PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 55 MILLION EQUIVALENT
(US$70 MILLION EQUIVALENT)

TO

BURKINA FASO

FOR THE

OUAGADOUGOU WATER SUPPLY PROJECT

February 21, 2001
CURRENCY EQUIVALENTS

(Exchange Rate Effective June 20, 2000)

Currency Unit = CFAF
1 CFAF = US$0.00154
US$1.0 = CFAF 650

FISCAL YEAR
January 1 December 31

ABBREVIATIONS AND ACRONYMS

ABEDAArab Bank for Economic Development in Africa
AFD Agence Francaise de Developpement
(French Development Agency)
AFDB African Development Bank
BF Burkina Faso
BIMP Bio-Physical Impacts Mitigation Plan
CAS Country Assistance Strategy
CFAF CFA Franc
DANIDA Danish International Development Assistance
DGE Direction Generale de l'Environnement
(Directorate General of Environment)
DGFP Direction Generale des Forets et des Peches
(Directorate General of Forestry and Fishing)
DGH Direction Generale de l'Hydraulique
(Directorate General of Hydraulics)
DSRP Dam Safety Review Panel
EA Environmental Assessment
EIB European Investment Bank
EPIC Etablissement Public a Caractere Industriel et Commercial
(Industrial and Commercial Public Office)
ERR Economic Rate of Return
EU European Union
FEER Fonds de l'Eau et de l'Equipement Rural
(Fund for Water and Rural Equipment)
FIRR Financial Internal Rate of Return
GIS Geographical Information System
GEMP Governmental Environmental Management Plan
GREA Water and Sanitation Regional Group
GTZ German Technical Assistance Agency
ICB Internal Competitive Bidding
IDA International Development Association
IUCN International Union for Conservation of Nature
IsDB Islamic Development Bank
KFAED Kuwait Fund for Arab Economic Development
KfW Kreditanstalt für Wiederaufbau
LCF Local Counterpart Fund
MEE Ministere de l'Environnement et de l'Eau
(Ministry of Environment and Water)

Vice President: Callisto Madavo
Country Manager/Director: Hasan Tuluy
Sector Manager/Director: Letitia Obeng/Praful Patel
Task Team Leader/Task Manager: Eustache Ouayoro
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MAP(S)
IBRD 28673
BURKINA FASO
OUAGADOUNGU WATER SUPPLY PROJECT

Project Appraisal Document

Africa Regional Office
AFTU2

Date: February 21, 2001
Team Leader: Eustache Ouayoro
Country Manager/Director: Hasan Tuluy
Sector Manager/Director: Letitia Obeng
Project ID: P000306
Sector(s): WU - Urban Water Supply
Lending Instrument: Specific Investment Loan (SIL)
Theme(s):
Poverty Targeted Intervention: N

Project Financing Data

For Loans/Credits/Others:
Amount (US$m): 70.00

Proposed Terms: Standard Credit
Grace period (years): 10
Commitment fee: 0.5
Years to maturity: 40
Service charge: 0.75%

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Borrower: GOVERNMENT OF BURKINA FASO

Address: B.P. 170, Ouagadougou, Burkina Faso
Contact Person: Mr. Mamadou Lamine Kouate, Director General
Tel: (226) 34.34.59.60 Fax: (226) 34.33.97 Email: onea@fasonet.bf

Other Agency(ies):
ONEA/Ministry of Environment and Water

Estimated disbursements (Bank FY/US$m):

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**Project implementation period:** 08/31/2001-30/06/2007; expected effectiveness date: August 31, 2001; expected closing date: December 31, 2007

**Expected effectiveness date:** 08/31/2001  
**Expected closing date:** 12/31/2007
A. Project Development Objective

1. Project development objective: (see Annex 1)

The main objective of the proposed project is to increase access to adequate and reliable potable water in Ouagadougou through expansion of distribution and tertiary water networks and improvement of urban water sub-sector management. More specifically, the project seeks to:

(a) increase water supply reliability by developing new storage capacity;

(b) increase coverage, by extending secondary and tertiary water distribution networks and by providing connections to low-income households; and

(c) promote efficiency, by strengthening the National Office for Water and Sanitation's (ONEA's) capacity while using a Service Contract with an international water operator to manage ONEA's commercial, financial and accounting operations.

The project, financed by IDA, is part of a larger program involving 11 other donors aimed at (i) increasing production capacity with a new water treatment plant; (ii) increasing water service reliability and coverage by constructing primary, secondary and tertiary networks, control room, storage facilities and connections; (iii) implementing an environmental management plan; and (iv) developing technical assistance and capacity building programs for ONEA. A dam has been built under the program and its reservoir of 200 Mm3 will provide water to the treatment plant and to Ouagadougou.

The IDA-financed project will support (a) infrastructure with (i) construction of distribution and tertiary networks and installation of connections and standposts; (ii) construction of the Boudjentenga storage facility and transmission main; (b) technical assistance, with supervision of all infrastructure works financed by IDA and other donors under the Ouagadougou Water Supply Program except the dam; (c) capacity building, with (i) technical, commercial, administrative and financial management of water utilities training; (ii) strengthening ONEA's commercial, accounting and financial operations (through a service contract by an international private operator); and (iii) providing operating investment resources, which will be used by the international private operator to improve ONEA's commercial and financial operations.

2. Key performance indicators: (see Annex 1)

The principal indicators selected for measuring and monitoring progress towards the development objectives are in Annex 1. The main indicators to measure progress and impact are:

Reliability of water services;
Population connected to the system;
Collection rate from private consumers;
Average collection days on private consumers;
Productivity of commercial staff; and
Timely certified accounts and financial statements.

B. Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)
The project is coherent with the Country Assistance Strategy (CAS) which was discussed by the Board on November 30, 2000. The thrust of the Bank’s assistance strategy is to support Burkina Faso in implementing its Poverty Reduction Strategy. The CAS focuses on areas critical to the poor and on increasing their access to primary health care, basic education and potable water. Water provision is a key element of the Government Poverty Reduction Strategy. To support the CAS objectives, the project would (a) increase access to water services to low-income households in Ouagadougou by expanding distribution and tertiary networks and providing connections and standposts; and (b) promote efficiency in urban water supply operations by improving ONEA’s commercial and financial performance.

2. Main sector issues and Government strategy:

Water resources management

Burkina Faso is characterized by a wide variation in rainfall, both annually and spatially. The country extends over three climatic zones: the Sahel, in the north with an average annual rainfall of less than 600mm; the dry savanna region in the middle, where Ouagadougou is located, with an average annual rainfall between 600 and 900mm; and the humid savanna, with an average annual rainfall of over 900mm. Since 1976, rainfall has been 10 to 20 percent lower than average, resulting in the lowering of the water table by about 0.5m per year. Due to geological conditions, groundwater is unevenly distributed and can only be extracted from weathered areas above the bedrock and in fractured zones by expensive boreholes with limited yields of about 10m³/day.

Surface water is also scarce and the only perennial river is Mouhoun. In this environment, building dams has been the most common way of storing water for dry seasons, even though evaporation can reach 2,000mm/year. Most of the dams have been constructed on an adhoc basis, with little consideration for overall management of river basins. The consequence is an increase in conflicting water uses and little protection to the rights of all riparians. The situation is more acute in the Nakambé River, where Ouagadougou’s water will be sourced and where more than 450 dams (of different sizes) are already in operation. In addition, the Republic of Ghana shares the Nakambé River (White Volta) with Burkina Faso. An action plan for coordinating the use of Nakambé’s water resources at the country level and with Ghana has been prepared.

Rural water supply

About 36,000 water points (large wells and mostly boreholes) have either been dug or drilled in the country. They are theoretically able to supply water to 92 percent of the rural population on an average of 20 liters per capita per day. However, coverage is uneven among regions. In addition, at least 20 percent of water points are not functioning due to the difficulty in organizing viable spare parts distribution of handpumps.
Urban water supply

**Inadequacy of water supply.** ONEA cannot expand its production capacity and operations to satisfy the increasing demand caused by Ouagadougou's rapid growth. The population has more than doubled during the past 15 years, from 436,000 in 1985 to 980,000 in 2000. The current average annual growth rate, estimated at 4.6 percent, is not expected to decrease for the next 10 years. In Ouagadougou, 60 percent of the service areas experience severe water shortages during the three hottest months of the year. Ouagadougou, the largest ONEA operation, has a total water resource availability of 15 Mm3 (mostly from surface water) that can decline to 10 Mm3 during the dry years. This represents an average of 40,800 m3/day, which is low for a city of this size. In addition, an 80 percent increase of water sales is expected in 2005 (from the actual 12.4 Mm3); the requirements in 2010 are estimated to double the present demand.

**Low coverage and low level of water services.** The connection rate in Ouagadougou is 30 percent. This is less than half of the rates in other capital cities in Sub-Sahara Africa. Connection to the network has been hampered by the limited length of the distribution network, the rapid development of the city and the high cost for connections, which is 1.25 times the GNP per capita. Standposts are the main sources of water, mostly for peri-urban dwellers, and provide water to about 70 percent of poor households. Water sales through standposts represent 36.3 percent of the total water sold in the city. Approximately 80 percent of the water delivered at standposts is sold to private vendors, who then resell the water to households through a door-to-door delivery arrangement and at five to twelve times the tariff of the first tranche paid by connected households.

**Operational capacity of ONEA.** ONEA is managing 36 main centers and five small operations supplied by autonomous water facilities. ONEA has 50,400 customers out of which 29,000 are located in Ouagadougou. Staff numbers have been reduced from 610 in 1993 to 535 in 2000, but staff productivity of 10 staff per 1,000 connections is low compared to other utilities operating in the region. While ONEA can now manage the technical operations of its present system, this is not the case in the areas of finance and accounting. Collection rates from private and government consumers (four months after the end of the year) are approximately 86 and 65 percent, respectively. Accounts receivable from private and government consumers are 162 and 255 days, respectively. Until 1998, ONEA's auditors were unable to certify its accounts. Persistent problems in reconciling accounts, together with the lack of efficient commercial and financial management systems, make improvement of ONEA's financial, accounting and commercial functions a high priority task.

**Cost recovery and tariff.** Revenues from water sales were, in the past, insufficient to cover all operating charges. Based on 1998 data, water is sold below cost and production and distribution costs are approximately 400 CFAF/m3, while the average tariff is 390 CFAF/m3. Apart from Ouagadougou and Bobo Dioulasso, which are ONEA's largest operations, most secondary centers are structurally unable to recover their costs. The tariff structure is progressive and the highest tariff block is twice the average tariff. The impact of this structure is that low volume consumers contribute larger sums to the revenue base. Standpipe users, for example, consume 36.3 percent and contribute 16.4 percent to revenue, whereas industry and commerce consume 9.5 percent and contribute 19 percent to revenue.

**Sanitation**

Before 1990, ONEA concentrated on delivering potable water and fulfilled only a very limited role in providing sanitation services. The situation changed in 1994 when the Government adopted a Strategic Sanitation Plan aimed at developing sanitation services for Ouagadougou over the next 20 years.

**Government strategy.** The Government's strategy is the following:
**Water resources**

The Government is in the process of setting up an integrated water resource management system using a river basin management approach, with Danish International Development Assistance (DANIDA) support, in order to optimize the use of the water resources of the Nakambé River, and develop early flood warning and management tools to minimize adverse downstream impacts. This approach is being implemented under the Nakambé River Pilot Project. In this regard, both countries (Burkina Faso and Ghana) are about to establish an information exchange mechanism, through a joint technical Committee (DGH in Burkina Faso and the Volta River Authority in Ghana), to address Nakambé River issues. As required by OP 7.50, Burkina Faso notified Ghana, on November 30, 1995, of the proposed project and its impacts on the Nakambé River. Following consultations between the two countries, the Government of Ghana issued an official no-objection statement in support of the project (SCR.BC/BF Vol.7, October 18, 1996). The Government has been very active to developing partnership by participating in the Regional West African Conferences on Water Resources that took place in March 1998 and February 2000. Government representatives also attended the World Water Conference in Paris (France) in 1998 and the World Water Forum in The Hague (Netherlands) in 2000.

**Rural water supply**

The Government has adopted reforms in the rural water sub-sector by increasing private sector participation in maintaining and managing rural water systems. In rural areas (with village population less than 2,000), the Government's policy has been to encourage community participation and access to water supply, mainly through grants with donor's support. The Government's focus is on rehabilitating existing facilities, and particularly, boreholes equipped with handpumps. Villages are responsible for operation and maintenance, and all projects include public information and repair training of technicians for handpumps.

**Urban water supply**

The Government issued a Letter of Sector Policy (LSP) in 1998, which stated provision of drinking water as one of its main objectives. The Government now aims to provide potable water facilities as quickly as possible to all urban settlements and, at the same time, reduce financial dependency of the water sector on Government subsidies. The revised LSP dated January 11, 2001 recognized the social and economic nature of water and considered achieving financial equilibrium by 2006 as one of the primary objectives of the urban water sub-sector.

The strategy is to strengthen ONEA (by granting it more autonomy) so that it can manage the sub-sector efficiently, assure coordination of foreign aid, and achieve financial equilibrium through the use of an appropriate tariff policy. The Government considers that, because of the strategic nature of water as an essential natural resource for this Sahelian country and the need to finance a large part of this sub-sector out of public resources, ONEA should remain 100 percent publicly owned. The Government also gave more autonomy to the water utility by transforming ONEA from a quasi public agency (Etablissement Public à Caractère Industriel ou Commercial or EPIC) to a limited liability company (Société d'Etat), with legal autonomy, but still wholly owned by the State (Decree No. 94-391 of November 2, 1994). The Government's approach is to achieve improvement of ONEA's operations by negotiating and signing Performance Agreements with the water utility in addition to using long-term technical assistance. In that respect, two three-year performance contracts were signed, the first in 1994 and the second in 1997. A third performance contract will be signed in 2001.

Much remains to be done by the Government as the operation and management of the sub-sector will become more complex. The Bank considers that Government has not come up with a viable solution
due to its long-standing opposition to private sector participation (PSP) in managing the urban water supply sub-sector. This opposition to some form of PSP has since been modified, as exemplified by the selection of an international water company coupled with an international auditing firm to run ONEA's commercial, accounting and financial operations. Difficulty in reaching a consensus on the institutional management of the sub-sector and on PSP and persistent weaknesses shown by ONEA in cost recovery and financial management are considered as the main reasons for the long project preparation period.

Sanitation

The strategic sanitation plan, adopted by the Government in 1994, promotes proper technologies in Ouagadougou; supports the development of small entrepreneurs for constructing latrines and pit emptying; develops school sanitation; sensitizes the population to the use of recommended technologies; and includes sewerage and a wastewater stabilization pond for collecting and treating wastewater from the main polluters of the commercial and industrial areas of the city. Detailed technical studies of the sewerage, financed by the French Development Agency (AFD), have been completed and works are likely to start in 2001, under parallel AFD and IDA funding (UEP, Cr. 2728-BUR, effective May 30, 1996). ONEA has completed the construction of all primary grade school sanitation facilities, and more than 20,000 on-site sanitation facilities have been built by the population.

3. Sector issues to be addressed by the project and strategic choices:

   Increasing reliability of water supply

   With the support of other donors, production capacity will be increased to overcome water shortages in Ouagadougou. Limited production and storage capacity have been the cause of intermittent water services in Ouagadougou. The project will finance increased storage capacity in the network in order to improve water service reliability. Use of donor financing was considered as the most appropriate vehicle in coping with the large funding requirement in a sub-sector that is financially weak.

   Increasing access and coverage

   Ouagadougou has one of the lowest connection rates to a water network in the region. The project will increase coverage by facilitating connections to the network while substantially reducing connection cost. The project will also finance expansion of the distribution and tertiary networks to new housing developments and peri-urban areas. A strategic shift in the connection policy is to reduce the connection price, which was a major impediment for low-income households connecting to the tertiary networks. Increased access will also be supported by the installation of public standpipes that will continue to be privately managed.

   Improving commercial operations and financial management

   Increasing the number of customers to be served requires considerable strengthening of the utility. The project will finance the hiring of a competent, international water operator and an accounting firm (under a Service Contract) to manage ONEA's commercial and financial operations, reduce accounts receivable and prepare timely accounts according to international standards.

   Moving towards sector financial equilibrium

   Financial equilibrium means the capacity of the water sector to meet its financial obligations, expressed in terms of flows of funds as they become due, including on-schedule payment of commercial
debts (settlements with suppliers) and financial debts (reimbursement of principal and payment of interest charges on government subloans from IDA credit, donors' credits, direct loans from donors or commercial banks, and payment of taxes). The time horizon should be reasonably short (no more than five or six years), while at the same time long enough to minimize the annual tariff adjustments necessary to reach financial equilibrium.

The project will support the reaching of financial equilibrium of the sub-sector while keeping annual water tariff increases as low as possible by: (a) reducing operating costs in the sub-sector through increased efficiency; (b) increasing financial management capacity; (c) developing an appropriate system to ensure timely payment of water bills by the Government and quasi-government entities; and (d) establishing policies and procedures to adjust the average water tariff at the beginning of any given year in order to reach sector financial equilibrium by December 31, 2006. A financial model has been developed and will be used to monitor progress towards this objective.

C. Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

The project, financed by IDA, is part of a program to supply large quantities of water to Ouagadougou and improve ONEA's managerial capacity. The overall program is financed by 12 donors, including IDA, and has the following components:

(0) A resettlement and mitigation plan (AFD-AfDB-Government/ONEA);

(1) An earth dam (Ziga dam) of 3,154 m at a maximum height of 18.80 m and a 20 km access road. The reservoir will have a capacity of 200Mm3 and a raw water pumping station (SP1) of 3,150 m3 per hour (ABEDA-ISDB-OPEC-KFAED);

(2) A delivery system composed of a transmission main, 1,000 mm diameter, made of ductile iron of 17 km force main to the Boudtenga storage facility, construction of the Boudtenga Reservoir (5,400 m3), followed by a 1,000 mm gravity pipe of 24 km to the SP3 pumping station (IDA-Government/ONEA);

(3) A treatment plant and pumping station: force main, 1,000 mm, of 2,400 m to transport raw water to the treatment plant made of two modules of 1,500 m3 per hour for the first tranche, including the following phases: prechlorination, sedimentation, filtration, and chlorination, equipment of the SP1 pumping plant and treated water pumping station (SP2) equipped with five pumps of 750 m3 per hour and two storage tanks of 3,000 m3 (AFD);

(4) A primary distribution system of 50 km and composed of three networks: North, Central and South (IsDB-EIB-WADB);

(5) A storage facility and pumping station (SP3), at the entry of the city, providing water to the primary network of the distribution system, 8 water towers, 10 ground-level tanks, 12 lift stations and remote control room (EIB-UE);

(6) A secondary distribution network of about 210 km, tertiary networks and installation of 61,000 connections and 400 standposts (IDA-Government/ONEA);
(7) Connection materials (AfDB);

(8) A 33 KV power supply line of 31 km from Ziniaré to the Ziga dam (WADB); and

(9) An international water operator (in a joint venture with an auditing firm) to run ONEA’s commercial operations and carry out financial management, provision of equipment and services under an Operating Investment Resource (OIR) to be used by the international water operator, supervision of works, technical assistance and training (IDA-Government/ONEA-AFD).

The IDA project includes: (a) infrastructure with: (i) construction of the Boudtenga storage facility and transmission main (from the water treatment plant to the Boudtenga storage facility and from Boudtenga to Ouagadougou); (ii) construction of distribution and tertiary networks and installation of connections and standposts; (b) technical assistance, through supervision of all infrastructure works of the program, except the supervision of the Ziga dam construction (already commissioned); (c) capacity building and institutional strengthening of ONEA with: (i) capacity building in technical, commercial, administrative and financial management of water utilities; (ii) strengthening ONEA’s commercial, accounting and financial operations through a service contract performed by an international water operator and an accounting firm; and (iii) providing operating investment resources, which will be used by the international water operator to improve ONEA’s commercial and financial operations.

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<td>Power supply line</td>
<td>Institutional Development</td>
<td>19.40</td>
<td>9.4</td>
<td>14.24</td>
<td>20.3</td>
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<td>Technical assistance</td>
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<td>3.31</td>
<td>1.6</td>
<td>3.31</td>
<td>4.7</td>
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<tr>
<td>PPF refinancing</td>
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<td>0.40</td>
<td>0.2</td>
<td>0.40</td>
<td>0.6</td>
</tr>
<tr>
<td>Unallocated</td>
<td></td>
<td>3.31</td>
<td>1.6</td>
<td>3.31</td>
<td>4.7</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td></td>
<td><strong>205.88</strong></td>
<td><strong>100.0</strong></td>
<td><strong>70.00</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

| Total Financing Required                       |                         | **205.88**              | **100.0**  | **70.00**             | **100.0**           |
2. Key policy and institutional reforms supported by the project:

Among the reforms taking place in the urban water sub-sector, the Government is focusing on (i) a social connection policy, aimed at easing access to water distribution and tertiary networks to low-income households; (ii) a new approach to strengthen ONEA after many years of traditional technical assistance; and (iii) achieving financial equilibrium by December 31, 2006. The project will support (i) a substantial reduction of the connection price and funding of 45,000 new connections; (ii) a transparent selection of an international water operator, coupled with a reputable auditing firm to manage ONEA's commercial, accounting and financial operations; and (iii) an appropriate tariff policy, aimed at reaching financial equilibrium.

3. Benefits and target population:

A national survey, conducted in 1998, showed the poverty line to be around US$103 per year per adult. There was a 5 percent increase in urban poverty, between 1994 and 1998, and 16 percent of the urban population is considered poor according to the survey. Unplanned development along the outskirts of Ouagadougou housed most of the poor and these areas lack appropriate water services. According to a recent study, 70 percent of the poor households in Ouagadougou get their water from public standposts or from water vendors. The same study reveals that water vendors distribute 80 percent of the water sold at standposts to household premises. The project will address this situation by (a) extending the network; (b) easing access to connections by reducing the price; and (c) increasing the number of public standposts. Overall, the project will also benefit the 1.4 million inhabitants of Ouagadougou by 2007, by increasing water supply reliability, which will in turn, reduce risks of water contamination.

