this report from the point of view of the type of system considered appropriate.

2/ A small part of this sum (US$0.2 million) is allocated to Victoria.

other major urban centres. Provided the studies can be completed on time, it should be possible to carry out the works during the course of the Fourth Five-Year Plan. Also in the drainage sector, some priority areas have been identified in the North, where the combination of rare but intensive rainfalls and runoff from the Adamaoua mountains are the cause of damage by flooding in flat areas, for instance Maroua and Fort Foureau 1/. In Fort Foureau, where works have been started already, according to information received on site, the need for drainage is considered to be so great that provisions have recently been made for construction in the municipal budget. However, in many centres, the extent of damage caused by flooding does not seem to justify expensive investment, and an economic analysis is required to determine appropriate design criteria.

3.07 Beyond 1981, it is difficult to forecast the needs and the cost of sewerage and drainage. The Service of Water Supply and Sanitation should make a complete inventory of septic tanks and other facilities. For each new city where a water supply system is built, sewerage requirements should be examined; the Government should only consider financing drainage in those centres in which the need is obvious, damage costly, and municipal resources insufficient.

3.08 In the near future, the major impact on sanitation in small urban centres and in rural areas should be achieved through continued public health education on improved methods of excreta disposal, and the development of self-help projects. Establishment of a loan fund from which householders could borrow to finance private sewage and excreta disposal facilities should also be considered. Any investment in rural water supply needs to be accompanied by the establishment of adequate maintenance which is often hindered by the large distances between individual systems. While the central organization for rural water supply and sanitation can provide supporting services, e.g. in the form of mobile teams, individual communities should accept responsibility for carrying out at least elementary maintenance procedures.

Organization

3.09 The organization of rural water supply appears adequate - at least in the short term - to execute the proposed investment programme. At the same time, the development of sewerage and storm drainage services appears to be of relatively low priority (although the sector organization is almost nonexistent). Therefore the most pressing problems in the present sector organization relate to urban water supply.

3.10 Two urban water supply organizational problems should be resolved in the short to medium term: (a) the relatively low percentage of the lower-income population served by the SNEC systems and (b) management shortcomings in the water systems in the NW and SW Provinces now operated by the Ministry of Mines and Energy. Each of these should be considered in the context of a long-term solution to the problem of the present fragmented sector organization.

1/ Now called Koussery.

3.11 To some degree the Government already has a solution to (a) since it is a majority shareholder in SNEC (with 22% direct holdings and 34% participation through Electricité du Cameroun, in which the Government has a 51% majority). Without any legal changes, the Government is therefore in a position to guide SNEC's management towards a policy which would better accommodate national needs. Extension of its supply areas to serve the lower-income population would have an adverse effect on SNEC's finances, since probably neither the consumers nor the municipalities could afford the full cost of the water supplied; the Government, taking account of the public health and other benefits of these supplies, might consider making appropriate capital grants or operating subsidies to SNEC, if these lower-income areas cannot be cross-subsidized from other SNEC operations.

3.12 Three alternative solutions may be considered to problem (b) relating to the management of the water systems in the NW and SW Provinces:

(i) Strengthening of the Ministry of Mines and Energy while maintaining its present functions - This is not likely to result in the necessary improvements, since this measure would not in itself provide for financial and managerial autonomy, which could be considered essential for efficient operations. Moreover, the regulatory and supervisory functions would not be separated from the executive function.

(ii) Transfer of responsibilities for water systems in the NW and SW Provinces to SNEC - This would have the considerable advantage of utilizing an existing organization with sound financial, technical and staffing bases with proven operational competence, and with a good recruitment and training record. However, it would have the disadvantage of extending to these provinces some of the undesirable features of SNEC operations unless those are modified. Divided responsibility between SNEC which currently only operates systems and the Ministry which is responsible for planning and construction of new systems would also be a disadvantage unless this too were changed.

(iii) Creation of a new autonomous water supply authority, owned by the Government - Such an authority might be created in part along the lines of proposals for a similar authority considered before Cameroon's unification. It would be responsible for planning, construction and operation of all systems in the NW and SW Provinces. It would have the following advantages: (a) financial and managerial autonomy; (b) sufficient control for execution of Government policies; and (c) concentration in one organization of all functions for water and sewerage services in these provinces. The likely disadvantages of this alternative, considered as a short-term measure, are: (a) the lengthy time period for such an authority to be created and become effective; (b) the difficulty of establishing appropriate management and control systems and procedures; and (c) the problems of recruiting and training adequate staff.

3.13 Possible long-term solutions to the problems of the present fragmented sector organization are generally similar to those discussed above in relation to the short term, with two important differences. (A) They should be directed to countrywide needs, and could cover both urban and rural water supply. This sector unification would have the following advantages: more efficient use of scarce qualified personnel, cost reduction due to savings in overhead costs, and improved coordination of activities and policies on a national level. (B) They could, if desirable, include the eventual transfer of SNEC's functions to another institution with responsibilities in the sector. Should the Government decide to create a national water authority, its responsibilities would expand as its capabilities increased; initially they might comprise only operation of the water systems in the NW and SW Provinces (including planning and construction of extensions) in line with the short and medium-term solution; later, the planning, construction and operation of all new systems could be taken over while the supervisory responsibilities would remain with the Ministry of Mines and Energy. Finally, the rural water supply functions of the "Génie Rural" could be transferred if it was determined that this was appropriate. Due to the considerable distances between isolated service areas, it may be too expensive for construction, operation and maintenance to be executed entirely by centrally-located staff. Local inhabitants could participate in construction (self-help) and possibly in operation and maintenance of these systems, under supervision of regional offices of either the "Génie Rural" or the new authority. Eventually the organization might also take over operation of the SNEC systems. It is possible that, in due course, it could also assume responsibility for sewerage, since one authority could readily deal with both water supply and sewerage on the scale envisaged, thus making best use of personnel. A management study for the authority should be undertaken to a assist the Government in implementing its general policy decisions on sector organization. Technical assistance would probably be needed during the implementation phase.

Recruitment, Training and Conditions of Employment

3.14 Whatever organization is adopted, recruitment and training of new staff are of paramount importance if the objectives of quadrupling water production for urban supply and tripling the number of urban water systems by 1986 are to be achieved. It is estimated that by that date the number of permanent employees may have to be increased to 2,400 compared with the present 600, i.e. about 300 people (with allowance for wastage) would have to be recruited and trained annually over a 10-year period. An extensive training programme should therefore start as soon as possible. Although SNEC has some training facilities, they are presently inadequate to deal with such large numbers. The Government should decide on a recruitment programme and establish a permanent training institution. The Government should also contemplate immediate measures in view of the urgency of the issue. Trained staff would probably be attached initially to the responsible Ministries, and later transferred to a new organization if one were established.

3.15 With regard to conditions of employment, it is recognized that Ministry salary levels and other benefits are, quite properly, a matter for Government policy and that the relationship between conditions of service in the public and private sectors is a general problem not confined to water supply. However, the problems created by differences in conditions of employment between Government officials involved with water supply and SNEC, and indeed the effects of inter-regional salary differences within Government service, are issues which the Government should tackle as soon as possible, especially if sector unification is accepted as a longer-term goal.

Tariffs

3.16 A revision of tariffs should concentrate on three major aspects: (a) the average tariff level; (b) the tariff structure, and (c) inter-regional tariff differences. In the NW and SW Provinces revenues from water sales cover only a small part of the operating costs and therefore the average tariff level needs to be raised, if recurrent Government subsidies are to be reduced (metering, billing and collection should also be improved, but this would not remove the need for tariff increase). The level of SNEC's average tariff in its traditional centres covers operating costs and provides funds for future investments in SNEC's systems; at the present time there appears to be no need for an increase in tariffs in these systems although serious problems may well be created by the new and high-cost systems which SNEC is currently taking over.