4. Institutional and implementation arrangements:

Donor coordination is paramount to the success of the project, considering the involvement of 12 donors (including IDA) in the overall program. In the past, the sub-sector has suffered from conflicting approaches developed by donors, even when few of them were active, and the relatively ineffective coordinating role played by the Government. This has resulted in delays in processing the IDA-supported project and the program. The role of the Ministry of Environment and Water (MEE), which will have oversight responsibility, will be crucial in coordinating donor activities. In addition, the Ministry of Finance will play a critical role in financial coordination, limiting previous drawbacks and ensuring smooth implementation of both the project and the program.

ONEA is the executing agency of the project, which will last six years. ONEA will be directly responsible for capacity building and institutional strengthening activities financed by IDA. A Project Unit, MOZ-ONEA (within ONEA), will be responsible for implementing infrastructure activities. MOZ-ONEA will carry out procurement functions by following and updating the procurement plan, preparing bid/proposal packages and evaluation reports. MOZ-ONEA is staffed with a technical director, a financial and administrative director, two engineers, an accountant and an administrative assistant. A team of expatriate experts is assisting MOZ-ONEA in discharging its functions. MOZ-ONEA's core technical staff are experienced and have participated, since 1994, in the preparation of detailed technical studies of the project, under funding of the completed Water Engineering Credit (CR 2519), closed March 31, 1998.

To strengthen ONEA, an international water operator, working under a 5-year performance-based service contract, to be signed with ONEA, will manage ONEA's commercial and financial operations. The operator will be responsible for consumer registration, connection policy and installation, consumption measurement, billing, collection and marketing. The operator will also be in charge of sector financial planning, maintaining cash liquidity, updating and implementing accounting procedures, setting up a cost
accounting system with adequate internal controls, and developing a budget management information system. Detailed responsibilities and performance to be achieved by the operator are specified in the service contract. The performance of the service contractor will be reviewed, twice a year, by an independent technical auditor financed by IDA.

The rest of the program will be financed under parallel funding by AFD, KfW, AfDB, WADB, EU, EIB, OPEC, ABEDA, IsDB, and KFAED. MOZ-ONEA will ensure coordination of construction activities. A consulting firm, already selected through Bank procurement procedures, will supervise construction works under the project and the program. The same firm has completed the supervision of the Ziga dam construction (financed by OPEC, ABEDA, IsDB and KFAED funds). Having one firm supervise all physical components will improve coordination among donors and give IDA an oversight position, and thus ensure that the project and the program are carried out effectively and efficiently.

Supervision and monitoring. The project will require considerable supervision, since it is one of the largest IDA credits in the country. The project includes a service contract with an international water operator (a new institutional arrangement to Burkina Faso that needs to be closely monitored). Considerable supervision is also required because of the interrelated nature of the IDA-financed project and the rest of the program. Coordination among multiple donors involved in the program and IDA will be essential for effective implementation. Coordination of the project will also take place on a daily basis, with one consulting firm supervising all physical components. The Government will request donors to participate in an annual review meeting in Ouagadougou until project completion. IDA will conduct two supervision missions per year and it is expected that other donors will also participate in the second supervision mission, in addition to the annual donor review meeting. ONEA will provide quarterly, semi-annual and annual reports on the implementation of the project for the physical components, the capacity building and the service contract financed by IDA and for the rest of the program. These reports will also be used for the donors' review meetings. ONEA will prepare mid-term and completion reports. The semi-annual, donors' review meeting and annual reports will be submitted to IDA, one month after the end of the relevant period, and the mid-term report one month before the mid-term review. The completion report will be submitted to IDA within six months after the closing date of the project.

A comprehensive mid-term review will be jointly conducted by the Borrower, ONEA, IDA and the other donors. The scope of the review will include: (a) progress in implementing the physical components of the program and the project in relation to planned targets; (b) progress in achieving institutional strengthening and improving commercial operations; (c) improvement in overall operational performance in terms of water production, coverage, maintenance, staffing and performance agreement; (d) review of ONEA's financial situation, including tariff levels, cost recovery, accounts receivable, and inventory management; and (e) financial management review, including improvement in the accounting system and applicable procedures.

In view of the importance of this review: (a) the Borrower, IDA and other donors will perform a comprehensive project implementation review in April 2004; (b) the Borrower and ONEA would ensure that relevant reports are prepared prior to this review; (c) the Borrower, ONEA, IDA and other donors will agree, on the basis of the results of this review, to implement specific actions according to an agreeable timetable.

On-lending arrangements. IDA's credit to ONEA will be onlent, partly in the form of a long-term loan and partly as contribution to equity capital, in order to maintain the conservative structure of ONEA's balance sheet. This will also limit the sector's interest expense and the impact on water tariffs. Agreements have been reached during negotiations that the Government will pass on to ONEA, on terms and conditions
satisfactory to the Bank, an amount of US$42 million, in the form of equity contribution, and an amount of US$28 million as a loan with a maturity of 20 years, including 10 years of grace period for the principal, and at an annual interest rate of 5.4 percent. The foreign exchange risk will be borne by the Government. Execution of the on-lending agreement, acceptable to IDA, is a condition of credit effectiveness.

Financial Management, Accounting, Reporting and Auditing

MOZ-ONEA will carry out project financial management on behalf of ONEA, while ONEA will retain global financial accountability for the project. A draft implementation manual, outlining arrangements for project execution, has been prepared. The manual was reviewed with ONEA and MOZ-ONEA during appraisal and was found to be incomplete. A revised draft manual was prepared after the appraisal mission, was again reviewed and found acceptable. The new manual includes financial, procurement and project reports. These reports will be produced according to FMI standards. The production of a manual acceptable to IDA is a condition of effectiveness.

A review of project financial management systems, carried out during appraisal, found the systems deficient and not up to standard to produce Project Management Reports (PMR). The systems in place lack budget monitoring capacity. In addition, modules related to analytical accounting, financial and budget monitoring are missing. After the appraisal mission, a financial and administrative director was recruited to head the finance and accounting department of MOZ-ONEA. AFD is financing the installation of a new computerized management system based on terms of reference cleared by IDA. Approval of the new computerized management system by IDA is a condition of credit effectiveness. MOZ-ONEA has been given an 18-month period for eligibility under FMI disbursements. In the interim, traditional disbursement procedures will be used.

ONEA has agreed to continue preparing its financial statements in accordance with international accounting standards. Its accounts will be audited according to international auditing standards, and by independent auditors acceptable to IDA. ONEA will submit the audit reports to IDA within six months after the end of the fiscal year. An Implementation Completion Report will be prepared six months after the closing of the credit.

D. Project Rationale

1. Project alternatives considered and reasons for rejection:

Detailed technical studies, financed under the Engineering Credit by IDA, concentrated on the least-cost alternative of Ziga. During program preparation, a demand forecast was conducted and program implementation phasing was reviewed. Based on the detailed design study, the Ziga alternative for Ouagadougou still represents the least-cost solution. An additional effort to reduce the cost of the program, by phasing out the construction of one primary network (branche nord) would only have a marginal impact on the financial internal rate of return and would also have resulted in a reduction of ONEA's revenues.

Institutional arrangements: Apart from the technical consideration of water supply sources, a review of the option of ONEA managing the sub-sector, with the support of traditional technical assistance, was considered but found unacceptable because of its unsustainability. Experience in other countries has shown that entering into a partnership with highly experienced firms in the sector offers the best and most efficient way of promptly acquiring (at minimum cost) additional operating, technical and managerial expertise necessary to achieve increased operating efficiency. In particular, the private sector partnership
option has proven to be more conducive to a sustainable buildup of technical capacity than the more classic form of technical assistance through consultants. While extensive consultation with the Government did not conclude in the use of PSP, it was agreed that a performance-based service contract will be entered by ONEA, with a consortium made up of a water company and an auditing and accounting firm to run ONEA’s commercial and financial operations.

2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

<table>
<thead>
<tr>
<th>Sector Issue</th>
<th>Project</th>
<th>Latest Supervision (PSR) Ratings (Bank-financed projects only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank-financed Improve urban living conditions by (i) developing sanitation services and primary drainage facilities; and (ii) strengthening capacity and increasing revenues at the municipal level to manage urban sanitation services.</td>
<td>Urban Environment Project (Cr. 2728)</td>
<td>Implementation Progress (IP)</td>
</tr>
<tr>
<td>Engineering Studies, Environmental Impact of the Ouagadougou Water Project and developing technical capacity to handle the Ouagadougou Water Supply project.</td>
<td>Engin. Credit (Cr. 2519)</td>
<td>S</td>
</tr>
<tr>
<td>Other development agencies KfW/GTZ Technical Assistance AFD Economic &amp; financial studies</td>
<td>Strengthening of ONEA Strengthening of ONEA</td>
<td></td>
</tr>
</tbody>
</table>

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

3. Lessons learned and reflected in the project design:

The design of the proposed project draws heavily on lessons learned from implementation of the previous Engineering Credit in Burkina Faso and from other Bank-supported water supply projects undertaken in the Sub-Sahara Africa region, as well as other donor involvement in the urban water sub-sector in Burkina Faso.

(i) Government involvement in operations: Some cases of Government involvement in ONEA’s operations were deterrents to improving financial management and sustainability. This was compounded by delayed payments of its water bills. Under the project, financial management responsibility will be contracted to an international water operator associated with an auditing firm experienced in all aspects of financial management.

(ii) Financing large investments and paying attention to sector management: When the Bank is financing a significant investment, it should pay close attention to sector management and not just to engineering activities and implementation of physical works. Capacity building activities will be financed by the credit in the field of utility management. In addition, implementation of the service contract by an
international water operator to manage ONEA's commercial and financial operations will significantly improve the performance of the urban water sub-sector. The sub-sector will also be better managed if a tariff policy, aimed at ensuring financial sustainability, is in place. A financial model has been developed for the sector and will be used by ONEA. Annual tariff adjustments will be adopted to bring the sub-sector to financial equilibrium before the end of the project.

(iii) Local counterpart funding (LCF): The performance of even the best prepared project will turn out to be unsatisfactory if there is no local counterpart funding. To minimize the LCF problem, which has affected most projects in the Africa Region, the project will: (i) limit LCF to a maximum of 10 percent of the project cost; and (ii) ensure that LCF is generated from ONEA’s ongoing operations. To ensure that these funds are available, when needed, agreement was reached during negotiations to have ONEA annually set aside from its operations needed amounts to meet its LCF obligation.

(iv) Donor coordination: When several donors are involved in a sector, donor coordination, including the definition of roles and responsibilities should be clarified ahead of project start up. Agreement has been reached that progress reviews of the project will take place once a year with all donors involved in the program. It is also expected that donors will participate in a second annual review meeting each year that will take place during the Bank' second supervision mission. Donors have also agreed that supervision of physical works under the project and the program will be carried out by one consulting firm (financed by IDA). The consulting firm has already been selected.

4. Indications of borrower commitment and ownership:

Borrower commitment and ownership is demonstrated by the fact that ONEA successfully completed major studies under the Engineering Credit to help prepare this project. Additionally, Borrower commitment to strengthening the sector is indicated by (a) transforming ONEA from a quasi public entity to an autonomous entity; (b) agreeing to use an international water operator and auditing firm to run ONEA’s commercial and financial functions; (c) continuing with limited technical assistance and staff training; and (d) adopting a comprehensive performance agreement, establishing targets related to the payment of its water bills, and the use of an appropriate tariff policy.

Borrower ownership is exemplified by the Government's strong efforts to secure approximately US$205 million for the overall program and by organizing two donors' meetings (in 1996 in Germany and in 1999 in Burkina Faso) to make the funding of the program possible. In addition, the Government has granted ONEA a 4.5 percent increase on the average tariff, which has been in effect since April 1, 2000, and is committed to the sub-sector reaching financial equilibrium by December 31, 2006. The Government accords the highest priority to this project and has waived all import and tax duties to the construction works and acquisition of equipment.

5. Value added of Bank support in this project:

Institutional reforms are difficult to achieve and need long-term involvement. The investment is very high, and no single donor would be able to fund the entire sub-sector investment program. The Bank's catalytic role (as demonstrated during the Donors' Conferences of May 1996 and February 1999) is critical; it has encouraged other donors to participate in project preparation and to continue funding the sub-sector. Moreover, the Bank's comparative advantage in multi-donor sector reform operations, as demonstrated with success in Senegal, makes it the appropriate lead agency. The Bank's involvement will also: (a) lend credibility and transparency to the operation, because of its worldwide experience in supporting the implementation of similar projects and its well established procurement procedures; and (b) help to assure less political interference and better control of financial resources during project
E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (see Annex 4):
   - Cost benefit  \( \text{NPV} = \text{US$3.28 million; ERR} = 10.5\% \) (see Annex 4)
   - Cost effectiveness
   - Other (specify)

   A cost-benefit framework is used to assess the financial and economic viability, the distributive impact and the risk profile of the project. With and without project scenarios are defined in order to identify incremental costs and benefits of the project, and evaluate principal economic indicators of the project, that is, the net present value (NPV) and economic rate of return (ERR). Given the expected life of civil works under the capital investment component, the analysis is modeled over a 20-year period (2000-2020). Cash flows are discounted, using a discount rate of 10 percent, which is assumed to be a proxy of the opportunity cost of capital in Burkina Faso and which is also the Bank's typical hurdle rate for water and sanitation projects. Project costs are detailed in Annex 2.

   The new Ziga dam and reservoir on the Nakambé river will enable the production of an additional 41.4 Mm³ of water per year, of which 27.6 Mm³ are envisioned to be produced in the first phase of the project, and an additional 13.8 Mm³ in the second phase. The dam was completed in July 2000, and the reservoir will be filled by early 2002. Timing of construction of the second phase will depend on the evolution of the water demand. Based on current projections, the second phase should be commissioned between 2010-2015 (see details in Annex 4).

   All major project components have been subjected to the least-cost test. An extensive analysis of design alternatives (see project files) revealed that the Ziga reservoir was the cheapest alternative to provide additional water supplies to Ouagadougou.

   For the performance-based service contract, strict adherence to transparent and competitive bidding, clear and challenging performance targets, as well as attractive financial incentives will ensure the cost-effectiveness of the performance-based service contract.

   The project’s main impacts and benefits include:
   - Economic gains resulting from sustaining or increasing current water consumption levels;
   - Reduction of coping strategies undertaken by households to mitigate water shortages and/or lack of access to water supplies;
   - Positive impacts on public health from sustaining or increasing current water consumption levels, and improving the quality of water supplies;
   - Negative and positive external effects (for instance, on the environment); and
   - Macro-economic impacts.

   In the base scenario, the net present value of the project is CFAF 3,280 million. The ERR is 10.5 percent, slightly above the discount rate. Because economic benefits have not been fully quantified, this rate is probably underestimated, therefore demonstrating the economic viability of the project. More than 60 percent of water use benefits accrue to households to be provided with new connections.

   The marginal cost of bulk Ziga water, delivered at Ouagadougou, and approximated by the average incremental cost (AIC), is CFAF 434 per cubic meter (US$0.62/ m³).
2. Financial (see Annex 4 and Annex 5):
NPV=US$ million; FRR = 8.4 % (see Annex 4)

A major objective of the project is to achieve and maintain financial equilibrium by December 31, 2006. The sub-sector should have the capacity to meet all of its financial obligations, including debt service payments, counterpart funds on investments, investments financed from its own resources, payment of all duties, taxes and suppliers. To this end, financial simulations, carried out on the basis of the financial model indicate that annual tariff adjustments for the duration of the project will be 3.4 percent. The simulations have shown that liquidity maintenance is sensitive to water sales and therefore to demand. The financial rate of return of the project is 8.4 percent and is above terms of financing of all direct loans or onlending schemes. A 10 percent reduction in water sales reduces the FRR from 8.4 percent to 7.4 percent. The financial rate of return of the service contract is quite high (around 18.8 percent) and makes it a viable option.

Fiscal Impact:

Subsidies. The urban water sub-sector is not receiving operating subsidies from the Government. A peak cash-flow shortfall is anticipated in 2004 and has been estimated to be about CFAF 4,261 billion. This shortfall will be financed through a line of credit from a commercial bank.

Taxes. Water sales are subject to the normal VAT rate of 18 percent, except for the social tranche tariff, which will benefit from a zero VAT rate. ONEA's net income is subject to a 0.5 percent corporate income tax and 35 percent net income tax. Incremental water sales under the project will thus generate VAT from CFAF 1.6 billion in 2004 to CFAF 1.9 billion in 2005 and CFAF 2.1 billion in 2006 compared to 1.1 billion in 2002. All imports associated with construction activities are free of import duties. Considering that normal tax and customs duties vary between 30 and 50 percent, with an average of 35 percent, the tax waiver represents a saving of about CFAF 16 billion for the project.

Counterpart Funding. Counterpart funding will be provided by ONEA, and is estimated to be a maximum of US$5.36 million. Payment of this counterpart fund, by ONEA, will demonstrate the autonomy of the urban water supply sub-sector. There will be no counterpart funds from the Government.

3. Technical:

The final design studies of the project and the program were prepared from 1994 to 1997, during the Engineering credit (financed by AFD and IDA). Special attention was given to the dam and to the preparation of the Environmental Impact Assessment and the Environmental Management Plan of the entire program. The dam was commissioned in July 2000. In accordance with OP and BP 4.37, a Dam Safety Review Panel (DSRP) of four experts, acceptable to the Bank, participated in the review of the design and monitored the construction of the dam. Assurances were obtained that: (a) ONEA would make arrangements, acceptable to the Bank, for annual inspections of the dam and its structures to detect actual or potential deficiencies; (b) annual inspections will include the "Kanazoe" dam, built years ago upstream of the Ziga dam; (c) inspection reports will be forwarded to the Bank; and (d) required remedial actions will be taken.
4. Institutional:

4.1 Executing agencies:

Project implementation will be managed by MOZ-ONEA, which already has the experience of implementing the Engineering Credit (2519-BUR). MOZ-ONEA's staff supervised preparation of the detailed technical studies used for defining and costing the major physical components of the project and the program. MOZ-ONEA has also supervised the construction of the dam and has completed the resettlement program. Technical assistance financed by AFD is being provided to MOZ-ONEA. This support will allow MOZ-ONEA to efficiently implement the physical components of the project. An international water operator and a reputable auditing firm will manage ONEA's commercial operations and financial functions.

4.2 Project management:

In general, ONEA (and MOZ-ONEA in particular) has competent and experienced staff, and the agency is well equipped to implement this task. Following the assessment of the financial management capacity (available in the project files), a detailed action plan has been prepared to meet the performance criteria for PMR-based disbursement and is being implemented. The main aspects of the action plan are the following: (a) in the area of financial management: (i) issuance of an Implementation/Procedures Manual and selection of an auditor before credit effectiveness; (ii) installation of a management and accounting computerized system, including contract management; and (iii) training of project staff to use new procedures; and (b) in the area of procurement and contract management: (i) a contract management system, integrated into the above-mentioned financial management system; (ii) a procurement section in the Procedures Manual; (iii) reorganization of the filing of procurement-related documents; and (iv) procurement training sessions before credit effectiveness and during project implementation.

4.3 Procurement issues:

MOZ-ONEA staff has had exposure to World Bank procurement policies and procedures. They participated in an October 2000 training course on procurement of works under World Bank financing. Contract signing authority is vested in the President of the Board and the Managing Director of ONEA. This will speed up contract signing for goods, services and works. Prequalification for major contracts will ensure proper competition and selection of qualified contractors. Selection of the consulting firm in charge of the supervision of works has already taken place. Selection of the international water operator was completed in November 2000. In addition, the preparation of a procurement plan, found satisfactory, will facilitate monitoring of the procurement process.

4.4 Financial management issues:

ONEA accounts (including the project's accounts) will be annually audited by independent auditors acceptable to IDA. The audited accounts, together with the auditor's statement, will then be forwarded to IDA no later than six months after the end of its fiscal year. An action plan has also been prepared to ensure that quarterly Project Monitoring Reports will begin at least 18 months after credit effectiveness.

5. Environmental: Environmental Category: A (Full Assessment)

5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

The maximum capacity of existing water resources is about 30 percent of future water demand. Previous
studies conclusively established that constructing additional dams in the immediate surroundings (up to a distance of 30 km) of Ouagadougou was not possible. Feasibility studies, carried out from 1984 to 1992, reviewed a number of alternative water supply sources, many of which were rejected because the quantity of available water would have been insufficient by the year 2000. Only three technical alternatives were finally considered:

(a) The Black Volta (Mouhoun), without a dam, at a distance of 156 km from Ouagadougou;

(b) The Nakambé River, at Bagré. The dam has been built, but the transmission main would be 135 km long; and

(c) The Nakambé River at Ziga, 50 km from the city.

The costs of production and transport, but without any distribution cost, were estimated in 1986 to be 320 CFAF, 285 CFAF and 134 CFAF per m³, respectively, for each of the above alternatives.

The Government of Burkina Faso, as requested by World Bank internal regulations, undertook a full Environmental Assessment (EA) of the alternative at Ziga on the Nakambé River and at the program. First, a draft EA was prepared by an international consulting company acceptable to the Bank. Given the magnitude of the potential social and environmental impacts of this project and the program, it was recommended that an expert be recruited who would be in charge of assisting the Government in preparing its own Environmental Management Plan, based on the EA report's technical recommendations. An Environmental Management Unit was established within MOZ-ONEA for this purpose. The Government Environmental Management Plan (GEMP), which also includes social issues, was finalized in May 1997. An extensive public consultation on the GEMP was conducted from January 23 to March 5, 1997. This public consultation was widely announced in the media (radio, newspapers and others). All relevant environmental and social assessment studies have been disclosed to the public.

An important result of the EA was that during the course of the engineering study, the dam design was changed in such a way that flooded areas decreased in size, thus the number of people to be resettled was limited to 6,134. The Government organized (in early October 1995) a three-day seminar that reviewed the recommendations of the EA report and determined the major features of the Governmental Environmental Management Plan, which now consists of a comprehensive Resettlement and Development Plan (RDP), a Health Impact Mitigation Plan and a Bio-Physical Impacts Mitigation Plan (BIMP). The results of these plans are presented and discussed in Annex 13. The GEMP, the Public Consultation Report on this GEMP, the Environmental and Social Assessment Summary (in French) of the environmental and social assessment work (done during project preparation) and the Environmental and Social Assessment Summary (in English) have been deposited in the Bank’s Infoshop.