3.17 The tariff structure in the NW and SW Provinces is very complex and could probably be simplified. It does however take into account the limited ability of the lower-income population to pay, a feature which should be maintained. Although in theory local authorities in the NW and SW Provinces are required to pay for standpipe consumption, in practice they often cannot do so and losses are covered by Government subsidies. As a result, local authorities do not make any attempt to reduce or unduly restrict the number of public standpipes. In SNEC's systems, local authorities are also responsible for the payment of standpipe consumption but since SNEC's collection is better the effect is to make local authorities (usually short of funds) reluctant to expand standpipe service 1/. At the same time, there is a relatively high tariff for domestic consumers and a high connection fee 2/ which combine to restrict the availability of private connections even to the higher-income population. This tariff structure could be changed to favour the lower-income population with the introduction of a two-part tariff for domestic consumers with private connections. The first part would represent a low social block tariff, covering a consumption corresponding to minimum health requirements. The second part would be at a substantially higher rate to cover cost of supply, any financial losses on the first part, and possibly part of the costs of the supplies given through standpipes, thereby reducing the financial burden on local authorities and the Government. Some Government financial support might be envisaged since a social block tariff and free distribution from standpipes can be considered as public health measures. Establishment of a Government loan account to assist consumers in financing private connections should also be considered.

1/ The effect is aggravated by the high capital cost of a standpipe in the SNEC systems (CFAF 200,000 or US$890) compared with the NW and SW Provinces (CFAF 5,000 to CFAF 13,000 or US$22-57), where the design of standpipes is much simpler.

2/ SNEC has temporarily reduced the fee from CFAF 25,000 (US$111) to CFAF 20,000 (US$99) in an attempt to encourage private connections.

3.18 Government policies and variations in the cost of providing services result in inter-regional differences in tariff levels and structures. It is unlikely that these substantial differences can be eliminated in the short term without severe economic and social repercussions. However, in the long term, there is no reason why the tariff structure should vary in different regions. As far as the tariff level is concerned, the following three alternatives should be considered: (a) different levels in each water system, based on the costs in each system; (b) a uniform level in all water systems, based on the average cost of all water systems (which would probably result in income redistribution); and (c) an intermediate solution, as a form of income redistribution from richer to poorer areas or as part of a regional development policy. The Government should decide on its general tariff policies, in particular on its social objectives and on the proportion of the cost to be recovered by water charges. An investigation of the measures necessary to implement these decisions should be undertaken.

Studies

3.19 The Study Data Sheets 001 to 007 describe in outline the following pre-investment and other studies which are recommended:

001: Urban water supply: Institutional, organizational and financial study.

002: Urban and rural water supply: Assistance for training in urban and rural water supply.

003: Urban water supply, sewerage and drainage: Master Plans for urban water supply, sewerage and drainage for the cities of Douala and Yaoundé.

004: Rural water supply: Pre-investment survey of small administrative centres.

005: Rural water supply: Assistance for the development of rural water supply.

006: Urban water supply: Pre-investment studies for medium-sized towns.

007: Urban water supply: Assistance in implementing organizational improvements.

3.20 For urban water supply, sewerage and drainage and for rural water supply and sanitation, Government should formulate explicit sector objectives, for example in terms of the percentage of the population to be served, and make decisions on organization, legislation, tariff and personnel policies. Once these decisions are made, the Government should approach the appropriate bilateral and multilateral technical agencies to carry out pre-investment studies and to provide technical assistance for institutional development and training. The total assistance required in the period 1975 to 1978 is

estimated to amount to approximately CFAF 300 million (US$1.3 million). The Government should prepare financing plans and allocate funds for the proposed investment programmes; if the recommended sector objectives are accepted, these programmes are estimated to amount to about CFAF 15 billion (US$67 million) for urban water supply and CFAF 2.25 billion (US$10 million) for rural water supply, until 1986 (all amounts expressed at 1974 prices). These expenditures imply increasing by at least 40% (in real terms), the present annual budget allocation for urban water supply, and at least maintaining (and preferably increasing) the present expenditures for rural water supply. The recommended urban and rural water supply development programmes are presented and explained in Annex III with an estimate of the investment necessary to serve 100% of the urban population by 1986, and 100% of the rural population by 1991. The latter objective would imply doubling the present level of investment in rural water supply, after 1981.

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 001

Area:	Country:	Sector(s):
Countrywide	CAMEROON	Urban Water Supply.

1. **NAME OF PROPOSED STUDY:** Institutional, organizational and financial study.