The Government of Burkina Faso has notified and obtained the no-objection from the Government of Ghana with regard to construction and operation of the Ziga dam on the Nakambé River. The Government of Burkina Faso has also contracted a Dam Safety Panel and engaged it in the construction of the Ziga dam to advise on dam safety. The "Kanazoé dam" upstream of the Ziga dam, should also comply with Bank dam safety standards. The Government has prepared an action plan on how to manage the river basin water in a sustainable and equitable manner, and how to improve management of the reservoirs in the Nakambé river basin. A study on integrated river basin management is underway on the Burkinabé part of the Nakambé river basin. This study, financed by DANIDA, will support the execution of the action plan.

5.2 What are the main features of the EMP and are they adequate?
GEMP, which includes all social aspects of the project, contains detailed plans for resettlement, income restoration and socio-economic development in the Ziga dam area (see below). Appropriate measures will be taken to mitigate the health impacts of the Ziga dam area (e.g. bilharzia, malaria and other waterborne diseases). Epidemiological monitoring and mass treatment are part of the Health Mitigation Plan and a comprehensive Bio-Physical Impacts Mitigation Plan has been developed.

5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft: Final version of the Governmental Environmental Management Plan (GEMP) is dated May 1997

The Government Environmental Management Plan was finalized some years ago. Bank environmental and social staff reviewed the Environmental and Social Assessment studies and found them up-to-date and in compliance with the Bank's Safeguard Policies. A large part of the GEMP is being financed by the AFD and the African Development Bank and financial agreements have been signed. An environmental/social river flow will be released from the Ziga dam in order to provide downstream users with economic opportunities. A study to determine the exact flows to be released is underway and was reviewed during appraisal. Belgium, will likely finance, in addition to the Government, socio-economic development activities for the population downstream of the Ziga dam so that they can use this water for their benefit.

5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

During screening, in 1995, there were no public consultations on the Terms of References (TORs). There have been extensive public consultations on the Governmental Environment Management Plan. A separate public consultation report has been deposited in the Bank's InfoShop. The public consultations have been widely announced through the rural radio and newspapers, and all relevant environmental documentation made available for public comments. The public consultations took place from January 23 to March 5, 1997. Public meetings were held with the project's affected people (PAP), the local population, NGOs, local technical government staff, other local government officials and elected representatives in nine villages in the Ziga dam area, along the main pipeline and one in the capital, Ouagadougou. The GEMP was presented in the form of visual tables to facilitate comprehension by the local people and explained to the public by MOZ-ONEA's staff, including the GEMP's environmental coordinator.

5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

A comprehensive Environmental and Social Monitoring Plan has been prepared with a considerable number of relevant performance and impact indicators related to bio-physical, health and social impacts. The agencies responsible for data collection and monitoring have been established. Data will be stored and managed through a GIS. The indicators were established as a result of environmental and social impacts and consequent mitigation actions identified in the EMP.

6. Social:

6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

The project seeks to (a) increase water supply reliability to Ouagadougou, especially to currently unserved low-income areas; (b) increase the number of households connected to the network; and (c) increase the number of available standpipes. For people who have access to water from standpipes,
boreholes or wells, being connected to the network would improve their living conditions. Access to potable water is a first step in an effort to alleviate poverty and is a critical precondition to health and well-being. The international water operator will organize regular surveys and beneficiary assessments to monitor progress in coverage and access to improved water services. These surveys and assessments will specifically focus on previously unserved or underserved sections of Ouagadougou. Their findings will be annually reported.

6.2 Participatory Approach: How are key stakeholders participating in the project?

Primary beneficiaries and other affected groups participated, with the help of NGOs, in preparing the mitigation plan, and will participate in its implementation. The Government organized (in early October 1995) a three-day seminar that reviewed the recommendations of the EA report and determined the major features of the Government Environmental Mitigation Plan.

6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?

National institutions participated in the preparation of the GEMP. A three-day national workshop presented the data gathered during the Environmental Impact Assessment and allowed different stakeholders to reach a consensus on the findings and recommendations. Local NGOs were closely associated with the organization of this national workshop.

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

To ensure consistency in implementing and supervising the GEMP, a social and environmental unit has been created under the project coordinating unit within ONEA (MOZ-ONEA). The social and environmental unit of MOZ-ONEA has already started supervising the implementation of the GEMP, which has been designed as an integral part of the program. Competent national institutions participated in the preparation of the GEMP and will assist the Government and ONEA during implementation. IUCN, an international NGO with a subsidiary in Burkina Faso, will play a critical role in overseeing the implementation and in monitoring the GEMP. Finally, the local NGO community was closely associated with the national workshop and will play an active role in assisting or monitoring implementation of various components of the GEMP.

6.5 How will the project monitor performance in terms of social development outcomes?

ONEA has established MOZ-ONEA as the project coordination unit. MOZ-ONEA has an environmental and social unit with two staff. This unit will be responsible for organizing environmental and social monitoring activities. A GIS system, to be funded by AFD, will be established and used to manage environmental and social monitoring data.

7. Safeguard Policies:

7.1 Do any of the following safeguard policies apply to the project?

<table>
<thead>
<tr>
<th>Policy</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Natural habitats (OP 4.04, BP 4.04, GP 4.04)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Forestry (OP 4.36, GP 4.36)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Pest Management (OP 4.09)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Cultural Property (OPN 11.03)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Indigenous Peoples (OD 4.20)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Involuntary Resettlement (OD 4.30)</td>
<td>☑ Yes ☐ No</td>
</tr>
<tr>
<td>Safety of Dams (OP 4.37, BP 4.37)</td>
<td>☑ Yes ☐ No</td>
</tr>
</tbody>
</table>
7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

The Government developed a comprehensive Environmental Management Plan, which is described in Annex 13 and in the section on Environment and Social issues above. The plan is compliant with applicable safeguard policies, even if construction of the dam is not part of the IDA-financed project. Funding for the implementation of the GEMP has been secured.

F. Sustainability and Risks

1. Sustainability:

Sustainability of the project will be achieved through enhanced institutional and financial self-sufficiency, which can only be assured by ONEA if its annual revenue is sufficient to properly maintain the works in the long run. ONEA’s financial situation will depend on the tariff policy to be adopted by the Government (following an updating of the tariff study, which is financed by KfW). The tariff policy will take into account ONEA’s need to reach financial equilibrium within a reasonable timeframe while addressing the need to increase access to low-income households. The new tariff policy, including appropriate annual tariff increases, if any, aimed at reaching financial equilibrium of the sub-sector over the duration of the project, should be submitted to IDA by July 31 of each year and implemented by January 1 of the next year, following IDA’s no-objection. Government is committed to having ONEA reach its financial equilibrium by December 31, 2006. It is expected that the international water operator will achieve a high rate of recovery from Government as well as from private consumers. In addition, productivity gains from ONEA’s operations will likely reduce levels of tariff increases, which will offer better prospects for sustainability. At the same time, improved quality of water services and better customer service orientation will in turn increase customer willingness-to-pay.

2. Critical Risks (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

<table>
<thead>
<tr>
<th>Risk From Outputs to Objective</th>
<th>Risk Rating</th>
<th>Risk Mitigation Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commitment of donors to continue to finance the project is lagging.</td>
<td>S</td>
<td>Donors have been active for years in Burkina Faso even in the absence of a clearer institutional set up in the sub-sector; all donors signed an agreement on the implementation of the program in February 1999; and annual reviews will involve all donors, the Government and ONEA.</td>
</tr>
<tr>
<td>Lack of counterpart funding from ONEA will delay project completion.</td>
<td>S</td>
<td>Use of an international water operator will turn around commercial operations and financial management of ONEA and increase cash availability; and reduce level of counterpart contribution will facilitate on time payment of counterpart funds.</td>
</tr>
</tbody>
</table>
International water operator will not perform as expected, due to interference from ONEA and/or day-to-day involvement of the Ministry of Water.

International experience of the water operator, detailed performance indicators, supervision missions, annual reviews, technical audits and presence of the Bank and other cofinanciers will deter interference.

ONEA is unable to coordinate both the commercial operations under the Service contract and the technical operations.

Audits of technical operations managed by ONEA, existence of the OIR, supervision missions, annual review and Performance Agreement will help ONEA perform its duties.

<table>
<thead>
<tr>
<th>From Components to Outputs</th>
<th>Risk Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of capacity and commitment to use Bank procurement procedures effectively</td>
<td>M</td>
</tr>
<tr>
<td>Prequalification using Bank procedures will take place; MOZ-ONEA has exposure to Bank procurement procedures and training in procurement has already taken place and will continue during the project.</td>
<td></td>
</tr>
<tr>
<td>Limited number of competent and trained staff are implementing the project and managing the technical operations.</td>
<td>M</td>
</tr>
<tr>
<td>Experienced technical personnel already staffed MOZ-ONEA and they have supervised the Ziga dam which is completed.</td>
<td></td>
</tr>
<tr>
<td>Government will not pay its water bills on time</td>
<td>M</td>
</tr>
<tr>
<td>The Performance Agreement has set up targets for the Government to pay its water bills. In addition, an elaborate procedure for assessing, budgeting and paying Government water bills have been defined and will be monitored during the project.</td>
<td></td>
</tr>
<tr>
<td>Government is not committed to the use of a Service Contract as a step to improve ONEA's performance efficiency.</td>
<td>H</td>
</tr>
<tr>
<td>Government has embarked on a process of opening up and increasing competitiveness of its economy by reducing the costs of input.</td>
<td></td>
</tr>
<tr>
<td>ONEA is not committed to implementing the training program</td>
<td>N</td>
</tr>
<tr>
<td>There is availability of resources and past record of ONEA is convincing. In addition, other donors are very active in that field.</td>
<td></td>
</tr>
</tbody>
</table>

**Overall Risk Rating**

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N (Negligible or Low Risk)
3. Possible Controversial Aspects:

G. Main Credit Conditions

1. Effectiveness Condition
   (a) A Subsidiary Loan Agreement is signed by the Government on behalf of ONEA and is also signed by ONEA;
   (b) The implementation manual is adopted, satisfactory to IDA;
   (c) The Performance Agreement between ONEA and the Government is adopted, acceptable to IDA;
   (d) The appointment of an external auditor, acceptable to IDA, for carrying out audit's of ONEA accounts, including project accounts;
   (e) A Project Account has been opened and an initial deposit of CFA 50 million of counterpart funding has been paid by ONEA, with an agreement that subsequent payments will be made on time;
   (f) The contract with the international water operator to run ONEA's commercial and financial operations under the service contract has been signed; and
   (g) An accounting and financial MIS, acceptable to IDA, has been established.

2. Other [classify according to covenant types used in the Legal Agreements.]

H. Readiness for Implementation

☒ 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
☐ 1. b) Not applicable.

☒ 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
☒ 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
☐ 4. The following items are lacking and are discussed under loan conditions (Section G):

I. Compliance with Bank Policies

☒ 1. This project complies with all applicable Bank policies.
☐ 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.
Eustache Ouayoro  
Team Leader

Letitia Obeng  
Sector Manager

Hasan Tiduy  
Country Manager
Annex 1: Project Design Summary

**BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT**

<table>
<thead>
<tr>
<th>Hierarchy of Objectives</th>
<th>Key Performance Indicators</th>
<th>Monitoring &amp; Evaluation</th>
<th>Critical Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sector-related CAS Goal:</strong> Increase access to basic public services and particularly access to water.</td>
<td><strong>Sector Indicators:</strong> Access to safe water: Urban: from 57% in 1994 to 75% in 2005, at a rate of 50lcd.</td>
<td><strong>Sector/ country reports:</strong> Performance for urban areas will be monitored during reviews of ONEA's Performance Agreement.</td>
<td>Continued economic and political stability and increased priority for social and rural development in Government's investment program.</td>
</tr>
</tbody>
</table>

**Project Development Objective:**

(a) Increase reliability of water supply in Ouagadougou by developing storage facility and transmission capacity.

(b) Increase coverage by extending secondary and tertiary distribution networks and providing social connections and public standposts.

(c) Improve the capacity of ONEA to manage the urban water supply sub-sector and the rapid change in scope of water services in Ouagadougou by contracting out commercial operations and financial management.

<table>
<thead>
<tr>
<th>Outcome / Impact Indicators</th>
<th>Project reports:</th>
<th>(from Objective to Goal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase water reliability. (24 hours per day)</td>
<td>Annual reports prepared by ONEA.</td>
<td>Government supports the urban water sub-sector policy initiated in 1992, commits to the financial equilibrium of the urban water supply sub-sector and is open to explore further public/private partnerships.</td>
</tr>
<tr>
<td>Population connected to the water network (from 300,000 inhabitants to 800,000 inhabitants in 2007)</td>
<td>Quarterly and annual reports prepared by ONEA based on reports prepared by the international water operator, on technical audits, surveys and beneficiary assessments.</td>
<td></td>
</tr>
<tr>
<td>Recovery rate from private customers (from 86% in 2000 to 92% at the end of 2004 and 95% thereafter)</td>
<td>Annual reports prepared by ONEA based on reports prepared by the international water operator, on technical and financial audits.</td>
<td></td>
</tr>
<tr>
<td>Accounts receivable of private customers (from 160 days to less than 120 days at the end of 2004 and to 90 days in 2006)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity of commercial staff (from 186 to 230 in Ouagadougou at the end of 2006 and thereafter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial statements prepared according to international standards (on time and certified for year 2002 and thereafter)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hierarchy of Objectives</td>
<td>Key Performance Indicators</td>
<td>Monitoring &amp; Evaluation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Output from each</strong></td>
<td><strong>Component:</strong></td>
<td><strong>Project reports:</strong></td>
</tr>
<tr>
<td><strong>Project Outputs:</strong></td>
<td><strong>Output Indicators:</strong></td>
<td><strong>Project quarterly and annual</strong></td>
</tr>
<tr>
<td>Increased reliability of water</td>
<td>Storage capacity (5,400 m³)</td>
<td>progress reports prepared by</td>
</tr>
<tr>
<td>distribution in Ouagadougou,</td>
<td>Length of network (210 kms</td>
<td>ONEA</td>
</tr>
<tr>
<td>expanded and more accessible</td>
<td>of secondary networks and</td>
<td>Project quarterly and annual</td>
</tr>
<tr>
<td>network.</td>
<td>1200 kms of tertiary);</td>
<td>progress reports prepared by</td>
</tr>
<tr>
<td>Increased number of</td>
<td>Number of new connections</td>
<td>ONEA</td>
</tr>
<tr>
<td>connections and improved</td>
<td>installed (45,000)</td>
<td>Annual progress reports prepared by</td>
</tr>
<tr>
<td>access to standposts</td>
<td>Number of new standposts</td>
<td>ONEA based on reports prepared by</td>
</tr>
<tr>
<td></td>
<td>(400)</td>
<td>the international water operator</td>
</tr>
<tr>
<td></td>
<td>Average time between meter</td>
<td>and technical audits</td>
</tr>
<tr>
<td></td>
<td>reading and invoicing (from 30 days to 15 days at the end of 2004 and thereafter);</td>
<td></td>
</tr>
<tr>
<td>ONEA's financial management information system in place in June 2002;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training program developed and implemented by June 30, 2002.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hierarchy of Objectives</td>
<td>Key Performance Indicators</td>
<td>Monitoring &amp; Evaluation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td><strong>Project Components /</strong></td>
<td><strong>Inputs: (budget for each</strong></td>
<td><strong>Quarterly and annual progress</strong></td>
</tr>
<tr>
<td><strong>Sub-components:</strong></td>
<td><strong>Component)</strong>) 52.05 million</td>
<td><strong>reports prepared by ONEA</strong></td>
</tr>
<tr>
<td><strong>A. Infrastructure:</strong></td>
<td><strong>(i) Construction of the</strong></td>
<td><strong>(from Components to Outputs)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Boudtenga storage facility and transmission main;</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>(ii) Construction of the</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>secondary and tertiary distribution networks and installation of connections and standposts</strong></td>
<td></td>
</tr>
<tr>
<td><strong>B. Technical assistance:</strong></td>
<td>6.09 million</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Supervision of physical works under A and other physical works under the Ouagadougou Water Supply Program except the Ziga dam</strong></td>
<td></td>
</tr>
<tr>
<td><strong>C. Capacity building and Institutional strengthening:</strong></td>
<td>8.15 million</td>
<td>Quarterly and annual reports prepared by ONEA based on reports prepared by the international water operator, technical and financial audits.</td>
</tr>
<tr>
<td></td>
<td>(i) capacity building in technical, commercial, administrative and financial management of water utilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ii) Service Contract</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(iii) Operating Investment Resources</td>
<td></td>
</tr>
<tr>
<td><strong>PPF Refinancing</strong></td>
<td>0.40 million</td>
<td></td>
</tr>
<tr>
<td><strong>Unallocated</strong></td>
<td>3.31 million</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70.0</td>
<td></td>
</tr>
</tbody>
</table>
# Benchmarking Indicators

## Units

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>JS$ 1 = FCFA 65</th>
</tr>
</thead>
</table>

## Coverage

<table>
<thead>
<tr>
<th>Water Coverage - Utility Level</th>
<th>%</th>
<th>54.00</th>
<th>71.00</th>
<th>74.80</th>
<th>77.78</th>
<th>75.80</th>
<th>77.90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewerage Coverage - Utility Level</td>
<td>%</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Water Consumption and Production

<table>
<thead>
<tr>
<th>Water Production</th>
<th>lpcd</th>
<th>59.70</th>
<th>46.70</th>
<th>45.00</th>
<th>45.17</th>
<th>43.00</th>
<th>43.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>m3/om</td>
<td>38.39</td>
<td>38.16</td>
<td>37.19</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>m3/hhm</td>
<td>15.92</td>
<td>12.45</td>
<td>12.00</td>
<td>10.68</td>
<td>9.90</td>
<td>10.00</td>
<td>n.a.</td>
</tr>
<tr>
<td>Total Water Consumption</td>
<td>lpcd</td>
<td>30.40</td>
<td>38.50</td>
<td>36.00</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>m3/om</td>
<td>32.09</td>
<td>31.46</td>
<td>29.95</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>m3/hhm</td>
<td>8.11</td>
<td>10.27</td>
<td>9.60</td>
<td>7.80</td>
<td>7.26</td>
<td>7.50</td>
<td>n.a.</td>
</tr>
<tr>
<td>Metered Water Consumption</td>
<td>lpcd</td>
<td>30.40</td>
<td>38.50</td>
<td>36.00</td>
<td>32.98</td>
<td>31.45</td>
<td>31.80</td>
</tr>
<tr>
<td>m3/om</td>
<td>32.09</td>
<td>31.46</td>
<td>29.95</td>
<td>37.66</td>
<td>34.20</td>
<td>35.00</td>
<td>n.a.</td>
</tr>
<tr>
<td>m3/hhm</td>
<td>8.11</td>
<td>10.27</td>
<td>9.60</td>
<td>7.80</td>
<td>7.26</td>
<td>7.50</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Unaccounted for Water

<table>
<thead>
<tr>
<th>Unaccounted for Water</th>
<th>%</th>
<th>15.60</th>
<th>17.60</th>
<th>19.50</th>
<th>10.71</th>
<th>12.80</th>
<th>13.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>m3/km/d</td>
<td>5.67</td>
<td>6.51</td>
<td>7.21</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>m3/conn/d</td>
<td>0.190</td>
<td>0.200</td>
<td>0.238</td>
<td>0.140</td>
<td>0.160</td>
<td>0.170</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Metering Practices

<table>
<thead>
<tr>
<th>Metering Level: % of connections metered</th>
<th>%</th>
<th>84.70</th>
<th>84.50</th>
<th>86.30</th>
<th>81.06</th>
<th>81.70</th>
<th>82.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of water sold that is metered</td>
<td>%</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Pipe Network Performance

<table>
<thead>
<tr>
<th>Pipe Breaks</th>
<th>breaks/km/yr</th>
<th>0.61</th>
<th>0.67</th>
<th>0.72</th>
<th>0.83</th>
<th>0.83</th>
<th>0.76</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>breaks/conn/yr</td>
<td>0.021</td>
<td>0.023</td>
<td>0.024</td>
<td>0.024</td>
<td>0.024</td>
<td>0.023</td>
</tr>
<tr>
<td>Sewerage Clogs</td>
<td>clogs/km/yr</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td></td>
<td>clogs/conn/yr</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Cost and Staffing

<table>
<thead>
<tr>
<th>Unit Operational Cost - W&amp;S</th>
<th>USD/m3 sold</th>
<th>$0.56</th>
<th>$0.52</th>
<th>$0.52</th>
<th>n.a.</th>
<th>n.a.</th>
<th>n.a.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USD/m3 prod</td>
<td>$0.47</td>
<td>$0.43</td>
<td>$0.42</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Staff'000 W conn</td>
<td>#</td>
<td>9.93</td>
<td>9.22</td>
<td>8.49</td>
<td>5.86</td>
<td>5.86</td>
<td>4.90</td>
</tr>
<tr>
<td>Staff'000 W&amp;S conn</td>
<td>#</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Staff'000 water population served</td>
<td>#</td>
<td>0.47</td>
<td>0.34</td>
<td>0.31</td>
<td>0.19</td>
<td>0.18</td>
<td>0.16</td>
</tr>
<tr>
<td>Staff'000 water and sewer population</td>
<td>#</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Labor Costs as a proportion of operating</td>
<td>%</td>
<td>20.90</td>
<td>23.21</td>
<td>22.00</td>
<td>24.00</td>
<td>25.96</td>
<td>26.51</td>
</tr>
<tr>
<td>Contract Our Services Costs vs. Operating</td>
<td>%</td>
<td>0.87</td>
<td>2.96</td>
<td>3.00</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Quality of Service

<table>
<thead>
<tr>
<th>Continuity of Service (annual average)</th>
<th>Hrs/day</th>
<th>24.00</th>
<th>24.00</th>
<th>24.00</th>
<th>24.00</th>
<th>24.00</th>
<th>24.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complaints of W&amp;S services</td>
<td>%</td>
<td>0.07</td>
<td>0.10</td>
<td>0.06</td>
<td>0.04</td>
<td>0.05</td>
<td>0.08</td>
</tr>
<tr>
<td>Wastewater treatment</td>
<td>%</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