2. **PURPOSE:** To assist the Direction of Water and Energy in the improvement of the institutional framework responsible for urban water supply; to make recommendations on organization, staffing, conditions of service, and training requirements; to advise on necessary legislation; to make recommendations on tariffs and tariff structures.

3. **SCOPE:** The study would be concerned with the preparation of a report to Government on improvement of the instituional framework for urban water supply throughout the country, in accordance with Government's general policy decisions in the sector. The report would include recommendations on organization (both short and long term,) accounting and other management information systems, legislation, staffing, conditions of service, training requirements, and tariff policies (both levels and structures). (In a subsequent stage of the study, after consideration of the report by Government the consultants would assist in implementation of the Government's decisions).

4. **BACKGROUND:**

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
Tariff studies by SNEC and the Ministry of Mines and Energy	IBRD/WHO Sector Study on Water Supply Sewerage and Drainage	NONE

5. **TIMING:**

(a) Duration and Phasing of Study	(b) Desired Starting Date
One Year	June 1975

6. **COMMENT ON POTENTIAL STUDY SPONSORS:**

UNDP (if US $110,000 can be included in the IPF for 1975/76) or bilateral assistance

7. **PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):**

(a) Description	(b) Estimated Investment (US$ equivalent)	(c) Financing Need and Potential Source
Implementation of recommendations (see Data Sheet 007) Training programme (See Data Sheet 002)	See Data Sheet 007	See Data Sheet 007

8. **ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):**

US $ 120,000 + participation of the Ministry of Mines and Energy

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9. **STAFF'S COMMENT ON PRIORITY RANKING OF STUDY:** (1)

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PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

No.: 001

(to be filled in when possible)

1. TENTATIVE STAFFING	Type of Specialist	Number on Team	Total Man-Months
(a) Foreign Professional Staff:			
	Management Specialist	1	12
	Chartered Accountant	1	12
	Financial Analyst	1	6
	Economist	1	6
	Total:	4	36
(b) Local Professional Staff :	(Participation of the staff of Ministry of Mines and Energy)		
(c) Local Supporting Staff :	Accountant	1	12

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	110,000	10,000	120,000
(b) Equipment :			
(c) Other (Travel, non-prof. staff, etc.):			
(d) Total :	110,000	10,000	120,000

3. OTHER COMMENTS

* Pro-forma cost : US $ 30,000 per man/year

** Pro-forma cost : US $ 800 per man/month

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 002

Area:	Country:	Sector(s):
Countrywide	CAMEROON	Urban and Rural Water Supply

1. NAME OF PROPOSED STUDY: Assistance for training in urban and rural water supply

2. PURPOSE: To assist the Ministry of Mines and Energy and the Ministry of Agriculture in training competent staff to manage and operate water supply systems at central level and in rural and urban areas.

3. SCOPE:
a) Establishment of recruitment and training programmes for urban and rural water supply systems;
b) Training of instructors to succeed the expatriate experts (probably two groups of instructors, one for rural water supply and one for urban, each group comprising specialists in engineering, management and finance);
c) Supervision of the initial stages of the recruitment and training programmes.

4. BACKGROUND:

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
SNEC's training centre for its own personnel	NONE	NONE

5. TIMING:

(a) Duration and Phasing of Study	(b) Desired Starting Date
Twenty months	June 1975

6. COMMENT ON POTENTIAL STUDY SPONSORS:
UNDP (if the IPF can include an amount of US$180,000 for this purpose), or bilateral.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description	(b) Estimated Investment (US$ equivalent)	(c) Financing Need and Potential Source
Permanent training institution for each of the two Directions	To be determined by study	Local financing, and IBRD, WHO UNICEF or bilateral agencies.

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):
US $180,000

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Dept. or Agency: IBRD/WHO
Date: September 1974.

9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (1)
This initial training exercise should be undertaken as soon as possible in view of the large projected sector investment programme.

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PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

(to be filled in when possible)

No.: 002

1. TENTATIVE STAFFING	Type of Specialist	Number on Team	Total Man-Months
(a) Foreign Professional Staff: *			
Three training specialists:	Sanitary Engineer	1	20
	Accountant	1	20
	Management Specialist	1	20
	Total:	3	60
(b) Local Professional Staff :			
(c) Local Supporting Staff :			

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	180,000		180,000
(b) Equipment :			
(c) Other (Travel, non-prof. staff, etc.):			
(d) Total :	180,000		180,000

3. OTHER COMMENTS

* Pro forma cost: US $ 30,000 per man/year

This training exercise can be supplemented or partially replaced by scholarships abroad etc.