## Billings and Collections

<table>
<thead>
<tr>
<th>Average Tariff: W&amp;S</th>
<th>USD/m3 sold</th>
<th>$0.46</th>
<th>$0.49</th>
<th>$0.60</th>
<th>$0.73</th>
<th>$0.85</th>
<th>$0.71</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/conn/yr</td>
<td>$178.13</td>
<td>$186.40</td>
<td>$218.90</td>
<td>$342.97</td>
<td>$357.56</td>
<td>$304.60</td>
<td></td>
</tr>
<tr>
<td>USD/hh/yr</td>
<td>$210.42</td>
<td>$220.52</td>
<td>$253.00</td>
<td>$386.92</td>
<td>$90.56</td>
<td>$78.68</td>
<td></td>
</tr>
<tr>
<td>Total Revenues per Service pop. per capita</td>
<td>%</td>
<td>1.58</td>
<td>1.05</td>
<td>0.80</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Residential Fixed Component of Tariff</td>
<td>USD/conn/yr</td>
<td>$0.48</td>
<td>$0.74</td>
<td>$0.66</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>% of ave. tariff</td>
<td>3.3%</td>
<td>0.3</td>
<td>0.4</td>
<td>3.7</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Ratio of industrial to residential</td>
<td></td>
<td>2.10</td>
<td>1.74</td>
<td>8.86</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Connection Charge - Water</td>
<td>USD/conn</td>
<td>$584.97</td>
<td>$698.70</td>
<td>$569.80</td>
<td>$369.23</td>
<td>$415.38</td>
<td>$415.38</td>
</tr>
<tr>
<td>% of per capita</td>
<td>272%</td>
<td>290%</td>
<td>255%</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Connection Charge - Sewer</td>
<td>USD/conn</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
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### ANNEX IC

#### SUPERVISION PLAN

<table>
<thead>
<tr>
<th>No</th>
<th>Date</th>
<th>Objective</th>
<th>Composition</th>
<th>Duration (weeks)</th>
<th>SW</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>04/01/03 04/15/03</td>
<td><strong>Supervision Mission:</strong> Review of Execution of Works, Rev. of Fin. and Instit. Performance, Progress on the Service Contract, Implementation of tariff policy, Review of technical audit.</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec.</td>
<td>2.0</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>10/01/04 10/15/04</td>
<td><strong>Supervision Mission:</strong> Review of Execution of Works, Implementation of agreed actions following completion of Mid-term Review, Rev. of Fin. and Instit. Performance.</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec.,</td>
<td>2.0</td>
<td>6</td>
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<tr>
<td>8</td>
<td>04/01/05 04/15/05</td>
<td><strong>Supervision Mission and Annual review:</strong> Review of Execution of Works, Rev. of Fin. and Instit. Performance, Environmental Management Plan</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec., Env. Spec.</td>
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<tr>
<td>9</td>
<td>10/01/05 10/15/05</td>
<td><strong>Supervision Mission:</strong> Review of Execution of Works, Rev. of Fin. and Instit. Performance</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec.</td>
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<td>10</td>
<td>04/01/06 04/15/06</td>
<td><strong>Supervision Mission and Annual Review:</strong> Review of Execution of Works, Implementation of agreed actions following Completion of Mid-term Review, Rev. of Fin. and Instit. Performance, Environmental Management Plan</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec., Env. Spec.</td>
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<td>7</td>
</tr>
<tr>
<td>---</td>
<td>------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>10/01/06</td>
<td>Review of Execution of Works, Rev. of Fin. and Instl. Performance</td>
<td>Task Manager, San. Engineer, Fin. Analyst/Inst. Dev. Spec.</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10/15/06</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>04/15/07</td>
<td>Review of Execution of Works, Implementation of agreed actions following Completion of Mid-term Review, Rev. of Fin. and Instl. Performance, Environmental Management Plan, Preparation of ICR</td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10/15/07</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Staff Weeks</td>
<td></td>
<td>96</td>
<td></td>
</tr>
</tbody>
</table>
Annex 2: Detailed Project Description

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

The main objective of the proposed project is to increase access to adequate and reliable potable water in Ouagadougou through expansion of the distribution and tertiary water networks and improve urban water sub-sector management. The Project includes: (a) infrastructure with: (i) construction of the Boudtenga storage facility and transmission main; (ii) construction of distribution and tertiary networks and installation of connections and standposts; (b) technical assistance, through supervision of all infrastructure activities of the Project and the program except, supervision of the construction of the Ziga dam; and (c) capacity building and institutional strengthening with (i) capacity building in technical, commercial, administrative and financial management of water utilities; (ii) strengthening ONEA's commercial accounting and financial operations (through a service contract performed by an international water operator and an accounting firm); and (iii) provision of operational investment resources to be used by the international water operator to improve ONEA's commercial and financial operations.

By Component:

Project Component 1 - US$52.05 million

Infrastructure
Transmission main and Boudtenga storage facility-US$7.37 million
The delivery system consists of the force main, the intermediate reservoir, and the gravity pipe. The force main is a 17 kms ductile cast iron pipe of 1,000 mm in diameter to convey water to the 5,400 m3 intermediate storage facility at Boudtenga. The bottom is at a level of 330.40 m and the overflow is at 335.40 m. From that point, the water is transported to the city through another 24 km ductile cast iron transmission main of 1,000 mm diameter.

Secondary networks-US$11.90 million
The secondary network of about 210 km ductile iron conduits and PVC pipes ranging from diameter 850 mm to 100 mm.

Tertiary networks, installation of connections and standposts-US$32.7 million
The tertiary network represents about 1,200 km of pipes to be installed in underserved or unserved sections of Ouagadougou following the laying down of the secondary network and the installation of 45,000 new connections and 400 standposts.

Project Component 2 - US$6.09 million

Technical assistance
Supervision of infrastructure works of the project and the program (except the Ziga dam already built), which will include reviewing and approving construction drawings and arrangements, equipment, quality of materials, construction schedules, progress towards agreed schedules, subcontractors, bills of quantity, certification of payments and taking-over of works.

Project Component 3 - US$ 8.15 million

Capacity Building and Institutional Strengthening
Capacity building - US$2.7 million
A program of capacity building and technical assistance includes: (i) providing support to ONEA, corporate and technical development; (ii) developing and implementing management training programs in personnel and financial management, budgeting, planning and controlling; (iii) developing and implementing training programs for technical operations and maintenance for water system operators and maintenance workers; and (iv) conducting regular surveys and beneficiary assessments to monitor progress in coverage and access to improved water services.

Service Contract - US$3.32 million
The international water operator will improve commercial operations and financial management. Some of the outputs resulting from this involvement include development and improvement of: (i) standard operating procedure manuals; (ii) a computerized financial management system; (iii) customer database (with an improved meter reading, billing and collection system, as well as a better customer service program); (iv) a public information program; (v) an occupational health safety program, hygiene education, and an emergency response plan; and (vi) management and technical training programs.

Operating Investment Resources (OIR) - US$2.12 million
The OIR will have resources available to be used by the international water operator to support essential short-term and operating investments that will improve commercial operations and financial management. This will include, but not be limited to: (i) purchasing and replacing metering systems and fixing leaking connections; (ii) purchasing computers and communication equipment (software for computerized administrative and management systems and purchase of portable meter readers); and (iii) conducting customer surveys, hygiene education and marketing activities.
Annex 3: Estimated Project Costs

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

<table>
<thead>
<tr>
<th>Project Cost By Component</th>
<th>Local US $million</th>
<th>Foreign US $million</th>
<th>Total US $million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>14.61</td>
<td>29.23</td>
<td>43.84</td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>1.13</td>
<td>4.50</td>
<td>5.63</td>
</tr>
<tr>
<td>Capacity Building &amp; Institutional Strengthening</td>
<td>1.55</td>
<td>6.03</td>
<td>7.58</td>
</tr>
<tr>
<td>PPF Refinancing</td>
<td>0.08</td>
<td>0.32</td>
<td>0.40</td>
</tr>
<tr>
<td>Unallocated</td>
<td>1.00</td>
<td>2.31</td>
<td>3.31</td>
</tr>
<tr>
<td><strong>Total Baseline Cost</strong></td>
<td><strong>18.37</strong></td>
<td><strong>42.39</strong></td>
<td><strong>60.76</strong></td>
</tr>
<tr>
<td>Physical Contingencies</td>
<td>1.46</td>
<td>2.92</td>
<td>4.38</td>
</tr>
<tr>
<td>Price Contingencies</td>
<td>2.07</td>
<td>2.79</td>
<td>4.86</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td><strong>21.90</strong></td>
<td><strong>48.10</strong></td>
<td><strong>70.00</strong></td>
</tr>
<tr>
<td><strong>Total Financing Required</strong></td>
<td><strong>21.90</strong></td>
<td><strong>48.10</strong></td>
<td><strong>70.00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Cost By Category</th>
<th>Local US $million</th>
<th>Foreign US $million</th>
<th>Total US $million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goods</td>
<td>3.78</td>
<td>6.07</td>
<td>9.85</td>
</tr>
<tr>
<td>Works</td>
<td>11.09</td>
<td>24.19</td>
<td>35.28</td>
</tr>
<tr>
<td>Services/Supervision</td>
<td>1.90</td>
<td>7.52</td>
<td>9.42</td>
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<tr>
<td>Training/Institutional strengthening</td>
<td>0.51</td>
<td>1.99</td>
<td>2.50</td>
</tr>
<tr>
<td>PPF Refinancing</td>
<td>0.08</td>
<td>0.32</td>
<td>0.40</td>
</tr>
<tr>
<td>Unallocated</td>
<td>1.00</td>
<td>2.31</td>
<td>3.31</td>
</tr>
<tr>
<td>Physical contingencies</td>
<td>1.46</td>
<td>2.92</td>
<td>4.38</td>
</tr>
<tr>
<td>Price contingencies</td>
<td>2.08</td>
<td>2.78</td>
<td>4.86</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td><strong>21.90</strong></td>
<td><strong>48.10</strong></td>
<td><strong>70.00</strong></td>
</tr>
<tr>
<td><strong>Total Financing Required</strong></td>
<td><strong>21.90</strong></td>
<td><strong>48.10</strong></td>
<td><strong>70.00</strong></td>
</tr>
</tbody>
</table>

Note: The above tables reflect the IDA-financed project. Numbers may not add up, due to rounding.

Physical contingencies of 10 percent have been added to the cost of works and pipe supply. No physical contingencies were allowed for consultant services. Price contingencies have been added to base costs plus physical contingencies.

Identifiable taxes and duties are 0 (US$m) and the total project cost, net of taxes, is 205.88 (US$m). Therefore, the project cost sharing ratio is 34% of total project cost net of taxes.
Annex 4: Cost Benefit Analysis Summary

BURKINA FASO: OUAGADOUGU WATER SUPPLY PROJECT

This Annex describes variables and assumptions used to calculate the project’s economic rate of return, and refers to the economic model available in the project’s electronic files.

A cost-benefit framework is used to assess the financial and economic viability, the distributive impact and the risk profile of the project. With and without project scenarios are defined in order to identify incremental costs and benefits of the project, and evaluate principal economic indicators of the project, that is, the net present value and the economic rate of return. Given the expected life of civil works under the capital investment component, the analysis is modeled over a 20 year period (2000-2020). The cash flows are discounted, using a discount rate of 10 percent, which is assumed to be a proxy of the opportunity cost of capital in Burkina Faso and which is also the Bank’s typical hurdle rate for water and sanitation projects. Project costs are detailed in Annex 2.

Summary of Benefits and Costs:

A. Impacts and benefits generated by the project

The Ouagadougou Water Supply Program with the Ziga dam, a new reservoir on the Nakambé (White Volta) river, will enable the production of an additional amount of 41.4 Mm³ of water per year, of which 27.6 Mm³ will be produced in the first phase of the program, and an additional 13.8 Mm³ in the second phase. The dam was completed in July 2000, and the reservoir will be filled by early 2002. Timing of construction of the second phase will depend on the evolution of water demand. Based on current projections (see below), the second phase should be commissioned between 2010-2015. Production and water transport facilities include a 41 km water conveyor to Ouagadougou, pumping, treatment plants, and storage facilities. Incremental quantities of water will be provided to existing customers as well as to an estimated 610,000 potential new customers (IDA financed project will provide 45,000 new connections that can introduce 450,000 potential new customers out of the 610,000 customers), through the expansion of storage facilities, pressure equalization (construction of 8 elevated water towers), strengthening and expansion of primary, secondary and tertiary networks.

All major program components have been subjected to the least-cost test. An extensive analysis of design alternatives (see project files) revealed that the Ziga reservoir was the cheapest alternative for providing additional water supplies to Ouagadougou, compared to the construction of several small-scale reservoirs in the suburban area.

For the performance-based service contract, strict adherence to transparent and competitive bidding, clear and challenging performance targets, as well as attractive financial incentives would ensure the cost-effectiveness of the performance-based service contract.

The project’s main impacts and benefits include:
- Economic gains, resulting from sustaining or increasing current water consumption levels;
- Reduction of coping strategies undertaken by households to mitigate water shortages and/or lack of access to water supplies;
- Positive impacts on public health, from sustaining or increasing current water consumption levels, and improving the quality of water supplies;
- External effects (for instance, on the environment); and
Macro-economic impacts.

<table>
<thead>
<tr>
<th>Impact Area</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce impact on low-income households</td>
<td>In general, low-income households would suffer disproportionately from increasing water shortages and unreliable supplies without the project. They cannot afford coping arrangements which richer households in Ouagadougou can pay for (storage tanks, pumps, tanker supply). Sustained and improved service will have a greater impact on the health and the quality of life of low-income households.</td>
</tr>
</tbody>
</table>
| Reduction of water losses by rehabilitating deteriorated networks as well as improving network design and operation. Reduction of indoor leakage and wastage through demand management (metering, pricing). | • Inputs savings: energy, chemicals and other variable (short-run) costs  
• Avoided costs of expanding or rehabilitating water production and conveyance facilities (long-run costs)  
• Load reduction of wastewater collection and treatment systems (but organic load per capita expected to remain constant)  
• Avoided damages to private and public property (damages to apartments due to water leaks, damages to roads and foundations) |
| Improvement and sustainability of water service/reliability (continuity of service). | • Avoided mitigating/coping expenditures (fetching water, purchasing water tanks or booster pumps, etc.)  
• Positive macro-economic impacts (attractiveness for potential investors)  
• Increased willingness-to-pay for water |
| Better water quality by rehabilitating key elements of the existing water treatment installations. | • Reduction of risk of water-related diseases  
• Avoided private mitigating expenditures (e.g. filtering, boiling water, purchasing bottled water)  
• Increased willingness-to-pay for water |
| Network optimization                             | Energy savings, avoided damages to system (e.g. water hammer)            |
| Prevention of further deterioration of systems   | Savings in asset renewal                                                 |
| Improvement of environmental conditions, particularly ambient water quality | Protection of surface water functions and services (recreation, fish production, ecosystems, water supplies) |
| Tariff adjustments, in line with cash flow equilibrium objective | Increased financial revenues, and financial autonomy                     |
| Increase of billing and collection rates, reduction of arrears | Increased financial revenues, and financial autonomy                     |
| Skills upgrading and increasing productivity     | Reduced financial costs, including efficiency gains                      |
| Improved managerial, commercial and financial situation of the utility | Private sector involvement is expected to induce a higher level of commitment, and private financing could be leveraged. |
1. Economic gains resulting from sustaining or increasing current water consumption levels

1.1. Residential users

Figures 2 and 3 (below) depict the approach selected to estimate the economic value of water. In microeconomic terms, the economic value of water is equal to the maximum amount the user is willing to pay for a given quantity of water. The demand curve is obtained by placing the WTP data and related quantities (WTP as a function of quantity consumed) on a graph. The gross economic value of water is the integral of the demand function, the upper bound being the average consumption, or in other terms the area below the curve.

Generally, only a few data points are available, and it is therefore not possible to precisely draw the demand curve. In the case of Ouagadougou, ONEA data and field observations yielded three data points that were used to construct the demand curve:

- Point 1: average consumption (55 LCD) and average price paid (CFAF 500/m³, including water and connection costs) for residential users connected to the network.

- Point 2: average consumption (20 LCD) and average price paid (CFAF 1250/m³) by users served by water vendors. The average price of a 200 liter water barrel is about 250 CFAF, hence the unit price of CFAF 1250/m³.

- Point 3: average consumption (10 LCD) and average price paid (CFAF 2500/m³) by users served by water vendors during periods of water shortage. It is assumed that unit water price doubles during periods of water shortage, and consequently, water consumption is halved (i.e., price elasticity of demand is 1), hence, the choice of the above figures. This is a conservative assumption because (i) actual observations have shown that water price can more than double in periods of water shortage, and (ii) price elasticity of water demand is typically lower than 1. In particular, demand is very inelastic for the first few liters of water (extreme left of demand curve).

The individual demand curve thus obtained is an approximate, since it does not account for income differences between user categories (reliable income data and relationship to water consumption are not

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Figure 1 – Evolution of Water Availability for Residential Users (with and without project)
available). Furthermore, the analysis does not account for effects resulting from economic growth, particularly income growth (that would shift the demand curve to the right, and thus would increase the economic benefits from the project).

The project should bring substantial economic benefits to Ouagadougou residents. In particular, the project will enable the population to sustain current water consumption levels, and increase those levels for households newly connected to the network or benefiting from the densification of standposts (see Figure 1). Indeed, existing resources are now used at full capacity and population growth would put increased strain on those resources. Three scenarios are considered for residential consumers, according to the type of service provision:

1. *Users served by water vendors (from standposts) during the entire analysis period (2000-2020) (type A, Figure 2)*
   - With the project, users maintain water consumption at the current 20 l/d level, through 2020.
   - Without the project, per capita availability of water gradually declines to reach 10 l/d near 2010, due to increasing water scarcity.

   The gross economic benefit per capita and per day in year 10 for those users is represented by area A.

2. *Users already connected to the network (type B, Figure 2)*
   - With the project, users maintain water consumption at the current 55 l/d level, through 2020.
   - Without the project, per capita availability of water gradually declines to reach 30 l/d near 2010 due to increasing water scarcity.

   The gross economic benefit per capita and per day in year 10 for those users is represented by area B.

3. *Users currently served by water vendors (from standpipes) but who will be connecting to the network as a result of the implementation of the proposed connection policy (see assumptions in the model in the project file) (type C, Figure 3)*
   - About 70-75 percent of connection fees would be financed by ONEA through the project. Financing should substantially increase demand for connections (currently constrained by both high initial fees and inadequate water supplies), and enable a larger number of households to increase water use, up to 55 l/d in average. Detailed assumptions regarding the number and time profile of installation of new connections, as well as coverage rates, are detailed in the model (available in the project file):
     - With the project, users newly connected to the network immediately increase water use from 20 to 55 l/d.
     - Without the project, users would continue to be served by water vendors (from standpipes) and water availability would gradually decline to reach 10 l/d in 2010, due to increasing water scarcity.

   The gross economic benefit per capita and per day for those users is represented by area C.

Figures below depict the selected approach and illustrate the assumed scenario in 2010. The model performs detailed calculations, accounting for the water supply-demand balance, according to the demand growth scenarios described below.

In the base scenario, the average economic value of water for residential users (estimated by the model) gradually increases, from 765 F CFA/m³ in 2004 to 1016 F CFA/m³ in 2020.
1. 2. Non-residential users (industrial, commercial, administration)
Following the above approach, the analysis assumes that the average economic value for non-residential users remains constant at 2000 F CFA/m3. This value is approximately twice the current average price paid by non-residential users.

2. Reducing and/or avoiding coping strategies that households and non-residential users would undertake to mitigate water shortages

Numerous studies have shown that households and non-residential users typically undertake a variety of coping strategies to mitigate water shortages and water quality issues. Coping strategies include, fetching water from alternative sources, drilling wells, installing water storage facilities, point-of-use water treatment, or purchasing bottled water. It is difficult to predict ex-ante the related economic impacts that would result from increasing water scarcity, but examples in Burkina Faso and elsewhere have shown that it can be substantial. However, due to lack of data, the quantitative analysis does not account for the economic benefits that the project should yield in terms of avoided coping costs.

3. Positive impacts on public health, due to maintaining or increasing water availability and use

Many studies have shown that it is essential to ensure the provision of enough water (the WHO recommends a minimum of 25-30 lpcd) in order to promote basic hygiene practices and thus contribute to the reduction of water-related diseases. Because impacts on public health are particularly difficult to measure and predict accurately, the base scenario does not take them into account. However, to assess the magnitude of potential health-related economic impacts, the economic model allows testing of scenarios involving increase of public and private spending on health, assuming it is a function of GDP. For instance, a scenario assumes that (i) current direct and indirect costs of water-related diseases equal 2 percent of the GDP; (ii) with the project those costs would remain constant; and (iii) without the project the same costs would increase by 2 percent every year. In this scenario, the project’s economic benefits in terms of avoided health costs would be about F CFA 10 billion (net present value at 10 percent discount rate). The internal rate of return would increase from 10.5 percent (base scenario) to 11.4 percent.

4. Macro-economic impacts

Increasing water shortages would have negative effects, not only on people’s well-being, but also on the overall macro-economy. For instance, production costs of water-intensive industries and activities would increase, which would reduce their competitiveness and may force them to localize elsewhere. Also, Ouagadougou would become less attractive economically, which would constraint the development of its economic potential, and entail negative social impacts.

5. External effects

The Ziga project will generate positive and negative external effects. Main negative externalities include:

- Reduction of hydropower output at the Bagré dam, downstream of Ziga;
- Loss of forested areas and natural habitats (in flooded area);
- Impacts on households’ livelihoods within, around, and downstream of the Ziga reservoir; and
- Increase in water consumption and additional wastewater generated and discharged in the urban environment in Ouagadougou.

However, there will also be positive externalities:
5.1. Opportunities for commercial and subsistence fishing in the Ziga reservoir

According to a study carried out during project preparation, the Ziga reservoir 7,000 ha should create a substantial development potential for commercial and subsistence fisheries. Annual yield would gradually increase to reach about 500 tons, equivalent to annual retail sales of CFAF 500 million, assuming a fish retail price of CFAF 1,000 per kg. Due to uncertainties surrounding the effective development of fisheries, and in particular the necessary distribution and marketing systems, the base scenario does not account for this potential benefit stream. However, on the basis of the above assumptions (included in the model), the internal rate of return would increase from 10.5 percent to 10.6 percent.

5.2. Reduction of hydropower output at the Bagré dam downstream of Ziga

Simulations carried out by SONABEL (State power utility) have demonstrated impacts from the Ziga dam on water releases and hydropower production at the downstream Bagré dam. Reductions of volume of water released downstream (Bagré essentially) match reductions in power output. They would typically reach 15 to 19 percent in dry years, 15 to 17 percent in average years, and 0.3 to 2.5 percent in wet years. Because only a fraction of Ziga’s capacity will be utilized over the analysis period, it is assumed in the base scenario that the reduction of hydropower output will be (on average) 10 percent over the whole period (up to year 2020). Using the current financial price of bulk power (CFAF 80/kWh) as a proxy of the economic value of energy (distortions are not significant) the resulting net present value of the economic loss would be CFAF 1 billion. The ERR of the project would decrease from 10.5 percent to 10.4 percent. Potential impact is therefore marginal, compared to the expected benefits of the project, and will be mitigated through the design and the coordinated implementation of proper operating rules for both facilities.

5.3. Impacts on livelihoods of populations living on the site of the Ziuga reservoir and downstream of the site of the Ziga reservoir

Expected impacts include loss of agricultural land, impacts on traditional fishing and land tenure, displacement of people and goods, impacts on public health, fauna and flora. Actions have, or will be undertaken to mitigate these impacts: resettlement and rehabilitation plans upstream and downstream of the dam, phased filling of the Ziga reservoir and coordination with Bagré hydropower plan. It is assumed in the economic analysis that the resettlement, rehabilitation and impact mitigation plan will fully offset these negative impacts. The cost of GEMP is therefore accounted for, but not its expected benefits (they are fully offset).

In addition, GEMP includes risk assessment and mitigation of potential actions from upstream users that could impact the sustainability of the Ziga project (e.g., accidental discharges from mining sites).

5.4. Increase of wastewater production and discharges in the urban environment in Ouagadougou.

Sanitation and wastewater management is not an explicit objective of the project and the program. However, the Strategic Sanitation Plan of Ouagadougou (SSPO) being implemented under the Urban Environment Project (UEP), aims at expanding sewerage in commercial/industrial areas, and promoting improved on-site sanitation systems in residential areas. Thus, the SSPO will contribute to the mitigation of environmental externalities generated by the Ouagadougou Water supply Program. In addition, the Performance Agreement between ONEA and the Government represents an umbrella framework for improved wastewater management. Because the program and the project will generate significant additional quantities of wastewater (about 20 Mm3 in the first phase and 10 Mm3 in second phase), it will be very important to ensure
effective coordination between the SSPO and the program. SSPO costs are not accounted for in the economic analysis of the Ziga project and the program because it is assumed that most of them are either sunk costs or would need to be incurred independently of the project.

The project and the program will provide for appropriate treatment and disposal of coagulation sludges from the water treatment plant.

5.5. Sale of wood collected in the reservoir

In the framework of the resettlement and mitigation plan (GEMP) the site of the Ziga reservoir has been cleared of trees. Sale of wood and derivatives (charcoal) has been estimated at about F CFA 200 millions. This benefit is a function of the project and therefore is accounted for in economic terms as without road access (i.e., no project alternative) collection and sale of wood could not be realized.

An added economic benefit is the long-term positive impact of the quality of the water in the reservoir because of clearance of trees.

6. Service contract

Because the objectives of the service contract are essentially the improvement of the financial performance of the utility, no significant economic benefits are expected. This would have been the case if the contract included performance objectives, such as the reduction of physical losses, enhancement of pumping efficiency. Because installation of new service connections will be delegated to the water operator, efficiency gains and cost savings are expected; however, due to methodological issues, the gains are not included in the economic analysis.

Potential economic benefits resulting from the realization of the objectives of the Performance Agreement are not accounted for because they are not linked to the operator’s performance objectives and are therefore more uncertain.

Main Assumptions:

B. Main assumptions

Assumptions made to estimate the project’s economic viability are detailed in the attached economic model (see project’s files). Main assumptions are described below:

1. Demography

It is particularly challenging to forecast population growth in the Ouagadougou metro area over the next 20 years. It would be probably inaccurate to simply extrapolate the very high growth rates reported in the 1980s and early 1990s. In this respect, the population forecasts used by ONEA (7 percent constant over the entire 2000-2020 period) do not seem to be realistic. Although it is true that the annual rate of population growth has reached or even exceeded 7 percent, it is unlikely that high growth rates will be sustainable. Indeed, recent demographic data show that growth is slowing down, in accordance with trends observed elsewhere in Africa (demographic transition). A set of scenarios (low, medium, high) has been constructed and can be selected in the interactive model. The base case assumes a medium growth scenario (see Figure 4).
Figure 4 – Population Scenarios for Ouagadougou Metro Area

<table>
<thead>
<tr>
<th>Scenario</th>
<th>2000</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low scenario</td>
<td>1,041,000</td>
<td>1,256,000</td>
<td>1,472,000</td>
<td>1,676,000</td>
<td>1,819,000</td>
</tr>
<tr>
<td>Medium scenario</td>
<td>1,050,000</td>
<td>1,313,000</td>
<td>1,588,000</td>
<td>1,854,000</td>
<td>2,045,000</td>
</tr>
<tr>
<td>High scenario</td>
<td>1,061,000</td>
<td>1,393,000</td>
<td>1,755,000</td>
<td>2,120,000</td>
<td>2,389,000</td>
</tr>
<tr>
<td>ONEA scenario</td>
<td>1,070,000</td>
<td>1,501,000</td>
<td>2,105,000</td>
<td>2,952,000</td>
<td>4,141,000</td>
</tr>
</tbody>
</table>

It is also assumed that the same (medium) growth scenario would apply to both with and without project alternatives, although it is possible that population growth be lower without the project as a result of increasing water scarcity and resulting negative social and economic impacts.

The resulting demand and water production scenarios are displayed in Figures 5, 6 and 7 below.

Figure 5 – Demand Scenarios – 2000-2020

Figure 6 – Water Production (base scenario)

Figure 7 – Water Supplies (Available Capacity) and Demand, Including Losses – Base Scenario
2. Sectoral and macroeconomic conversion factors

Due to the relative openness of Burkina Faso's economy, no macroeconomic conversion factors have been used to convert financial to economic flows. In addition, no sectoral conversion factors were used, as the economic costs of inputs (such as energy and labor) did not significantly depart from financial costs. Financial costs were adjusted by eliminating taxes and duties and transfer payments. The exchange rate was assumed to be in equilibrium, as a result of the 1994 devaluation.

3. Coverage rate (domestic connections and standpipes)

The coverage rate used in the economic analysis is based on the objectives set in the project's capital investment plan. It is however difficult to accurately predict ex-ante the coverage rate over time as it will depend on households' demand. Individual connections will be promoted through the financing of up to 75 percent of the connection cost. As the majority of poorer households will continue to rely on standpipes, a policy to improve access to water supplies for unconnected households will also be implemented. It will include densification and better geographic repartition of standpipes, in order to reduce transportation costs, which account for the bulk of the added value of water sold by vendors. However, the policy will ensure that sufficient income accrues to caretakers of standpipes (fontainiers) to promote adequate O&M of facilities.

Coverage rate for years beyond project's completion (2007) have been adjusted in the economic analysis so that differences between with and without project alternatives have no influence on the project's rate of return.

4. Other variables

Assumptions are generally based upon historical data obtained from ONEA or project's reports, including:
- Water use (unit and total) by user category;
- Available water resources;
- Program's capital investment costs (see details in Annex 2). Costs of works already completed (such as the dam and ancillary facilities) are treated as sunk costs and are therefore not accounted for;
- Cost of inputs (electricity, chemicals, etc.);
- Labor costs, O&M and overhead costs;
- Unaccounted-for-water (technical and commercial losses); and
- Value of external effects

C. Results (base scenario)

In the base scenario, the net present value of the program is F CFA 3,280 million. The internal rate of return is 10.5 percent, slightly above the discount rate. Because economic benefits have not been fully quantified, this rate is probably an underestimate, which makes the project economically viable. More than 60 percent of benefits accrue to the households who will be provided with new connections.

The marginal cost of Ziga's water, delivered at Ouagadougou (i.e., bulk water costs, including production costs and transportation costs from Ziga to Ouagadougou), and approximated by the average incremental cost (AIC), is F CFA 434 per cubic meter (US$0.62 / m3).
Sensitivity analysis / Switching values of critical items:

D. Sensitivity analysis

A sensitivity analysis has been performed on critical variables, including population, macroeconomic conversion factor, domestic demand, investment costs and quantifiable external effects. Results are shown in Figure 8 below:

Figure 8 -- Sensitivity Analysis

<table>
<thead>
<tr>
<th>FCFA millions</th>
<th>IRR</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base scenario</td>
<td>10.2%</td>
<td>1220</td>
</tr>
<tr>
<td>Population growth: high scenario</td>
<td>13.1%</td>
<td>23618</td>
</tr>
<tr>
<td>Population growth: low scenario</td>
<td>8.4%</td>
<td>-10260</td>
</tr>
<tr>
<td>Macroeconomic conversion factor: 0.9</td>
<td>12.1%</td>
<td>13363</td>
</tr>
<tr>
<td>Domestic demand: - 10%</td>
<td>9.5%</td>
<td>-3646</td>
</tr>
<tr>
<td>Domestic demand: - 20%</td>
<td>8.1%</td>
<td>-12795</td>
</tr>
<tr>
<td>Investment costs: + 10%</td>
<td>9.3%</td>
<td>-5011</td>
</tr>
<tr>
<td>Investment costs: + 20%</td>
<td>8.3%</td>
<td>-13301</td>
</tr>
<tr>
<td>Hydropower losses: - 10%</td>
<td>10.4%</td>
<td>2435</td>
</tr>
<tr>
<td>Hydropower losses: - 20%</td>
<td>10.2%</td>
<td>1591</td>
</tr>
<tr>
<td>Impacts on public health accounted for (see para. A.3. above)</td>
<td>11.4%</td>
<td>10271</td>
</tr>
<tr>
<td>Impacts on fisheries accounted for (see para. A.5.1. above)</td>
<td>10.6%</td>
<td>4443</td>
</tr>
<tr>
<td>Economic value of wood not accounted for (see para. A.5.5.)</td>
<td>10.4%</td>
<td>3097</td>
</tr>
</tbody>
</table>
Annex 5: Financial Summary
BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

Achieving financial equilibrium of the sector

In terms of financial management of the urban water supply sub-sector, the aim is to reach financial equilibrium, by a certain time horizon without imposing excessive increases in the average water tariff on consumers (defined as total water billings for the year, in CFAF, divided by the volume billed). Financial equilibrium means the capacity of the urban water sub-sector to meet its financial obligations, expressed in terms of flows of funds, as they become due, including on-schedule payment of commercial debts (settlements with suppliers) and financial debts (reimbursement of principal and payment of interest charges on government subloans from the proceeds of the IDA credit, credits from other donors, direct loans from donors or commercial banks, and payment of taxes). Financial equilibrium should be seen as an indicator of the long-term financial viability of the sub-sector, in the same way as a private enterprise must meet all its financial obligations as they become due in order to continue to operate. The time horizon should be determined to be reasonably short (no more than five or six years) while at the same time, long enough to minimize annual tariff adjustments necessary to reach financial equilibrium.

Achieving financial equilibrium while keeping annual water tariff increases as low as possible will require that: (a) operating costs are reduced through increased efficiency; (b) financial management capacity of the sub-sector is strengthened and a financial management system is set up to monitor progress; (c) an appropriate system is put in place to ensure timely payment of water bills by the Government and quasi-government entities; and (d) policy and procedures are established to adjust average water tariff at the beginning of any given year in order to reach sub-sector financial equilibrium by the agreed time horizon.

Reducing operating costs through increased efficiency: In order to minimize the impact of tariff revisions on the consumer, cash flow generating capacity of ONEA should be improved, primarily through increased operating efficiency and not through increases in average water tariff. Experience in other countries has shown that entering into a partnership with highly experienced enterprises in the sub-sector offers the best and most efficient way to acquire promptly and at minimum cost the additional operating, technical and managerial expertise, which is necessary to achieve increased operating efficiency. In particular, the partnership option with the private sector has proven to be more conducive to a sustainable buildup of technical capacity than the more classic form of technical assistance through consultants. The performance-based service contract to be entered by ONEA, under the proposed project, with a consortium made up of a water company and an audit and accounting firm will provide the framework for such a partnership.

Strengthening financial management capacity of the sub-sector: ONEA, as the only major corporate entity in the water sub-sector, assumes responsibility for the overall financial management of the sub-sector. As ONEA's past record has shown significant weaknesses in this area, capacity building will be provided to further strengthen ONEA. Implementation of the proposed performance-based service contract in its financial management aspects will require special attention.

A key instrument of financial management is the sub-sector financial model, which will help monitor progress in moving towards sector financial equilibrium by the agreed time horizon and
determine annual adjustments of average water tariff. It will also measure the impact (on sub-sector financial equilibrium (of alternative scenarios) based on changes in the key drivers of financial equilibrium, such as the volume of water sold, the amount of annual investments and the terms of corresponding financing (payment of principal and interest), the amount of investments financed out of the sector cash flow and the overall operating efficiency of the sub-sector. The financial projections derived from the model will be based on assumptions, satisfactory to IDA, which will be reviewed and updated at least once a year. The findings of the demand study will be incorporated into the assumptions once they are available. Within 18 months from credit effectiveness, the financial management team of ONEA should be able to use the model routinely without technical assistance.

**Payment of water bills by the administration:** Water used by government departments and agencies accounted for 9.5 percent of total consumption in 1999 and 20 percent of sector revenues. Experience has shown that the financial viability of a sub-sector cannot be achieved if water bills from the public sector are paid with considerable delays. Accordingly, under the proposed project, the Performance Agreement between ONEA and the Government will be monitored to ensure that water bills are paid by the administration within the agreed schedule. To make this happen, Government has to reduce its water consumption, limit leakage, and privatize supply points that benefit individuals living in government-owned housing. Moreover, public sector customers in arrears with their water bills will be treated in the same way as private customers, except for a very small number of public users (to be referred to as bonded customers). Detailed payment arrangements of Government water consumption are included in the Performance Agreement. In case of non-payment, the main recourse of ONEA will be the suspension of supply, in accordance with the provisions of the law and generally accepted practice. The Government will include adequate allocations in its annual budget to cover the projected water consumption of the public sector for the year.

**Annual adjustments in average water tariff:** The financial model will be updated at least once a year and no later than six months before the end of the year. As part of this process, annual adjustments in average water tariff will be determined in order to reach financial equilibrium by the agreed time horizon. The existing block tariff structure will be maintained until the new tariff study is completed. The new tariff structure will be designed in such a way that it leaves the average water tariff unchanged.

**Annual tariff increases necessary to achieve financial equilibrium by December 31, 2006**

In the case of Burkina Faso, financial projections show that, with increases in the average water tariff of 3.4 percent per year during the period of the project, ONEA would have a peak cash deficit. According to the Bank’s experience in similar projects in the subregion, it is expected that enough cost savings will be achieved in the procurement of civil works to limit this deficit in 2004. After 2004, the urban water sub-sector will generate a positive free cash flow. If such savings could not be achieved, ONEA would seek a short-term bridge financing with commercial banks in Ouagadougou or in the subregion.

The following table shows (for each year) details of water tariffs of private consumers and the public administration, the amount of free cash flow, the net cash balance of ONEA, as well as other key parameters of ONEA’s financial situation during the period, including water sales and investments.
### Water Supply Production

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volumes of water produced (million of m3)</td>
<td>31.50</td>
<td>31.50</td>
<td>31.50</td>
<td>31.50</td>
<td>55.80</td>
<td>55.30</td>
<td>54.40</td>
<td>54.10</td>
<td>54.10</td>
<td>54.10</td>
</tr>
<tr>
<td>Efficiency ratio</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
<td>0.80</td>
</tr>
<tr>
<td>Volume of demand (million of m3)</td>
<td>23.64</td>
<td>24.72</td>
<td>26.32</td>
<td>27.58</td>
<td>30.83</td>
<td>34.89</td>
<td>38.48</td>
<td>41.26</td>
<td>43.26</td>
<td>45.08</td>
</tr>
<tr>
<td>Volume sold (million of m3)</td>
<td>21.35</td>
<td>22.34</td>
<td>22.64</td>
<td>22.65</td>
<td>28.19</td>
<td>32.14</td>
<td>35.84</td>
<td>38.33</td>
<td>40.05</td>
<td>38.95</td>
</tr>
</tbody>
</table>

### Water tariff

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tariff increase</td>
<td>4.00%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td>3.39%</td>
<td></td>
</tr>
<tr>
<td>Average water rate (FCFA/m3)</td>
<td>336.6</td>
<td>347.9</td>
<td>359.6</td>
<td>371.7</td>
<td>383.2</td>
<td>395.1</td>
<td>407.1</td>
<td>419.4</td>
<td>431.7</td>
<td>453.1</td>
</tr>
<tr>
<td>Private customers</td>
<td>890.3</td>
<td>920.2</td>
<td>951.1</td>
<td>983.1</td>
<td>1,015.1</td>
<td>1,047.1</td>
<td>1,080.2</td>
<td>1,113.4</td>
<td>1,146.5</td>
<td>1,179.5</td>
</tr>
<tr>
<td>Administration</td>
<td>404.1</td>
<td>420.5</td>
<td>437.1</td>
<td>454.6</td>
<td>472.7</td>
<td>491.6</td>
<td>511.3</td>
<td>531.5</td>
<td>551.8</td>
<td>572.2</td>
</tr>
</tbody>
</table>

### Fixed assets

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net value of fixed assets</td>
<td>78,356.0</td>
<td>97,702.0</td>
<td>132,308.0</td>
<td>159,870.0</td>
<td>175,100.0</td>
<td>177,089.0</td>
<td>172,211.0</td>
<td>165,836.0</td>
<td>157,849.0</td>
<td>149,456.0</td>
</tr>
<tr>
<td>Investments</td>
<td>11,521.0</td>
<td>24,182.0</td>
<td>40,904.0</td>
<td>34,914.0</td>
<td>23,791.0</td>
<td>10,588.0</td>
<td>3,817.0</td>
<td>2,418.0</td>
<td>627.0</td>
<td>643.0</td>
</tr>
<tr>
<td>Sale of fixed assets</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Sales by client type

<table>
<thead>
<tr>
<th>Year</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private customers</td>
<td>6,756.0</td>
<td>7,354.0</td>
<td>7,855.0</td>
<td>8,129.0</td>
<td>10,503.0</td>
<td>12,379.0</td>
<td>14,187.0</td>
<td>15,771.0</td>
<td>17,033.0</td>
<td>17,582.0</td>
</tr>
<tr>
<td>Administration</td>
<td>8,791.0</td>
<td>9,570.0</td>
<td>10,198.0</td>
<td>10,838.0</td>
<td>13,185.0</td>
<td>15,289.0</td>
<td>17,277.0</td>
<td>19,078.0</td>
<td>22,540.0</td>
<td>21,339.0</td>
</tr>
<tr>
<td>Raw water</td>
<td>209.0</td>
<td>229.0</td>
<td>249.0</td>
<td>271.0</td>
<td>295.0</td>
<td>321.0</td>
<td>348.0</td>
<td>377.0</td>
<td>408.0</td>
<td>441.0</td>
</tr>
<tr>
<td>Total</td>
<td>15,756.0</td>
<td>17,183.0</td>
<td>18,303.0</td>
<td>19,038.0</td>
<td>23,092.0</td>
<td>27,960.0</td>
<td>31,812.0</td>
<td>35,226.0</td>
<td>38,016.0</td>
<td>39,342.0</td>
</tr>
</tbody>
</table>

### Financial aggregate

- 48 -
<table>
<thead>
<tr>
<th>Revenues</th>
<th>11,328.0</th>
<th>11,419.0</th>
<th>12,097.0</th>
<th>12,674.0</th>
<th>17,047.0</th>
<th>19,724.0</th>
<th>21,977.0</th>
<th>23,382.0</th>
<th>24,731.0</th>
<th>25,062.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>123.0</td>
<td>(1,631.0)</td>
<td>(3,626.0)</td>
<td>(4,321.0)</td>
<td>(1,918.0)</td>
<td>9.0</td>
<td>1,433.0</td>
<td>2,234.0</td>
<td>2,721.0</td>
<td>2,973.0</td>
</tr>
<tr>
<td>Cash and near cash</td>
<td>772.0</td>
<td>54.0</td>
<td>46.0</td>
<td>2,893.0</td>
<td>(4,470.0)</td>
<td>(2,804.0)</td>
<td>50.0</td>
<td>3,556.0</td>
<td>7,775.0</td>
<td>11,528.0</td>
</tr>
<tr>
<td>Flow of funds</td>
<td>(4,318.0)</td>
<td>(718.0)</td>
<td>(7.0)</td>
<td>(2,938.0)</td>
<td>(1,560.0)</td>
<td>1,874.0</td>
<td>2,864.0</td>
<td>3,506.0</td>
<td>4,218.0</td>
<td>3,753.0</td>
</tr>
</tbody>
</table>

**Financial Indicators**

| Rate of return on fixed assets | 3.50% | 1.60% | 0.50% | 0.70% | 2.90% | 3.40% | 4.60% | 5.50% | 6.30% | 6.90% |
| Operation costs ratio | 84.90% | 87.30% | 95% | 91.40% | 74.70% | 59.50% | 63.40% | 60.00% | 59.00% | 58.80% |
| Debt ratio | 12.20% | 20.40% | 34.90% | 48.30% | 55.40% | 56.50% | 56.60% | 55.80% | 54.40% | 52.00% |
| Return on investment ratio | 2.90% | 1.40% | 0.40% | 0.70% | 2.40% | 3.30% | 4.40% | 5.20% | 5.70% | 6.10% |

**Financial rate of return on investments and sensitivity analysis**

Based on total investment costs of US$67 million, incremental revenues (resulting from increased production, distribution capacity and reduced unaccounted-for-water); and incremental savings (from lower operating costs and higher commercial performance), the annual internal financial rate of return on investments has been calculated at 8.4 percent. The following table shows the results of a sensitivity analysis in which the impact on the FIRR of a 10 percent variation in key parameters has been measured:

<table>
<thead>
<tr>
<th>Variation from Base Case</th>
<th>FIRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Case</td>
<td>0</td>
</tr>
<tr>
<td>Investment Costs</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>-10%</td>
</tr>
<tr>
<td>Operating Costs</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>-10%</td>
</tr>
<tr>
<td>Water Sales</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>-10%</td>
</tr>
</tbody>
</table>
The FIRR is lower than the ERR since: (a) it does not incorporate savings derived from consumer surplus; and (b) it is calculated after all contingencies, contrary to the ERR. The FIRR is very sensitive to changes in water sales.