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 003

Area:	Country:	Sector(s):
DOUALA AND YAOUNDE	CAMEROON	Urban Water Supply Sewerage and Drainage

1. NAME OF PROPOSED STUDY: Master Plans for urban water supply, sewerage and drainage for the cities of Douala and Yaoundé

2. PURPOSE: To assist the Ministry of Mines and Energy in preparing comprehensive master plans for water supply, sewerage and drainage for the cities of Douala and Yaoundé

3. SCOPE:
a) Master plans for works necessary to meet the needs of Douala and Yaoundé up to the year 1996, when their populations are projected to reach 1.7 million and 0.9 million respectively.
b) Preliminary engineering and feasibility studies for the first phase of construction (to meet the needs up to about 1986, when the populations are projected to reach 1.0 million and 0.5 million respectively.)
c) The studies should take account of socio-economic conditions in each city, and of expected urban development.

4. BACKGROUND: (a) Related Studies (b) Other Available Data (c) Expected Data Problems

a) SNEC has studied the development of Douala and Yaoundé up to 1984, in two separate "Master Plans". Projected investments are about US $ 2,000,000 for Yaoundé and US$ 4,000,000 for Douala.
b) Long-term Development of Sewerage and Drainage in Yaoundé (BCEOM 1964)
Final Design of a Sewerage System for the Commercial Centre of Yaoundé (SIC 1974)
Master Plan for Drainage in Douala (SCET 1969)
"The Water Problem at Douala" Planning Housing Information, August 1973.

5. TIMING: (a) Duration and Phasing of Study (b) Desired Starting Date

One year (continuous) July 1975

COMMENT ON POTENTIAL STUDY SPONSORS:

UNDP (if US$ 200,000 can be included in the IPF corresponding to the year 1975-76), otherwise bilateral assistance.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description
Extension of production and distribution facilities in Douala and Yaoundé construction of sewerage and drainage systems for selected areas of the two cities.

(b) Estimated Investment (US$ equivalent)
Water supply Douala US $ 9,000,000 *
Water supply Yaoundé : US $ 4,000,000

(c) Financing Need and Potential Source
Local financing..... US $ 4,000,000
Foreign exchange component (70%) US$9,000,000
(IBRD, AFDB, CCCE, bilateral)

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):

US $ 200,000 + Government contribution in kind ($ 100,000 equivalent)

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Date: September 197[illegible]

9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (1)
Currently high priority is given in the Government plan for sewerage and drainage of Douala and Yaoundé. Extension of water production in the two cities will be needed in 1977, thus study must be undertaken as soon as possible.

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PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

No.: 003

(to be filled in when possible)

1. TENTATIVE STAFFING		Type of Specialist	Number of Team	Total Man-Months
(a) Foreign Professional Staff:	**	Sanitary Engineers Financial Analyst Sociologist, economist etc.,		40
		Total:		[illegible]
(b) Local Professional Staff :	***	Engineers etc.		50
(c) Local Supporting Staff :	****	Draughtsmen, chemist etc		50

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	200,000	400,000	240,000
(b) Equipment :		40,000	40,000
(c) Other (Travel, non-prof. staff, etc.):		20,000	20,000
(d) Total :	200,000	100,000	300,000

3. OTHER COMMENTS

* The current Five-Year Plan makes a provision of 4.6 million US dollars for sewerage and drainage of the two cities. These estimates need to be revised and updated

** Should be subcontracted, pro forma cost : US $ 5,000 per man/month

*** Pro forma cost : US $ 800 per man-month

**** Pro forma cost : US$ 400 per man- month

The differences between SNEC's investment estimates and those on this sheet are due to the fact that SNEC's estimates are restricted to production and storage facilities, and do not take into account the investments for extension of the distribution systems. Furthermore, the development of a water new source for Douala, in addition to Japoma, is not included in SNEC's estimates.