**Conditions for onlending of IDA Credit proceeds to the sector**

The proceeds of the IDA Credit will be on-lent to the sub-sector, represented by ONEA, partly in the form of a long-term loan and partly as contribution to equity capital. In order to maintain the conservative structure of ONEA's balance sheet, and also to limit the sector's interest expense burden and its impact on water tariffs, 60 percent of the proceeds of the IDA Credit will be on-lent in the form of a contribution of equity capital in cash, and the remaining 40 percent will take the form of a long-term loan close to IBRD terms, that is 20 years duration, 10 years grace on the principal at 5.4 percent interest rate.
Annex 6: Procurement and Disbursement Arrangements

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

Procurement

A Country Procurement Assessment Review (CPAR) for Burkina Faso was carried out in November 1999 showing that procurement procedures do not conflict with Bank guidelines. No special exceptions need to be specified in the Credit Agreement as, in any case, IDA's guidelines take precedence over local regulations. However, since there are practices that are in conflict with the Bank's guidelines, the Credit Agreement should specify the conditions listed below that have to be met under National Competitive Bidding.

Procurement of works and goods, financed by the IDA credit, will be carried out in accordance with the Guidelines for Procurement under IBRD Loans and IDA Credits (January 1995, revised in January and August 1996, September 1997 and January 1999). IDA's standard bidding documents and evaluation report will be used for all procurement under ICB. National Competitive Bidding (NCB), advertised locally, would be carried out in accordance with Burkina procurement laws and regulations acceptable to IDA, provided that: (i) all bidders are given sufficient time to submit bids (four weeks); (ii) bid evaluation and bidder qualification are clearly specified in bidding documents; (iii) no margin of preference is granted to domestic contractors and manufacturers; (iv) no bid is rejected during bid opening; (v) eligible firms are not precluded from participation; and (vi) award is made to the lowest evaluated bidder who meets the appropriate standards of capability and resources.

Consultant services, financed by the IDA credit, will be procured in accordance with the Bank's guidelines for the Selection of Consultants by World Bank Borrowers (January 1997 revised in September 1997 and January 1999). The Standard Request for Proposal, as developed by the Bank, will be used for the solicitation of consultants. Simplified contracts will be used for short-term assignments, those not exceeding six months, carried out by firms or individuals consultants.

A General Procurement Notice (GPN) has been prepared and advertised for all ICB contracts for Goods and Works and consultants services that will be recruited on an international basis. This notice will be updated annually for all outstanding procurement within the above description.

The program elements by disbursement category, their estimated costs, and procurement methods are summarized in Table A. Consultant selection methods and thresholds for procurement methods and prior review are summarized in Tables A1 and B.

The procurement methods for items to be financed by IDA are summarized in Table A.

Procurement methods (Table A)

Civil Works: Contracts for works financed by IDA amount to US$42.22 million, including taxes and contingencies. All contracts exceeding US$500,000 per contract, including the delivery system and the secondary network will be procured through ICB. Contracts for the laying of pipes and installation of connection costing the equivalent of US$500,000 or less per contract up to an aggregate amount of US$3.35 million will be procured through NCB, in accordance with procedures acceptable to IDA.

Goods: Contracts for goods financed by IDA (totaling US$11.19 million) relate to the purchase of meters,
connection and standpost equipment, computerized portable meter readers and computers. ICB procedures would apply for the procurement of all of the above contracts. For standardization purposes and to ensure continuity, softwares to be used by the international water operator, contracts up to an aggregate amount of US$330,000, will be procured by direct contracting.

**Consultants and other services** financed by IDA will include (i) the service contract for commercial operations and financial management, studies, surveys and supervision of works; (ii) technical and financial audits; and (iii) training. Consultants will be hired in accordance with Bank guidelines for technical and financial audits, surveys and marketing programs. Consultants, excluding training, financed by IDA, amounting to US$11.36 million will be hired in accordance with the Bank's Guidelines for the Selection and Employment of Consultants (January 1997 revised in September 1997, and January 1999).

The successful firm will be selected by Quality-and Cost-Based Selection (QCBS), which uses a competitive process among qualified short-listed firms that take into account the quality of the proposals as well as the cost of the services. Consultants selected on this basis will be those carrying out surveys and marketing programs. A consulting firm, for the supervision of works, has already been selected by QCBS. For financial audits, up to an aggregate amount of US$0.39 million, the Least-Cost Selection (LCS) will be the most appropriate method. Technical audits, up to an aggregate amount of US$0.3 million, which can be delivered by individual consultants, will be selected on qualifications basis through comparison of at least three CVs. Short-list of consultants for contracts under US$100,000 may be comprised of nationals only, if a sufficient number of qualified firms (at least three) are available at competitive costs. However, if foreign firms express interest in these services, they will not be excluded from consideration.

**Table A: Project Costs by Procurement Arrangements**
(US$ million equivalent)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICB: 38.87 (34.98)</td>
<td>NCB: 3.35 (3.01)</td>
<td>Other: 0.00 (0.00)</td>
<td>N.B.F.: 0.00 (0.00)</td>
<td>Unallocated: 3.31</td>
<td>49.73 (44.78)</td>
</tr>
</tbody>
</table>

Figures in parenthesis are the amounts to be financed by the IDA Credit. All costs include contingencies. includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.
Table A1: Consultant Selection Arrangements (optional)
(US$ million equivalent)

<table>
<thead>
<tr>
<th>Consultant Services Expenditure Category</th>
<th>QCBS</th>
<th>QBS</th>
<th>SFB</th>
<th>LCS</th>
<th>CQ</th>
<th>Other</th>
<th>N.B.F.</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Firms</td>
<td>10.67</td>
<td>0.00</td>
<td>0.00</td>
<td>0.39</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>11.06</td>
</tr>
<tr>
<td>B. Individuals</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.30</td>
<td>1.50</td>
<td>0.00</td>
<td>1.80</td>
</tr>
<tr>
<td>Total</td>
<td>10.67</td>
<td>0.00</td>
<td>0.00</td>
<td>0.39</td>
<td>0.30</td>
<td>1.50</td>
<td>0.00</td>
<td>12.86</td>
</tr>
</tbody>
</table>

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection
QBS = Quality-based Selection
SFB = Selection under a Fixed Budget
LCS = Least-Cost Selection
CQ = Selection Based on Consultants' Qualifications
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.

N.B.F. = Not Bank-financed
Figures in parenthesis are the amounts to be financed by the Bank Credit.
Prior review thresholds (Table B)

IDA-financed contracts for works above US$500,000, for goods above US$200,000, and the first NCB contract for works would be subject to IDA's prior review procedures. The review process would cover about 92 percent of the total value of the amount contracted for goods, and 90 percent of the amount contracted for civil works (See Table B). Selective post-reviews of contracts awarded below the threshold level will apply to about one in three contracts and will be carried out by Bank staff during supervision missions.

The selection process for hiring consultants proposed by the Borrower will also be subject to Bank prior review, which will include the review of budgets, Terms of Reference (TORs), short-lists, selection procedures, requests for proposals, evaluation reports, contract awards, and negotiated contracts. Prior review will not apply to contracts for the recruitment of consulting firms and individuals estimated to cost less than US$100,000 and US$50,000 equivalent, respectively. However, prior review will apply to the TORs of such contracts, to single-source hiring, to assignments of a critical nature, as determined by IDA, regardless of their value, or to amendments of contracts raising the contract value above the above-mentioned prior review thresholds. For consultant contracts, estimated above US$100,000, opening the financial envelopes will not take place prior to receiving the Bank's no-objection to the technical evaluation. Documents related to procurement below the prior review thresholds will be maintained by the borrowers for ex-post review by auditors and IDA supervision missions. For training abroad and in-country, the program, containing names of candidates, costs estimates, content of courses, periods of training and selection of training institutions, will be reviewed by IDA.

Table B: Thresholds for Procurement Methods and Prior Review

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Contract Value Threshold (US$ thousands)</th>
<th>Procurement Method</th>
<th>Contracts Subject to Prior Review (US$ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Works</td>
<td>C&gt;500,000</td>
<td>ICB</td>
<td>38.87</td>
</tr>
<tr>
<td></td>
<td>First NCB Contract</td>
<td>NCB</td>
<td>0.48</td>
</tr>
<tr>
<td>2. Goods</td>
<td>C&gt;200,000</td>
<td>ICB</td>
<td>11.19</td>
</tr>
<tr>
<td>3. Services</td>
<td>Firms&gt;100,000</td>
<td>QCBS/LCS</td>
<td>5.33</td>
</tr>
<tr>
<td></td>
<td>Individual&gt;50,000</td>
<td>Q</td>
<td>0.30</td>
</tr>
<tr>
<td>4. Miscellaneous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Miscellaneous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Miscellaneous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total value of contracts subject to prior review:</td>
<td></td>
<td></td>
<td>56.17</td>
</tr>
</tbody>
</table>

Overall Procurement Risk Assessment

Average
Frequency of procurement supervision missions proposed: One every 6 months (includes special procurement supervision for post-review/audits)

\[1\] Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.
**Disbursement**

**Allocation of credit proceeds (Table C)**

Table C: Allocation of Credit Proceeds

<table>
<thead>
<tr>
<th>Expenditure Category</th>
<th>Amount in US$million</th>
<th>Financing Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil Works</td>
<td>42.22</td>
<td>100% of foreign expenditures and 80% of local expenditures</td>
</tr>
<tr>
<td>Goods &amp; Equipment</td>
<td>11.19</td>
<td>100% of foreign expenditures and 80% of local expenditures</td>
</tr>
<tr>
<td>Consulting Services and training</td>
<td>12.88</td>
<td>100%</td>
</tr>
<tr>
<td>PPF Refinancing</td>
<td>0.40</td>
<td>100%</td>
</tr>
<tr>
<td>Unallocated</td>
<td>3.31</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td><strong>70.00</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70.00</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Use of statements of expenditures (SOEs):**

Disbursements for all expenditures should be made against full documentation, except for items of expenditures for (i) contract for works in an amount equivalent or less than US$0.5 million equivalent; (ii) contracts for goods in an amount equivalent or less than US$200,000; (iii) contracts for services of consulting firms in an amount equivalent or less than US$100,000; and (iv) contracts for services of individual consultants in an amount equivalent or less than US$50,000, which will be claimed on the basis of Statement of Expenditures (SOEs). All supporting documentation for SOEs will be retained at a suitable location and will be readily accessible for review by periodic Bank supervision missions and external auditors.

**Special account:**

To facilitate project implementation and reduce the volume of withdrawal applications, MOZ-ONEA will open a Special Account (in FCFA) in a commercial bank on terms and conditions acceptable to IDA. The authorized allocation will be FCFA 2,000,000,000 and will cover about four months of eligible expenditures. Upon credit effectiveness, IDA will deposit the amount of FCFA 1,000,000,000 representing 50 percent of the authorized allocation into the Special Account. The remaining balance will be made available when the aggregate amount of withdrawals from the credit account, plus the total amount of all outstanding special commitments entered into by the Association, shall be equal to or exceed the equivalent of 30 million SDR. The Special Account will be used for all payments less than 20 percent of the authorized allocation, and replenishment applications will be submitted monthly. Further deposits by IDA into the Special Account will be made against withdrawal applications supported by appropriate documentation.
Annex 7: Project Processing Schedule

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

<table>
<thead>
<tr>
<th>Project Schedule</th>
<th>Planned</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time taken to prepare the project (months)</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>First Bank mission (identification)</td>
<td></td>
<td>03/22/93</td>
</tr>
<tr>
<td>Appraisal mission departure</td>
<td>07/04/2000</td>
<td>07/05/2000</td>
</tr>
<tr>
<td>Negotiations</td>
<td>12/13/2000</td>
<td></td>
</tr>
<tr>
<td>Planned Date of Effectiveness</td>
<td>03/30/2001</td>
<td>08/31/2001</td>
</tr>
</tbody>
</table>

Prepared by:

ONEA

Preparation assistance:

Engineering Credit (Cr. 2519-BUR)

Bank staff who worked on the project included:

<table>
<thead>
<tr>
<th>Name</th>
<th>Speciality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eustache Ouayoro</td>
<td>Team Leader</td>
</tr>
<tr>
<td>Jan G. Janssens</td>
<td>Lead Specialist,</td>
</tr>
<tr>
<td>Yao Badjo</td>
<td>Sr. Sanitary Engineer,</td>
</tr>
<tr>
<td>Christian Diou</td>
<td>Sr. Municipal Engineer,</td>
</tr>
<tr>
<td>Asha Ayoung</td>
<td>Sr. Procurement Specialist</td>
</tr>
<tr>
<td>Eleanor Warner</td>
<td>Sr. Financial Analyst</td>
</tr>
<tr>
<td>Gerard Tenkewitz</td>
<td>Sanitary Engineer (Consultant)</td>
</tr>
<tr>
<td>J. Renkewitz</td>
<td>Financial Analyst (Consultant)</td>
</tr>
<tr>
<td>Claude Sorel</td>
<td>Private Sector Specialist</td>
</tr>
<tr>
<td>Christophe Bosch</td>
<td>Economist</td>
</tr>
<tr>
<td>Pascale H. Dubois</td>
<td>Lawyer</td>
</tr>
<tr>
<td>Ventura Bengoechea</td>
<td>Sr. Water &amp; Sanitation Specialist, Peer Reviewer</td>
</tr>
<tr>
<td>Vincent Gourarme</td>
<td>Sector Director, Peer Reviewer</td>
</tr>
<tr>
<td>Mamadou Yaro</td>
<td>Financial Management Specialist</td>
</tr>
<tr>
<td>Robert Robelus</td>
<td>Environmental Specialist</td>
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<tr>
<td>Paul Kriss</td>
<td>Economist</td>
</tr>
<tr>
<td>Fanny Barrett</td>
<td>Sr. Program Assistant</td>
</tr>
<tr>
<td>Marie Adèle Tchakounté</td>
<td>Program Assistant</td>
</tr>
<tr>
<td>Armele Vildeus</td>
<td>Language Team Assistant</td>
</tr>
</tbody>
</table>
Annex 8: Documents in the Project File*

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

A. Project Implementation Plan

B. Bank Staff Assessments

C. Other

2. Resettlement plan (Etude de plan de Recasement et de la restauration des revenus des populations, ONAT, octobre 1996)
4. Biophysics Impact Mitigation Plan (Plan d’atténuation des impacts Biophysiques du projet (PAIB), 09/96)
5. Validation of Impact mitigation actions, final Report (Validation des mesures d’atténuation des impacts du projet AEP/OUGA/ZIGA, Rapport final)
7. Preliminary study, Norms, design criteria, final report (Etude Préliminaire, Normes et critères de conception, Rapport définitif, juin 1995)
11. Detailed design, Seureca (Avant projet détaillé, Seureca)
15. Dossiers of plans, April 1996 (Dossiers des plans, avril 1996)
16. Calculation notes, civil works, April 1996 (Notes de calculs génie civil et hydraulique, avril 1996)
17. Supplementary geotechnic study, September 1996 (Etude géotechnique supplémentaire, septembre 1996)
21. Complementary geotechnic reconnaissance, Antea, 02/97
(Etude géotechnique complémentaire, Antea février 1997)
*Including electronic files
Annex 9: Statement of Loans and Credits

BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT

Feb-2001

<table>
<thead>
<tr>
<th>Project ID</th>
<th>FY</th>
<th>Purpose</th>
<th>Original Amount in US$ Millions</th>
<th>IBRD</th>
<th>IDA</th>
<th>Cancel</th>
<th>Undisb.</th>
<th>Orig</th>
<th>Firm Rev'd</th>
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<tr>
<td>P035673</td>
<td>2001</td>
<td>COMMUNITY-BASED RURAL DEVELOPMENT</td>
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<td>0.00</td>
<td>64.74</td>
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<td>P050886</td>
<td>1999</td>
<td>PRIVATE IRRIGATION</td>
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<td>5.20</td>
<td>0.00</td>
<td>3.79</td>
<td>1.46</td>
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<td>P000296</td>
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<td>AG SERVICES II</td>
<td>0.00</td>
<td>41.30</td>
<td>0.00</td>
<td>27.50</td>
<td>15.89</td>
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<td>11.58</td>
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<td>POST-PRIMARY EDUC.</td>
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<td>26.00</td>
<td>0.00</td>
<td>15.94</td>
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<td>P000283</td>
<td>1997</td>
<td>MINING CAPACITY BUIL</td>
<td>0.00</td>
<td>21.40</td>
<td>0.00</td>
<td>15.23</td>
<td>8.72</td>
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<td>0.00</td>
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<tr>
<td>P000297</td>
<td>1995</td>
<td>URBAN ENV</td>
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<td>0.00</td>
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<td>2.84</td>
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<tr>
<td>P000308</td>
<td>1994</td>
<td>POPULATION/AIDS CONT</td>
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<td>0.00</td>
<td>4.29</td>
<td>4.76</td>
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Total: 0.00 253.10 0.00 146.96 58.43 28.38

Difference between expected and actual disbursements:

- 60 -
BURKINA FASO
STATEMENT OF IFC's
Held and Disbursed Portfolio
Feb-2001
In Millions US Dollars

<table>
<thead>
<tr>
<th>FY Approval</th>
<th>Company</th>
<th>Committed</th>
<th></th>
<th>Disbursed</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Loan</td>
<td>Equity</td>
<td>Quasi</td>
<td>Partic</td>
</tr>
<tr>
<td>1999</td>
<td>AEF FasoMine</td>
<td>1.00</td>
<td>0.38</td>
<td>0.00</td>
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<tr>
<td>1997</td>
<td>Ecobank-Burkina</td>
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<tr>
<td>1998</td>
<td>SGBB</td>
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<td>0.38</td>
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<td>0.00</td>
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<tr>
<td></td>
<td>Total Portfolio</td>
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<td>1.01</td>
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</table>

<table>
<thead>
<tr>
<th>Approvals Pending Commitment</th>
<th>Loan</th>
<th>Equity</th>
<th>Quasi</th>
<th>Partic</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Annex 10: Country at a Glance

**BURKINA FASO: OUAGADOUGOU WATER SUPPLY PROJECT**

### Development diamond*

*The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.*

#### Life expectancy

- **Burkina Faso**: 54
- **Low-income group**: 54

#### Gross per capita

- **Burkina Faso**: US$ 850
- **Low-income group**: US$ 850

#### Access to safe water

- **Burkina Faso**: 52%
- **Low-income group**: 52%

#### Economic ratios*

- **Burkina Faso**: US$ 1.5 billion
- **Low-income group**: US$ 1.5 billion

### Economic indicators and Long-Term Trends

#### Growth of exports and imports (%)

- **1979**: 30
- **1999**: 9

#### Growth of investment and GDP (%)

- **1979**: 30
- **1999**: 9

### Structure of the Economy

#### (% of GDP)

- **Agriculture**: 32.1
- **Industry**: 27.4
- **Manufacturing**: 27.4
- **Services**: 40.6

#### Growth of GDP (%) (average annual growth)

- **1979**: 32.1
- **1999**: 9

#### Growth of Investment and GDP (%) (average annual growth)

- **Agriculture**: 8.2
- **Industry**: 5.0
- **Manufacturing**: 5.0
- **Services**: 5.1

#### Growth of Exports and Imports (%) (average annual growth)

- **Agriculture**: 4.7
- **Industry**: 4.7
- **Manufacturing**: 4.7
- **Services**: 4.7

#### Growth of Domestic Product (%) (average annual growth)

- **Agriculture**: 4.7
- **Industry**: 4.7
- **Manufacturing**: 4.7
- **Services**: 4.7

#### Growth of Domestic Investment (%) (average annual growth)

- **Agriculture**: 4.7
- **Industry**: 4.7
- **Manufacturing**: 4.7
- **Services**: 4.7

#### Growth of Domestic Exports (%) (average annual growth)

- **Agriculture**: 4.7
- **Industry**: 4.7
- **Manufacturing**: 4.7
- **Services**: 4.7

Note: 1999 data are preliminary estimates.
### PRICES and GOVERNMENT FINANCE

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<td>(% change)</td>
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<td>(% of GDP, includes current grants)</td>
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<td>Overall surplus/deficit</td>
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### TRADE

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<tr>
<td><strong>(US$ millions)</strong></td>
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<tr>
<td>Total exports (fob)</td>
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<td>Meat</td>
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<td>Import price index (1995=100)</td>
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<td>Terms of trade (1995=100)</td>
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### BALANCE of PAYMENTS

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<td><strong>(US$ millions)</strong></td>
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<td>Memo: Reserves including gold (US$ millions)</td>
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<td>373</td>
<td>407</td>
</tr>
<tr>
<td>Memo: Converted rate (DEC. local/US$)</td>
<td>212.7</td>
<td>319.0</td>
<td>589.7</td>
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### EXTERNAL DEBT and RESOURCE FLOWS

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<td><strong>(US$ millions)</strong></td>
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<td>Memo: Reserves including gold (US$ millions)</td>
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<td>212.7</td>
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Additional
Annex 11
Letter of Sector Policy

MINISTRY OF THE ENVIRONMENT
AND WATER

GENERAL SECRETARIAT

DIRECTORATE OF HYDRAULICS

WATER POLICY AND STRATEGIES
IN BURKINA FASO

Part 3 - Main Outlines
INTRODUCTION

The present document is a condensation of the National Water Policy forming part of the "Water Policies and Strategies" adopted in Council of Ministers on September 10, 1998 (Decree No. 98-365/PRES/PM/MEE). Reference should therefore be made to the basic document for detailed descriptions and analytical data.

1. THE NATIONAL WATER POLICY

1.1 The main thrusts of the Letter of Intent on Sustainable Human Development Policy (LIPDHD) and fight against poverty.

The major challenges facing Burkina Faso today, as defined in LIPDHD, are to increase the income levels of its inhabitants and to expedite development both of its human resources and of its production potential, in order that every one of its citizens may achieve:

- Financial security deriving from access to a well-paying job.
- Health security: access at low cost to medical care, both preventive and curative.
- Food security: access to basic nutritional staples, including water.
- Environmental security deriving from preservation of a healthy environment.
- Individual and political security.

Renewal of the country's economic and social policy is based on a number of principles, in particular:

- The need to direct investment approaches and choices, as well as public expenditure, toward goals that will produce the maximum positive impact on the key social indicators.
- Protection of the environment.

The present water policy, which represents an essential support for responsible water resource management through its focus on preserving the equilibrium of the physical environment and the aquatic ecosystems, is based on these main thrusts of the Letter of Intent.

1.2 Objectives, principles, and approaches of the national water policy

1.2.1 General objective

The general objective is to contribute to sustainable development by offering appropriate solutions to water-related problems, so that the water issue does not become an obstacle to socioeconomic development.

1.2.2 Specific objectives

The specific objectives are as follows:

Objective No. 1 Provide sustainable means of meeting the water needs, both quantitative and qualitative, of a growing population and a developing economy, while respecting the aquatic ecosystems, in an environmental context unfavorable to replenishment and mobilization of the water resource.
**Objective No. 2**
Provide protection against aggressive water action: erosion, corrosion, flooding, epidemics, dam breaches, etc.

**Objective No. 3**
Improve the public finances by lessening the burden represented by the water sector, by sharing the cost fairly among all the stakeholders: the government agencies, the local authorities (collectivités), and the consumers.

**Objective No. 4**
Prevent conflict in international water resource management.

1.2.3 **Principles**
Burkina Faso's national water policy will be implemented in line with the provisions of the country's constitution and legislation, and with the nine internationally agreed principles of water management contained in conventions that the country has signed or ratified:

- equity
- subsidiarity
- harmonious regional development
- watershed management
- balanced water resource management
- protection of consumers and of nature
- the "user pays" ([préleveur-payeur]) principle
- the "polluter pays" principle
- the participation principle

1.3 **Strategies**
In light of the development objectives and the water management and use principles listed above, ten strategies have been formulated on the basis of all the objectives, principles, and measures set down in this national water policy document.

1. Adopt the watershed approach as the appropriate framework for water resource planning, mobilization, management, and protection.

2. Promote interregional and international cooperation.

3. Increase the efficiency and management capacity of the agencies involved in implementing the national water policy.

4. Implement the sanitation strategy and resource protection measures.

5. Install a water quality surveillance system. Foster the emergence of a local corps of experts able to design, execute, operate and maintain water monitoring stations and to reliably interpret the data recorded there.

6. Introduce a tax policy providing incentives to consumer management groups to take over as much responsibility as possible for the maintenance of hydraulic structures.
7. Give priority to the rehabilitation and consolidation of hydraulic structures with a view to obtaining maximum investment yield or efficiency.

8. Seek to obtain maximum investment yield and/or efficiency.

9. Seek the lowest-cost solutions for the maintenance and sustainability of systems and works (potable water supply, sewerage, dams, monitoring systems, etc.).

10. Lessen water-related risks through better knowledge of those risks and execution of preventive measures; improve crisis management.

1.4 Priorities of the national water policy

The "potable water" use of the resource, vital to the people's health and to the maintenance of their dignity, in all cases takes priority above the other uses.

The development of water systems for this and other purposes must observe the need to respect the biological equilibria of the different ecosystems, in compliance with Articles 14 and 29 of the Constitution.

To anticipate crisis situations, reference will be made to regularly updated records of the water resources available when such situations occur and to records of the impact on those resources of offtakes and discharges at such times.

The other uses need to be ranked on the basis of specific local requirements, based on principles of equity, subsidiarity, and, if possible, participation.

1.5 Development of the legislative and regulatory framework

The central government departments are responsible for formulating and organizing application of the regulations. Following are their principal activities under this heading.

- Improvement of the consistency, clarity, and facility of application of the regulatory provisions, given Burkina Faso's sociocultural context.

- Reformulation of certain regulations, introduction of any necessary supplements, and their combined issue in the form of a single code.

- Improvement of regulatory provisions governing the preparation and implementation of crisis plans. These provisions will set out the warning thresholds for the activation of exceptional measures, and will name the authorities responsible for water control and distribution in times of crisis.

- Preparation of attractive publications to inform the population about the regulations.

- Formulation of technical documents at the ministry or provincial level, setting out or updating the standards or modalities for defining objectives and stakeholder participation procedures.

- Creation of a department to enforce the laws and regulations in the areas of water, forests, fauna, fisheries, quarries and mines, and pollution.
• Strengthening of the resources and supervisory powers of the decentralized departments of the water ministry through improved coordination of the various stakeholders' actions on the ground.

1.6 Decentralization and stakeholders

Establishment of the institutional framework and delegation of responsibility to local stakeholders are part of the ongoing decentralization process.

To facilitate achievement of the objectives set and application of the principles of the water policy, a more functional institutional framework will gradually be established.

1.6.1 Decentralization

Water resource management and the investment and maintenance policies governing the rehabilitation, development, or construction of systems (structures, networks, equipment, etc.) are heavily influenced by the physical and socioeconomic characteristics of the particular local environment. It is therefore important that the relevant management strategies and systems be designed and implemented by actors having a good knowledge of the local conditions.

(Principle of subsidiarity)

Priority investments (rehabilitation, upgrading of existing systems, new systems of mobilization, operation, monitoring, and protection of the resource, etc.), preventive action to ward off water-related risks, will be identified as a result of consultations among the local authorities, the public or private contracting bodies, and the donors.

The local communities will participate in the definition of priorities through their representatives in the local decentralized administrative units (villages, sectors, neighborhoods, communes, departments, provinces) or through associations or NGOs.

The decentralized departments of the ministry responsible for water management, in close relationship with the local authorities, associations, and the professional entities concerned, are in charge of implementing the national water policy and translating it into practical actions compatible with the regional context.

Implementation of this policy will of necessity give rise to new tasks and responsibilities. It is therefore important to develop the operational capacities of the administrative units concerned, in particular of the regional departments. To that end, the precise needs for aid or assistance with decentralization will be identified by all of the partners concerned, and a program will be prepared and implemented over the medium and long term. Training programs for the private sector will be prepared and implemented.

1.6.2 Stakeholders

1.6.2.1 The public institutions

1.6.2.1.1 The Technical Committee for Water

Set up by Law No. 014/96/ADP, dated May 23rd 1996, which reorganized agricultural and land
tenure systems in Burkina Faso, the Technical Committee for Water is responsible for proposing basic development options for the water resource. The composition, functions, and operating procedures of the Committee may be updated or identified, should the need arise.

Implementation of the water policy will require tradeoffs among the ministries, whether in the area of resource allocation or in order to integrate environmental concerns into the policies of other sectors.

Such tradeoffs and all exchanges of information among the parties will take place within the Technical Committee for Water. It is essential that this committee seek the opinions of experts before reaching a decision.

1.6.2.1.2 The ministries

The ministry responsible for water management will organize interministerial coordination in that area and handle all of the policing activities in the sector. It will ensure better linkages among the functions of the different departments and thereby heighten administrative efficiency. It will also promote improvements to the legal and regulatory framework.

It is also responsible for handling tradeoffs and promoting consistency in application of the principles of harmonious regional development and the protection of consumers and of nature. It will be responsible for preparing an action plan for implementation of the water policy.

In liaison with the other ministries, the local authorities, consumers, and the private sector, the ministry responsible for water management will handle the setting up of water resource management bodies with different assignments covering, for example, public potable water distribution works (water supply point management committee, ONEA board of directors, etc.), mobilization (reservoir management bodies, etc.), water pollution control, and water and watershed protection.

1.6.2.1.3 Watershed agencies

To apply the principles of equity, balanced management, and participation it is necessary to have a particular institutional organization that will allow participation by the various stakeholders (the State, local authorities, consumers, scientist, or expert associations, the private sector) in the process of deciding on and implementing programs. This will facilitate supervision of the channeling of public resources in the water sector.

For the successful application of these principles it will be necessary to form groups of nine stakeholders, adequately structured to be represented by competent and influential individuals on the boards of the watershed agencies.

Application of the watershed management principle will be phased in through the establishment of four watershed agencies throughout the country (Nakanbè, Mouhoun, Niger, Comoé).

1.6.2.1.4 Training and research bodies

The work of the research agencies will be directed toward the development of research topics related to the search for water within the framework of the country's prevailing conditions.

1.6.2.2 The local authorities
Within the framework of the country's decentralization policy, the responsibilities of the local authorities (villages, communes, departments, provinces) in the area of water management will be clarified and standardized.

To obtain the most successful results from this approach, i.e. local authority participation, certain principles for action will be observed.

### 1.6.2.3 The associations

Important public funds that are committed to attain water policy objectives will trigger market development of assets and services. New perspectives will be proposed for the development of private sector (up to now marginal) if existing conditions are prone to fair competition.

Development of techniques in water management and maintenance as well as realization of works by Burkinabé's firms could contribute to jobs creation and reduction of operation and maintenance costs.

In particular, in rural area or secondary cities, private enterprises that have the appropriate equipment and the technical capacities could participate in the management and maintenance of works financed by communities and water services users.

### 1.6.2.4 The private sector

The substantial volume of public funds committed for achievement of the objectives of the water policy will trigger the development of a goods and services market. New prospects will be offered to develop the (up to now marginal) domestic private sector, provided conditions are favorable to fair competition. The development of trades in water management and maintenance and the execution of large-scale works by national companies will contribute to job creation and help reduce construction and maintenance costs.

In particular, in the rural areas and in the secondary centers, private enterprises possessing the necessary facilities and technical capabilities will be able to take part in project management and maintenance with financing from the local authorities or the consumer groups using the facilities.

### 1.7 Water resource management and protection

Chief among the water management and protection functions performed at different levels by the different stakeholders are:

- **Policy:** organizing stakeholder consultations concerning geographic management units, policy formulation, investment choices, and the identification of quantitative and qualitative objectives.

- **Regulatory and institutional framework:** formulation of the regulations and their application, monitoring and supervision of actions taken (water police), organization of functions, setting up of management bodies, coordination of interventions, contracting among stakeholders.

- **Diagnostic study:** data on existing water resources, studies of environments and uses, monitoring of the condition of the resource, recourse to expertise for assistance in decisionmaking, and definition of standards, reference values, and water condition assessment systems.
- Own resources: adjustment of behaviors through taxation, withholding adequate funds to finance a program.

- Resource allocation: development of action plans or programs laying down the rules for allocating human and financial resources and aiming to adjust behaviors and techniques through the aid policy.

- International cooperation: development of cooperation among neighboring countries for the management of international waters.

- Quantitative management: minimum flow requirement for waterways, water storage management, regulation of fluctuations in water table level, issue of construction permits, water regulations, facilities management bodies.

- Qualitative management: definition of quality objectives, guidelines for actions to protect water resources and prevent pollution at the source, efficient operation of water facilities, advisory assistance on adopting sound practices, awareness of the impact on water of other sectors (waste disposal, transportation, agriculture, tourism, etc.).

- Preservation and management of wetlands and of the habitats of species with cycles linked to an aquatic environment, and flora and fauna management in such environments.

- Support for research: development and dissemination of appropriate technologies, search for and implementation of good environmental practices.

- Crisis management: management of water-related crises (floods, droughts, accident-generated pollution, etc.), advance and preventive information for the population, flood announcements and warnings.

- Attention to the environment, in particular to water management in other sectors, so that the appropriate synergies may be achieved.

- Water information and communication systems: setting up and management of a database, documentation management, dissemination of updated information on water, transmission of communications about water to the public at large or targeted populations, in liaison with the media.

- Policy and evaluation, etc.

2. SECTOR POLICIES AND STRATEGIES

The water policy and strategies document covers all of Burkina Faso's sectors of economic development. It will therefore cover water policy in the sectors of potable water supply and irrigation and in the other sectors of the national economy dependent on water supply for their development.

2.1 Potable water supply

2.1.1 The new potable water supply policy
It is essential to overhaul the existing approaches to this policy. Development of a potable water supply strategy calls for measures responding to real needs and taking account of the capacity and willingness of the different categories of the population to pay for the services required.

A participatory approach will be adopted for the prioritization process. This represents a new departure, since in the past the most frequent approach was the stereotyped one. Short- and medium-term action plans will be drawn up based on a forward analysis of the sector. The government agencies in charge of planning, representatives of civil society, and the local authorities will be closely associated with development of the proposed strategies. This approach is designed to respond to the dual concern of developing local capacities and identifying needs more clearly.

2.1.2 Potable water supply - specific objectives and measures

The specific objectives and measures concerning potable water supply and related to the application of the water policy are guided by the following principal concerns:

- Planning and satisfaction of potable water needs, application of the principle of equity, responsibility in managing the facilities, water quality protection, increased technological choices and cost reduction.

- Reaching financial equilibrium of the urban and semi-urban water sub-sector by 2006

- Support to private sector development, strengthening of the potable water supply information system, promotion of women's activities, increased coordination, human resources development, evaluation.

- Continuous strategic thinking on the sub-sector's contribution toward national economic competitiveness.

2.1.3 Potable water supply and community size

The new policy for supplying potable water to the country's inhabitants is three-pronged, to take into account sizes of communities and their technical and financial capacities.

2.1.3.1 Potable water supply in the urban centers

The purpose of urban water systems is to meet the effective demand for water in urban centers, medium-sized cities, and secondary centers with over 10,000 inhabitants.

ONEA is responsible for developing the urban water systems. In such capacity, it handles the construction and management (operation and maintenance) of the infrastructure needed for potable water supply and wastewater and sewage disposal in urban and semiurban areas. A Performance Agreement between the Government and ONEA specify contractual relationships of both parties.

2.1.3.2 Potable water supply in the semiurban and secondary centers

The purpose of semiurban water systems is to meet the effective demand for water in centers with
over 2,000 inhabitants which are not covered by the water distribution company.

At present, some 800 secondary centers have been registered (INSD census). One hundred such centers are already provided with systems under specific projects.

2.1.3.3 Potable water supply in rural areas and villages

The purpose of village water systems is to meet the household water requirements of rural areas with fewer than 2,000 inhabitants.

The policy in this area will focus more closely on making the users responsible for maintenance and renewal of the systems.

In line with the principle of harmonious development among the regions, particular attention will be paid to the correction of regional disparities where water supply facilities are concerned.

2.1.4 Specific objectives depending on community size

The following specific objectives and measures are recommended depending on the size of the community concerned. Three different levels are targeted for potable water supply: urban centers, semiurban centers, and villages.

2.1.4.1 Potable water supply measures in the urban centers

- Observe quality standards for the water distributed.
- Ensure that surface water intended for drinking is routinely treated before being distributed.
- Over the short term, strengthen the operational capacity of the company responsible for potable water distribution, on the administrative and financial levels.
- Improve long-term productivity, aiming for the most cost-efficient solutions in the equipping and management of the centers.
- Require the conclusion of State/public enterprise performance plans.
- Take into account the needs of the livestock sector when identifying needs in the periurban areas.

2.1.4.2 Potable water supply in the secondary centers

- Create a stimulating environment for the concession of physical facilities management.
- Establish a performance plan to accompany any delegation of management of the public potable water service.
- Promote rural electrification and the use of photovoltaic equipment.
- Study the technological options for ensuring sustainable and continuous service and simple maintenance at a low operating cost. A combination of the existing technological solutions will be worked out to meet each level of service demanded (network densification, etc.).

2.1.4.3 Potable water supply measures for villages

- Strengthen coverage of potable water needs.
- Give priority to the rehabilitation and consolidation of existing water supply points.
- Harmonize beneficiary contributions to the initial investment.
– Envision the effective assumption by the beneficiaries of the costs of maintenance and renewal of pumping equipment [moyens d'exhaure].
– Promote the use of photovoltaic equipment and solar energy.
– Encourage local manufacture of certain parts of pumps. Encourage interconnection through simple water supply systems of localities and neighborhoods whenever feasible.
– Upgrade old and crumbling supply points.

2.2 National water policy and the other sectors of the economy

2.2.1 The public health sector

2.2.1.1 Planning

– Identify high-risk areas for the various waterborne diseases.

– Identify priority areas for the installation of potable water supply points, taking into account areas at high risk for disease, in particular areas targeted by the guinea worm control programs.

– Ensure greater collaboration among the designers of water projects to include preventive public health measures, and pinpoint clearly those areas that should receive priority in this respect.

2.2.1.2 Water for drinking and domestic use

Help devise preventive measures to avoid contamination of reservoirs and water supply points, in liaison with the water point managers. Carry out epidemiological studies in association with the studies on the bacteriological quality of wastewater as a source of drinking water, to assess the public health impact of contaminated water.

2.2.1.3 Project impact

– Carry out scientific studies to monitor the public health impact of the new water mobilization developments, to facilitate the planning of future preventive measures.

– Take steps to prevent harmful trickle-down effects on public health of the actions taken and investments made in the water sector.

– Carry out all the necessary works to prevent the spread of waterborne diseases in the neighborhood of the reservoirs.

2.2.1.4 Design of sanitation and irrigation systems

– Take steps, together with the local authorities, to boost public health: cleaning of stormwater and wastewater drainage systems, etc.

– Prepare for studies to identify actions and equipment to protect the population against diseases resulting from the spread of wastewater during periods of heavy rainfall.

– Oversee improvement of drainage systems in the irrigation districts, and of equipment designed to limit the spread of disease.

2.2.1.5 Health and hygiene education

Send appropriate messages concerning the prevention of waterborne diseases in the vicinity of
reservoirs.
- Sensitize urban dwellers to the need to prevent water pollution, in particular through the
  publicizing and enforcement of regulations regarding the construction of plumbing facilities and drains in
  their homes.
- Promote sensitization campaigns to encourage families to adopt good hygiene practices.
- Inform the people of the risks of using any watercourses downstream of urban dumps (cholera
  prevention)

2.2.2 Education

The education sector can help protect water resources and enable young people to gain a better
understanding of water-related problems.

It will be necessary to establish links among the ministries responsible for education and the water
ministry, to promote joint action in this area. The following activities could be developed:

2.2.3 Agriculture

2.2.3.1 Water policy in this sector

Agricultural irrigation is a subsector that supports agricultural production. With Burkina Faso's
particular weather conditions, the irrigation policy helps to strengthen food security through the extension
of irrigation facilities, diversification and intensification of production, and improved natural resource
management.

2.2.3.2 Specific objectives and measures

In this sector, the following objectives and measures are recommended:

- Planning.
- Security of land tenure.
- Allow private individuals to benefit from publicly financed irrigation projects, to foster
  intensive production.
- Investments.
- Ensure an economic and financial return on the investments.
- Operation
  - Reduce operating costs through optimum management and rehabilitation of the
    physical facilities.
  - Promote the setting up of resistant irrigation systems and of water-saving cultivation
    systems.
  - Give priority to lowland farming and gravity irrigation, these being the least costly
    modes of production for the farmers.
  - Promote free choice of cropping patterns in order to obtain the maximum return on
    operation of the irrigation systems.
  - Expedite government withdrawal by allocating greater responsibility to farmers.
  - Apply the pricing policy more rigorously, and ensure collection of the fees.

Development of the private sector and consultation
- Create jobs on farms and in irrigation projects, thereby reducing the flight from the
land.
- Encourage agribusiness and agroindustrial farming.
- Promote improved consultation with the other sectors (livestock, fisheries, energy, environment, etc.).

2.2.4 Livestock sector

2.2.4.1 Water policy in the sector

The objective of the water policy is to make unused pasturelands more accessible, so that the herd may be better spread out over the available natural resources.

Those responsible for developing a national policy for pastoral water supply systems should take the following three factors into account: herd size, water availability, and location of pasturelands during the different seasons.

2.2.4.2 Specific objectives and measures

The following objectives and measures are proposed for this sector:
- Planning
- Awareness of existing infrastructure, herds, and available resources
- Land policy and conflict prevention
- Herder organization and financing of operations.

2.2.5 Fisheries sector

2.2.5.1 Water policy in the sector

Fisheries development is closely linked to the development of surface water mobilization works. Consequently, water policy will aim to create as favorable an environment for developing this sector, through:
- Planning, consultation.
- Information on the fisheries situation.
- Existing works.
- New works.
- Fees.
- Water quality, fish habitats and circulation

2.2.6 Energy sector

2.2.6.1 Water policy in the sector

Surface water mobilization makes a substantial contribution to development of the electricity sector. The Kompiança and Bagré dams use some 1700 million m3 of water a year for their turbines.

2.2.6.2 Specific objectives and measures
Development of the energy sector is partially dependent on surface water resources. The specific objectives are:

- Planning.
- Contribute to development of the master electrification plan.
- Awareness of the hydroelectric potential.
- Pumping of water \(\text{exhaure de l'eau}\) and electrification.
- Contribute to rural electrification through photovoltaic and thermal pumping facilities.
- Protective measures.

2.2.7 Mining and industrial sector

2.2.7.1 Specific objectives and measures

As mining operations develop, there will be a growing need for substantial volumes of both surface and underground water. The need for water at the extraction sites will be felt right away. The goldwashing sites are located in areas far removed from any water supply points, and thousands of goldwashers are thus without access to water.

Questions arise concerning:

- Household water supply for the mining towns and extraction sites.
- Adequate water supply for ore treatment.
- Monitoring and treatment of pollution (hydrographic system and industrial waste).

The following measures are recommended:

- Highlight water needs and the necessary water protection measures.
- Ensure that the studies on developing mining potential include a section covering water resource mobilization and protection, in the form of an environmental impact assessment.
- Grant concessions to the extraction companies covering water use for their mining operations.

2.2.8 Fauna sector

2.2.8.1 Water policy for the sector

Some countries count fauna among their basic sources of income. In Burkina Faso, wildlife helps to increase the income of people living in areas close to the parks, and it also helps keep the national budget in equilibrium. Water policy in this sector will be geared to maintaining conditions favorable to regeneration of the fauna potential, with particular attention to:

- Quality of grazing.
- Tranquillity of habitat.
- Permanent availability of water.