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 004

Area:	Country:	Sector(s):
COUNTRYWIDE	CAMEROON	RURAL WATER SUPPLY

1. NAME OF PROPOSED STUDY: PRE-INVESTMENT SURVEY OF SMALL ADMINISTRATIVE CENTRES.

2. PURPOSE: To assist the Ministry of Agriculture (Direction du Genie Rural) in assessing the technical feasibility and financial and economic consequences of providing water to small administrative centres and adjacent rural areas.

3. SCOPE:
The survey would concern about 70 small administrative centres (those with less than 5,000 inhabitants in 1968 and which have not been studied by Lotti or Hydroplan), with a total estimated population of about 170,000 in January 1974, projected to increase to more than 330,000 in 1986. For each centre, the optimum source and distribution system would be determined, with indication of approximate cost, population served and ability to pay for operation and maintenance.

4. BACKGROUND:

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
Yabassi (Hydroplan); Ngoumou, Batchenga and Belabo (Lotti)	UNDP-assisted groundwater project in the North (Mora) Data on Nkambe at Ministry of Mines and Energy.	Some data is available on rural income, but little is known on local self-help, possibilities of donation etc.

5. TIMING:

(a) Duration and Phasing of Study	(b) Desired Starting Date
Six consecutive months	July 1975

COMMENT ON POTENTIAL STUDY SPONSORS:

UNDP (if the IPF can include US $ 60,000 for this study), otherwise bilateral. Government contribution would be in kind.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description
Rural-type water supply project with administrative and private connections and extension of service to adjacent rural communities by standpipes.

(b) Estimated Investment (US$ equivalent) (at 1974 prices)
2,000,000 (US $ 6 per capita)

(c) Financing Need and Potential Source
Local financing 1,000,000
Other sources, 1,000,000
(IBRD, AFDB, bilateral)

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):
US $ 60,000
* Government contribution in kind (US$ 12,000 equiv.)

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9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (1)
Water supply to small administrative centres is given high priority by Government. They also can constitute the starting point for development of the sector in unserved rural areas.

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No.: 004

PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

(to be filled in when possible)

1. TENTATIVE STAFFING	Type of Specialist	Number on Team	Total Man-Months
(a) Foreign Professional Staff: *	Sanitary Engineer	1	6
	Financial Analyst	1	6
	Total:	2	12
(b) Local Professional Staff : **	Engineer	1	6
(c) Local Supporting Staff :	Draughtsmen, etc.	2	12

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	60,000	4,800	64,800
(b) Equipment :		2,400	2,400
(c) Other (Travel, non-prof. staff, etc.):		4,800	4,800
(d) Total :	60,000	12,000	72,000

3. OTHER COMMENTS

* Should be consultants - pro forma cost US $ 5,000 per man/month

** Pro forma costs - (b) Engineers US $ 800 per man/month
(c) Draughtsmen, etc US $ 400 per man/months

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 005

Area:	Country:	Sector(s):
COUNTRYWIDE	CAMEROON	RURAL WATER SUPPLY

1. NAME OF PROPOSED STUDY: Assistance for the development of rural water supply.

2. PURPOSE: To assist the Ministry of Agriculture (Direction du Genie Rural) in preparing and implementing a countrywide programme of rural water supply.

3. SCOPE: This assistance programme would be carried out by providing technical assistance and equipment to the Direction du Genie Rural during the Fourth Five-Year Plan and could be renewed as necessary. Its final aim would be to provide adequate water supply to the whole of the rural population (projected to stabilize at about 5 million people by the end of the century).

4. BACKGROUND:

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
Studies by SATA (SW and NW Provinces) and by the Direction du Genie Rural.	"Localisation de la population" (map by ORSTOM). IBRD Agricultural Sector Survey (1973)	Availability of groundwater in the North (See UNDP-assisted project in Garoua).

5. TIMING:

(a) Duration and Phasing of Study	(b) Desired Starting Date
Initially three years (with possible renewal)	January 1976

COMMENT ON POTENTIAL STUDY SPONSORS:

UNDP (if US$ 227,500 can be included in the IPF corresponding to the Fourth Five-Year Plan) otherwise bilateral assistance.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description: Water supply to villages and other relatively dense rural areas (service to about 600,000 more people during Fourth Five-Year Plan) in connection with integrated development projects.

(b) Estimated Investment (US$ equivalent) (at 1974 prices): 3,600,000

(c) Financing Need and Potential Source: Local financing 1,800,000 Balance IBRD, AfDB, CCCE, bilateral.

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent): 227,500 + participation of Genie Rural + training

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9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (2)
Study should start after completion of study of small administrative centres and adjacent rural areas.

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PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

No.: 005

(to be filled in when possible)

1. TENTATIVE STAFFING	Type of Specialist	Number on Team	Total Man-Months
(a) Foreign Professional Staff*	Sanitary Engineer	1	36
	Financial Analyst	1	4
	Agricultural Engineer	1	6
	Economist	1	2
	Hydrogeologist	1	3
	Total:	5	51

(b) Local Professional Staff : (participation of the staff of Bureau du Genie Rural)

(c) Local Supporting Staff :

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	127,500	n.a.	127,500
(b) Equipment ** :	100,000	n.a.	100,000
(c) Other (Travel, non-prof. staff, etc.):		n.a.	
(d) Total :	227,500	n-a-	227,500

3. OTHER COMMENTS

* Should be consultants.
Pro forma cost: US $ 30,000 per man/ year

** Vehicles, spare parts for drilling equipment etc.

Main Zones
Logone and Chari, North of Fort Foureau
Margui Wandala, Diamare, Mayo-Danay
Nyong and Mfoumou, Haute Sanaga, Nyong and Soo
Nefou, Lejie
Meme, Mungo
All Western highlands and resettlement zones.

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PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 006

Area:	Country:	Sector(s):
COUNTRYWIDE	CAMEROON	URBAN WATER SUPPLY

1. NAME OF PROPOSED STUDY: Pre-investment studies for medium-sized towns

2. PURPOSE: To assist the Ministry of Mines and Energy in assessing the needs, and the technical and financial feasibility of water supply systems in the towns which presently do not have any service and are not being studied.

3. SCOPE: The towns have been selected on the basis of high anticipated growth and/or inadequate water supply. The total forecast population is 450,000 in 1986. A preliminary feasibility study would be carried out for each town, which will cover (a) the investigation of technical alternatives for water production and distribution (b) economic and financial evaluations of the alternatives (c) recommendation of the alternative preferred . Account would be taken of future sewerage needs, where relevant. Local counterpart personnel would be trained during the study.

4. BACKGROUND:

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
Hydroplan, Lotti and Snec have executed similar studies for other towns	Hydrological and hydro-geological reports and studies (ORSTOM, BRGM, WAKUTI, Ricci, UNDP-assisted study).	Lack of data on urban development and income distribution.

5. TIMING:

(a) Duration and Phasing of Study	(b) Desired Starting Date
Two years	July 1976

COMMENT ON POTENTIAL STUDY SPONSORS:

UNDP (if the IPF can include US$ 300,000 for this study), otherwise bilateral. The Government contribution would be the cost of local staff and services.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description: Construction of water-supply systems in 23 towns between 1977 and 1986

(b) Estimated Investment (US$ equivalent) (at 1974 prices): 15,000,000 (US $ 33 per person)

(c) Financing Need and Potential Source:

Local financing 5,000,000

Foreign exchange 10,000+000 (66 (IBRD, AFDB, bilateral)

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):
US$ 300,000 (2% of investment)
+ Government contribution in kind ($ 77,000 equiv.)

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Dept. or Agency: IBRD/WHO
Date: September 1974

9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (3)
Should start when all on-going studies by Hydroplan, Lotti and SNEC have been completed.