2.2.8.2 Specific objectives and measures.

Following are the specific objectives in this area:

- Guarantee permanent availability of water in the parks and reserves.
- Contribute to an increase in fishery products.
- Lay down specific criteria for providing drinking water for wildlife in the parks.
- Construct and maintain the necessary facilities for each park or reserve.
- Support the park managers in waterworks maintenance.
2.2.9 **Tourism and recreation**

The presence of reservoirs, particularly close to the large cities, can offer an opportunity for developing such recreational activities as swimming, fishing, and water sports. However, the risk of waterborne diseases could prevent the development of some of those activities.

Ouagadougou, January 11, 2001

The Minister Delegated to the Minister of the Environment and Water, with Responsibility for Water

(signed) Théodule Houonne DA
Institutional Assessment

The management of ONEA is structured around five central functions and three regional departments. The central functions are: (i) general management, to which the management control unit reports directly; (ii) finance, in charge of finance, accounting, information systems and sales policy; (iii) human resources, in charge of all personnel matters; (iv) technical management, in charge of planning, implementation of the investment programs in urban water, operation of the water production and distribution systems; and (v) sanitation in charge of sanitation planning, implementation of sanitation programs and operation and maintenance of sewer systems. Three regional departments are in charge of the day-to-day operation of existing production and distribution systems and commercial operations: (a) Ouagadougou urban and suburban areas; (b) Bobo Dioulasso area; and (c) other secondary centers comprising other smaller urban centers, supplied by ONEA. This new structure reduced the organizational units from 122 to 75 and achieved a reduction in personnel as well as in operating expenses.

Staffing and Training. ONEA’s staff decreased from a high of 683 by the end of 1989 to 610 staff in 1993 to 535 in 2000. This was the result of a comprehensive assessment of ONEA’s mission and organizational structure, which established a new organizational chart. While the number of middle level managers decreased over the same time by about 10 percent, senior management positions increased slightly from an average 21 positions in 1990 to 23 positions by the end of 1995. With the execution of the proposed project, ONEA will increase the number of its staff with special skills required to operate the new facilities. The Service Contract and the training program will be instrumental in providing staff with the necessary skills.

Furthermore, ONEA completed in late 1995 a comprehensive social audit of its staff by matching its staffing requirements and profiles with the qualifications of existing staff. The audit also established a new salary structure, a career development program and entry level requirements for each position. The audit thus provides ONEA with a comprehensive personnel management tool as it will in future be possible not only to match positions with available staff but also to implement career development plans.

A further result of this audit was a reassessment of ONEA’s training activities. The importance of training is best shown by the result of the training activities in ONEA’s training center. The center was constructed with German bilateral assistance, which also funded development of courses and provided trainers. Over the past five years (on the average) 30 training courses were attended annually by 300 trainees, providing between 25,000 and 30,000 hours of training, with an average of about 150 hours per course. The courses are of high quality and have helped to overcome the shortage of skilled water system operators, meter readers, bill collectors, accounting staff and office support staff. ONEA’s training needs in the future will be achieved by a combination of training by equipment suppliers, through in-country training and abroad. The training program (which forms part of the proposed project) will consist of training offered at ONEA’s training center and also through attending well defined familiarization and training programs abroad for senior staff. The training program should therefore continue to improve on a long-term basis the competence of ONEA’s staff, particularly in view of the complexities and requirements of the new water production and distribution system.
ANNEX 12 A

TERMS OF REFERENCE - SERVICE CONTRACT, CAPACITY BUILDING AND TRAINING

Introduction

Assistance programs, financed over the last seven years by bilateral agencies (AFD, GTZ and DANIDA), have had a great impact in developing ONEA’s organizational structure and its system of technical operations but had a relatively limited impact on financial, accounting and commercial operations. The proposed project will result in the operation of a much larger and more complex water production and distribution system. Therefore, further assistance that would be different in scope from those in previous technical assistance programs is required. This program, which is part of the proposed project, would build within ONEA the expertise for monitoring the execution of the proposed project and continue to support ONEA’s technical, financial, commercial and accounting operations by providing training of local staff in the application of appropriate technologies and procedures.

ONEA has decided to implement a service contract and a training program in utility management and operations with an experienced water operator to run its commercial operations and an accounting firm for financial management of ONEA. The following activities would form part of the training program: (a) comprehensive program of training and familiarization with the requirements of operation and maintenance; (b) regular preventive maintenance; (c) leak detection and repair program; (d) reduction of operating costs; (e) water conservation program, including incentives for domestic consumers to control water use and water losses; (f) utility cost accounting and financial management; and (g) utility management including asset management.

Objective of the Service Contract

The primary objective of the Service Contract is to assist ONEA in:

a) strengthening its commercial and financial capacity;
b) introducing a modern water utility cost accounting and information management system;
c) training staff in the application of all programs to be developed under the service contract; and
d) laying the groundwork for its future corporate development, to ensuring continued improvements of the commercial and financial performance.

In order to achieve these objectives, the Service Contractor (SC) will be responsible for performing the following tasks:

a) program of meter reading, billing and collection, including management of accounts receivable;
b) implementation of a water conservation program, including incentives for domestic consumers to control water use and water losses;
c) outline effective customer service, including charter customer service providing functional link to consumers;
d) design and operation of a utility cost accounting system;
e) design and operation of a water utility information system (in accordance with an integrated computerization strategy) through an appropriate computer-based management and administrative systems, that would provide management with information on control, budgeting, cost accounting,
commercial operations, purchasing, and stocks;
f) develop and implement an asset management system covering titling, registration, valuation, maps/plans, and insurance;
g) develop programs and processes to ensure internal communication among all members of the company, facilitating effective downward, upward and lateral flow of information;
h) develop an integrated planning capacity to ensure that investments are cost effective, affordable and correspond to the parameters of the business plan; and
i) training program in utility management, maintenance, operational control financial management, utility accounting, covered through training at ONEA’s training center and at other appropriate training centers, including familiarization assignments.

The detailed assignments are the following:
Improve the efficiency of meter reading, billing, and revenue collections:

a. Develop and implement programs to collect accounts receivable that are turned over to collection and reduce account receivables;
b. Develop, supervise and direct programs to identify illegal connections, and disconnect them and enforce penalties;
c. Develop, supervise and direct programs to update the database of connections and to classify the use in accordance with current tariff definitions;
d. Develop, supervise and direct the use of computerized administrative systems to enforce collection of overdue accounts. Provide hardware and softwares and train employees;
e. Develop a unified billing and collection system for the service area;
f. Create and implement a utility based code of accounts for the service area.
g. Identify support facilities and equipment and develop administrative support (transportation, including specialized vehicles; communications systems, space; and repair tools and equipment, meter testing and repair space and equipment, etc.);
h. Develop and implement computerized materials and maintenance management systems, obtain hardware and softwares, and train employees; and
i. Identify necessary spare parts, materials and connection equipment, obtain parts, materials and equipment, and establish an inventory system for storage and replacement of connection equipment and meters (as a part of the materials management system).

Improve the efficiency of the customer service and public relations:

a. Develop and establish a customer service system and train the employees involved in responding to customer complaints, inquiries and any other interface with customers;
b. Develop and establish a public information program to educate the public as to the importance of water supply and wastewater collection and treatment to the population in terms of public health;
c. Develop and implement a management training program consisting of elements of management, personnel management, financial management, budgeting, planning and controlling;
d. Develop and implement a training program to provide technical operations and maintenance training to all water system operators and maintenance workers;
e. Review current administrative systems, address the need to update and improve, develop and implement updated computerized administrative systems, obtain hardware and softwares, and train the employees;
f. Develop and establish a comprehensive occupational safety program, and provide safety training; and
g. Develop and establish an emergency operations plan, train water/wastewater system employees and conduct mock drills as training for the implementation of emergency actions.
Implementation

Implementation of the Service Contract should be structured to achieve the greatest degree of involvement by ONEA and its staff. During the first four months, ONEA and the service contract operator will jointly perform the different functions. At the end of this period, the Service Contract Operator will confirm or modify the contractual performance indicators and the targets based on its assessment and present its action plan to carry out its activities. Commercial operations and financial management will be under the full responsibility of the service contract operator for the next 44 months. During this period, the operator will ensure skills transfer to staff of ONEA. For the next 12 months, most of the activities will be undertaken by ONEA's staff under the supervision of the service contract operator.

An essential element of the service contract operator's work is training of ONEA's staff in the fields of commercial operations, accounting and financial management. While most of this should be done on the job, in direct daily contact with the Operator's personnel, IDA credit includes resources for specific training for key personnel inside and outside of Burkina Faso. Defining training needs and arranging for training opportunities will be a cooperative task between the Operator and ONEA. Prior to embarking on a training program, the Operator would have to define the scope of the training program by identifying training needs, duration, cost and location. Once defined, the training program should then be reviewed with ONEA prior to its implementation. In order to derive the maximum benefits from the training, objectives, and progress of the training program should be assessed every twelve months, so that corrective action, if needed, can be taken.

Training and Capacity building

A training program developed by the SC as well as by ONEA will include water utility management, operational and financial skills, and ensure that these skills are transferred to ONEA's staff. In addition to on-the-job skill transfer, the SC will arrange for more formal training in Burkina Faso at ONEA's training center and through assignments abroad.

The SC and ONEA will arrange formal training in Burkina Faso for staff (at all levels) in all aspects of water utility management and operations. It is envisaged that the SC will undertake urgent training of key personnel relating to the initial components of the improvement program and the management of the components before the main training begins. This will be separately agreed upon with ONEA.

The SC will arrange for formal and informal on-the-job training for ONEA's staff at its headquarters or in other places. After consulting with ONEA, the SC will select staff in commercial operations and finance, from mid-level of the organization who are thought to be most likely to gain from the experience and produce the greatest benefit to the agency. The selected staff members will each undertake a continuous period of training at a time to be agreed upon with ONEA. Part of this training will be common to all candidates and part specific to their own disciplines. The aim of the training will be to build upon the knowledge and skills possessed by the trainees and to show them best practices in water utility management.

Staffing of the Service Contract Operator

The Service Contract Operator's team will be composed of three long-term experts and a number of short-term specialists. It is an essential quality that members of the team use their skills and experience to seek the most appropriate way in which they can assist ONEA.

Each member of SC's team should be a leading professional in his or her sphere with considerable experience in a water utility. Overseas experience will be particularly valuable and a good command of the French language is essential. Equally important is the ability and willingness to transfer their experience
The following experts would form part of the SC:

a) Water Utility Management Expert;
b) Commercial operations Specialist;
d) Financial Expert;
g) Short-Term Specialists/Trainers.

The detailed tasks, requirements, and timing of the required experts are described below.

**Water Utility Management Expert**

He/She would lead the team and coordinate the assignments of each team member, besides providing his operational expertise to ONEA. Specifically he/she would:

- Prepare (with the staff of ONEA and with the members of the team) a comprehensive commercial and financial improvement plan that would define actions, schedules to reach performance targets and including, inter alia:
  i) program for reduction and management of accounts receivable;
  ii) outline for effective customer service;
  iii) design, implementation and operation of a utility accounting system, including cost accounting;
  iv) design, implementation and operation of a water utility information system (in accordance with integrated computerization strategy), appropriate computer-based management and administrative systems, that would provide management with information on control, budgeting, cost accounting, commercial operations, purchasing, stocks;
  v) develop and implement an asset management system covering titling, registration, valuation, maps/plans, and insurance;
  vi) develop programs and processes to ensure optimal internal communication among all members of the agency, facilitating effective downward, upward and lateral flow of information;
  vii) design and implementation of a human resource development program, including programs for recruitment and training, advancement, and remuneration for the commercial and financial departments; and
  viii) outline of training program covering training within the institutions, at appropriate training centers and through familiarization assignments.

The Water Utility Management Expert will be professionally qualified and have extensive experience in all aspects of the business of a water utility, part of which will have been gained overseas. He/she will have demonstrated particular ability in working with others to achieve objectives and will have been involved in development and training.

As this expert will lead the team, he/she will have to be in place at the commencement of the program, estimated to start on August 31, 2001.

**Commercial Operations Specialist**

Successful execution of the tasks of this expert is critical in achieving the envisaged improvements. In his/her assignment, he/she would be responsible for improving meter reading's efficiency, billing and revenue collection. He/She will be responsible for:

i) helping ONEA in all matters relating to the efficient operation of a water utility, in particular, the organization and management of the district offices and central facilities, customer database,
customer registration, the billing system (meter reading, billing, collection); and
ii) assisting with development and implementation of the training program.

The Commercial Operations Specialist will be professionally qualified and have extensive experience in all aspects of the operation of a water utility, part of which will have been gained overseas.

Financial Expert
The detailed tasks of this expert are described below:

i) provide advice on all matters relating to the financial management of an efficient, cost effective utility;
ii) assist ONEA in the implementation of all steps required to improve all aspects of its financial operations and management;
iii) review loan covenants and other requirements of any lending agreement, and advise on the appropriate course of action;
iv) assist the water utility management expert with the development of the financial aspects of the information strategy;
v) assist with the training program;
vi) assist ONEA in designing and implementing a comprehensive computer based cost accounting system;
vii) ensure that systems are developed and implemented and will ensure financial monitoring and control, including procurement, payment of contractors, disbursements from loans; and
viii) assist with the training program.

The Finance Expert will be professionally qualified and have extensive experience in all aspects of water utility financial management.

Award of the Service Contract has already taken place. The Operator will procure goods and services under the OIR using the World Bank procurement procedures, except for the softwares needed to run the commercial and financial operations that will be procured on a sole source basis.

Timetable
The key dates for performing this assignment are:
a) SC contract signed March 15, 2001
b) SC start of assignment August 31, 2001

Reporting
The SC will prepare quarterly and annual reports, beginning December 31, 2001.

24. In preparing these reports it should be kept in mind that these reports must be concise, and not be prepared at the expense of project execution. However, essential information should be provided, such as events explained that led to a delay in the implementation of the service contract.
Governmental Environmental and Social Management Plan (GEMP)

The Government of Burkina Faso, as requested by World Bank internal regulations, undertook a full Environmental Assessment of this project. First, a draft Environmental Assessment was prepared and presented by an international consulting company acceptable to the Bank, which was later finalized by integrating several concerns of the World Bank (e.g. lack of analysis of alternatives).

Alternatives Considered. The water supply for the city of Ouagadougou now comes from a combination of four dams (three badly polluted reservoirs) and various deep wells, which are insufficient for needs of the current population, and for the future needs.

Various studies have been undertaken over the last ten years to examine all the possible alternatives to alleviate the water problems in Ouagadougou. In 1984, Lahmeyer International examined four major alternatives: deep wells, an existing dam on the Bagre River, but with a transmission line of 135 km (production costs per m³ of FCFA 320), a dam on the Mouhoun River (156 km away and with a production costs per m³ of FCFA 285), and a dam on the Nakambé River at Ziga (50 km away and with a production costs per m³ of FCFA 134). Their studies demonstrated that, technically and economically, the Ziga Dam on the Nakambé is the best alternative.

Further, various studies have been undertaken of alternative designs of the Ziga dam in order to reduce the environmental, social and economic impacts. The engineering consortium TRACTEBEL presented the EA in 1995, confirming the choice of alternatives and examining the environment and socio-economic consequences that required remedial actions. Subsequently, the International Union for the Conservation of Nature (IUCN) reviewed the efficacy of the remedial measures proposed in the various design studies.

Approach. Given the magnitude of the potential social and environmental impacts of this project and the program, it was recommended that a professional should be recruited to be in charge of assisting the government in preparing its own Environmental and Social Management Plan based on the EA report's technical recommendations.

One first and important result of the Environmental Assessment was that, during the course of the engineering study, the dam design was changed in such a way that the flooded area was decreased in size, inter alia reducing the number of people to be resettled to 6,134. There are other people affected by the project.

In October 1995, the Government organized a three-day seminar that reviewed the recommendations of the EA report and determined the major features of the future Governmental Environmental and Social Management Plan, which is now composed of a Resettlement & Development Plan (RDP), a Bio-Physical Impacts Mitigation Plan (BIMP) and a Health Mitigation Plan. The results of these plans are presented and discussed hereafter.

Resettlement & Development Plan (RDP). The construction of the dam and the transfer and storage of water to Ouagadougou will have adverse impacts on the lives of about 6,134 persons. They are referred to in this document as the project affected persons (PAPs). The initial identification and
classification of people as PAPs was undertaken under a detailed social and environmental impact assessment and socioeconomic survey carried out with help from a consulting firm. Their impact assessment has now been complemented by the design of an involuntary resettlement action plan (RAP) carried out by ONAT (Office National de Gestion des Terroirs). The social impact areas are located in three zones: (i) the inundation area; (ii) the pipeline conduit and water storage areas; and (iii) areas affected by advanced infrastructure (road networks in particular).

For the purposes of this project, a project affected person is defined as: (i) any person who has lost his or her home in the project impact area and has to be physically relocated; or (ii) any person or household that loses more than 25 percent of its sources of livelihood or income generating opportunities in the project impact area. In the latter case, the person or household does not need to relocate. It therefore means that not all of the 6,134 PAPs mentioned in the GEMP will be physically relocated.

In compliance with Bank policy, OD 4.30, resettlement planning was conducted, first to minimize the number of people to be resettled. Close collaboration between the social and environmental impact team and the dam design team reduced the number the number of PAPs in the inundation area, without impairing the functional objectives of the dam. The second objective of OD 4.30 requires that involuntary resettlement should be approached as a development exercise whose finality is the restoration of incomes and sources of livelihood of the affected communities, has also been fully complied with in the RAP.

The central tenet of the RAP is to ensure that the incomes and sources of livelihood of the PAPs are restored to their pre-project ratio, if not improved. The resettlement planning exercise in this program has gone beyond the concept of income restoration to put in place a rural development dynamic that seeks to transform the PAPs and host communities from victims of a water supply project to vectors of change and development in the impact area. To achieve this objective, the RAP aims to:

- provide the required socioeconomic infrastructure needed for human development;
- provide financial resources for agricultural intensification on the replacement fields to be negotiated for the PAPs;
- develop market gardening activities in the draw-down areas of the dam for the PAPs;
- provide small-scale credits (of the social fund type) for micro-projects and rural economic equipment;
- develop and expand road and community infrastructure to enhance the quality of life of the PAPs and host communities;
- develop fishing activities that are compatible with the functional objectives of the lake;
- enhance livestock sustaining measures for the herders;
- put in place a support program for women's activities whose goal is to improve the quality of life in the project impact area;
- provide literacy and book-keeping classes to enhance the life of the beneficiaries in the local communities; and
- target job creation during project implementation to benefit the PAPs and host communities as an income enhancing measure.

Socioeconomic surveys and stakeholder analyses were undertaken to provide credible benchmarks for monitoring and follow-up of the income restoration strategies. These data are found in the technical documents prepared by the consultants.

*Bio-Physical Impacts Mitigation Plan (BIMP).* In order to minimize the negative impact on the
bio-physical environment, three types of measures have been proposed:

- changes in bidding documents to minimize the nuisances generated during the works, which include: (i) management of logging in the future flooded area; (ii) soil erosion control; (iii) protection of sensitive ecological areas; (iv) tree and grass plantation on work sites; and (v) information, education and communication with workers during the construction period;
- land use measures around future flooded areas; and
- monitoring measures to know the main impacts of the project on its bio-physical environment and correct these impacts in real time.

All these measures are needed to ensure the long-term environmental sustainability of this project and the program for the benefit of the local population, who will keep using natural resources for decades. All efforts have been made to maximize the economic benefits and minimize the economic costs of this Mitigation Plan.

Budget for the GEMP over the 1997-2006 period is about CFAF5.3 billion. The bulk of these expenses will occur during the first period 2000-2003. The current budget for the RAP is about 3 billion francs CFAF. This represents, on average, about $1,000 per PAP; a very reasonable rate when compared to other resettlement schemes in the region. The total net cost of the Bio-Physical Mitigation Plan is about 2.3 billion francs CFAF.

Health Mitigation Plan. The project has potential serious health impacts. To mitigate these health impacts a health mitigation plan has been developed. Public health infrastructure will be improved in the program area, so that the population has access to adequate health facilities the year round. Preventive medicine will be a major focus. Epidemiological monitoring and mass treatment will be part of this approach.

Consultation and Participation in the GEMP. The social impact assessment and resettlement planning for this project was undertaken in two major phases. The first phase was contracted out to a foreign consulting firm which through participatory techniques, gathered field data for the EA. The process was deemed by the authorities as not conferring the required ownership of the findings on the local stakeholders. Consequently, a three-day workshop was organized to present the data and to allow the different stakeholders to reach a consensus on the findings and recommendations. (The EA document is part of the technical studies for the project and is available in project file). After this national workshop, the Government requested project authorities to translate the conclusions and recommendations of the workshop into the Environmental Assessment and Action Plan. This assignment was further contracted out to national institutions for the bio-physical mitigation plan. The output of their assignment is this GEMP. In summary, with regards to the consultation required for the EA, this project sets new standards at internalizing a consultant's document to GEMP. At the same time, it builds local institutional capacity for the implementation, monitoring, and evaluation of the project and the program.

Institutional Framework. To ensure consistency in implementing and supervising the GEMP, a social and environmental unit has been created under the project coordinating unit within ONEA (MOZ-ONEA). The social and environmental unit of MOZ-ONEA will supervise the implementation of the GEMP which has been designed as an integral part of the program. Competent national institutions participated in the preparation of the GEMP and will assist the Government and ONEA during implementation. UICN, an international NGO with a subsidiary in Burkina Faso will play a critical role in overseeing the implementation and in monitoring the GEMP. Finally, the local NGO community was closely
associated with the national workshop and will play an active role in assisting or monitoring implementation of various components of the GEMP.

**Environmental Monitoring Program.** ONEA has established MOZ-ONEA as the project coordination unit. MOZ-ONEA has an environmental and social unit with two staff. This unit will be responsible for organizing the extensive environmental and social monitoring activities. A GIS system to be funded by AFD will be established and used to manage environmental and social monitoring data.

**Other donors’ requirements for Environmental (Impact) Assessments - E(I)A.** Based on information gathered in the field or received from other donors headquarters, it seems that Agence Française de Développement (AFD) and the European Union (EU), who have comparable requirements and procedures for E(I)A, are satisfied by the approach, method and results of this Environmental Assessment and Mitigation Plan.
MAP SECTION