Sheet Revised by:	
Item(s) Revised:	
Dept. or Agency:	
Date:	

Form No. 366.01 (11-69) | INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

(to be filled in when possible)

No.: 006

1. TENTATIVE STAFFING	Type of Specialist	Number on Team	Total Man-Months
(a) Foreign Professional Staff: *	Sanitary Engineer	1	24
	Financial Analyst	1	24
	Economist	1	12
	Total:	3	60
(b) Local Professional Staff : **	Engineer	2	48
(c) Local Supporting Staff :	Draughtsmen etc	4	96

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	300,000	76,800	376,800
(b) Equipment :	(included in	(included in	
(c) Other (Travel, non-prof. staff, etc.):	pro forma cost)	pro forma cost)	
(d) Total :	300,000	76,800***	376,800****

3. OTHER COMMENTS

* Should be consultants:
pro forma cost
US$ 5,000 per man/month

** Pro forma costs:
b) Engineers -
US$ 800 per man/month

c) Draughtsmen, laboratory specialists, surveyors,
US$ 400 per man/month

*** Indicative figure for Fourth Five-Year Plan

**** Includes training component

The towns would be:

Manjo	Batouri
Bamandjou	Tonga
Yagoua	Kaele
Memfe	Njinikom
Meiganga	Kekem
Nyombe	Ndop
Penja	Akonolinga
Bazou	Garona Boulai
Bonaberi	Batibo
Fontem	Ribati
Bangou	Yokadouma
Muyuka	

Supplement Prepared by:	
Dept. or Agency:	IBRD/WHC
Date:	September 1974
Supplement Revised by:	
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Dept. or Agency:	
Date:	

Form No. 386 (11-69) | INTERNATIONAL DEVELOPMENT ASSOCIATION | INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT | INTERNATIONAL FINANCE CORPORATION

PREINVESTMENT PROGRAM - STUDY DATA SHEET

No.: 007

Area:	Country:	Sector(s):
COUNTRYWIDE	CAMEROON	URBAN WATER SUPPLY

1. NAME OF PROPOSED STUDY: Assistance in implementing organizational improvements.

2. PURPOSE:

To assist the Direction of Water and Energy in implementing Government decisions resulting from study 001 in particular measures to improve the institutional framework in the sector of urban water supply.

3. SCOPE:

Attachment of foreign professional staff to the agencies responsible for urban water supply. Training of a nucleus of competent staff in the Direction to deal with further development.

4. BACKGROUND:

(a) Related Studies	(b) Other Available Data	(c) Expected Data Problems
Institutional, organizational and financial study (Data Sheet 001)	NONE	NONE

5. TIMING:

(a) Duration and Phasing of Study	(b) Desired Starting Date
Two years	July 1976

COMMENT ON POTENTIAL STUDY SPONSORS:

UNDP (if US$ 90,000 can be included in the IPF 1976/77) otherwise bilateral assistance.

7. PROJECT(S) EXPECTED TO RESULT FROM STUDY (if known):

(a) Description

This assistance aims at strengthening the institutional framework to make it capable of handling water supply projects to serve most of the urban population by 1986.

(b) Estimated Investment (US$ equivalent) (at 1974 prices)

US$ 60,000,000 (project costs)

(c) Financing Need and Potential Source

Local financing assistance from IBRD, AfDB, or bilateral agencies.

8. ORDER OF MAGNITUDE OF STUDY COST (US$ equivalent):

US $ 90,000 + Government participation

Sheet Prepared by:
Dept. or Agency: IBRD/WHO
Date: September 1974

9. STAFF'S COMMENT ON PRIORITY RANKING OF STUDY: (3)

The study should start after completion of the organizational study

Sheet Revised by:	
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Dept. or Agency:	
Date:	

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PREINVESTMENT PROGRAM - STUDY DATA SUPPLEMENT

(to be filled in when possible)

No.: 007

1. TENTATIVE STAFFING	Type of Specialist	Number of Team	Total Man-Months
(a) Foreign Professional Staff: *	Chartered Accountant	1	24
	Sanitary Engineer	1	12
	Total:	2	36
(b) Local Professional Staff (participation of Government Staff)			
(c) Local Supporting Staff**	Accountant etc.	1	12

2. TENTATIVE STUDY BUDGET (US$ equivalent)	Foreign Currency	Local Currency	Total
(a) Professional Staff Costs :	90,000	10,000	100,000
(b) Equipment :			
(c) Other (Travel, non-prof. staff, etc.):			
(d) Total :	90,000	10,000	100,000

3. OTHER COMMENTS

* Pro forma cost: US$ 30,000 per man/year
** Pro forma cost: US$ 800 per man/month

Supplement Prepared by:	
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