Ghana

Water Sector Rehabilitation Project

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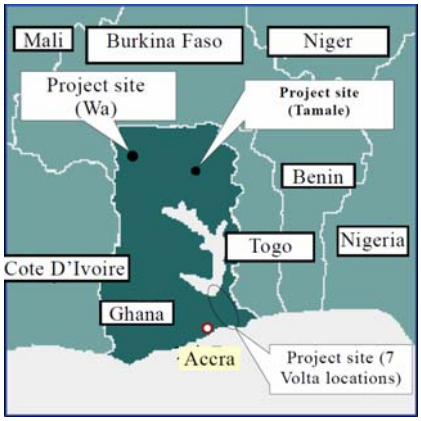
1. Project Profile and Japan's ODA Loan



Map of project area

Rehabilitated Water Tower (Tamale)

1.1 Background

The West African nation of Ghana is bordered by Cote D'Ivoire, Burkina Faso and Togo and faces the Gulf of Guinea[1]. Its land area is about two-thirds that of Japan at 238,000 km^2, and its population at 21.1 million people (2004 World Bank statistics) is about equal to that of Tokyo and Kanagawa Prefecture combined. The country's economy depends heavily on primary commodities such as agricultural and mining products, and also boasts the leading share of world production of cocoa.

The national Ghana water supply system is operated by two organizations: the government owned Ghana Water Company, Ltd. (GWCL), and the Community Water Sanitation Agency (CWSA). GWCL operates about 80 regional city water supply systems throughout the country. The GWCL separated from the department responsible for regional water supply in the Ghana Water and Sewerage Corporation (GWSC) in 1998 to form an independent entity, and is now responsible for increasing the regional population served, as facilitator and coordinator for the formation and operation of community water supply systems. Only 40% of Ghana's population

[1] A large bay of the Atlantic Ocean in the central district of West Africa. Its coast was once the center of European trade in slaves, gold, ivory, and grain. Latitude 0^0 and longitude 0^0 intersect in the Gulf of Guinea.

is served by water supply. This is far lower than the 65% in South Africa, and even less than the Sub-Saharan Africa average of 45%[2]. Ghana was troubled by a serious economic crisis from the 1970s to early 1980s. Almost all of the infrastructure suffered serious damage, and over one-third of the country's water supply system became partly dysfunctional. On the other hand, with increasing urbanization, the gap steadily increased between water supply and demand. In this environment, the Ghana government pushed forward reform with the goal of rebuilding the water supply sector while rehabilitating facilities and implementing organizational and operational reforms through financial and technical aid from various donor countries.

1.2 Objective

This objective of this project was to improve the water supply service by rehabilitating and expanding water supply facilities and providing of the necessary equipment and materials for maintenance of the national water supply systems in nine cities of the Volta Region and the northern area, thereby contributing to the improvement of population hygiene standards and infrastructure for industrial development.

1.3 Borrower/Executing Agency

Government of the Republic of Ghana/Ghana Water Company, Limited (GWCL)

1.4 Outline of Loan Agreement

Loan Amount Disbursed Amount	5,444 million yen 5,369 million yen
Exchange of Notes Loan Agreement	December 1993 March 1994
Terms and Conditions - Interest Rate - Repayment Period - Grace Period - Procurement	 2.6% 30 years 10 years General Untied
Final Disbursement Date	December 2000
Main Agreement	Kanematsu Corporation (Japan),

[2] "Rural Water Supply and Sanitation in Africa – Global Learning Process on Scaling Up Poverty Reduction," June 2004 (World Bank)

	Sogea (France)
Consulting Agreement	COWI Consulting Engineering (Denmark)
Feasibility Study (F/S) etc.	June 1989 <TAHAL Consulting Engineering, Ltd., Israel>

2. Evaluation Result

2.1 Relevance

2.1.1 Relevance at the time of appraisal

In order to recover from the economic crisis extending from the 1970s to the beginning of the 1980s, the government of Ghana launched the Economic Recovery Program (ERP) in 1983. Meanwhile, the Program of Action to Mitigate the Social Costs of Adjustment (PAMSCAD) was formulated in 1988, focusing on social development. PAMSCAD placed priority on water supply and improvements in health and hygiene. The 1992-1994 project plan of the Public Investment Program (PIP), the backbone of the national development plan, included improvements in the financial structure of GWSC (now the GWCL), and reorganization of the organization's operations to raise efficiency. The 1992-1994 plan also aimed to rehabilitate water supply infrastructure, begin repair and renovation of decayed facilities, and carry out a metropolitan water supply system improvement project. At the same time, the plan also launched the Water Sector Rehabilitation Project (WSRP) to rehabilitate 37 major water supply systems, co-financed by the World Bank, UK, France, Austria, and Japan. The targets of this project were system rehabilitation, limited expansion, and procurement of equipment for operations and maintenance, particularly in the high-priority regions of the Volta Region and 9 locations in the Northern Region. The project was highly necessary and urgent.

2.1.2 Relevance at the time of evaluation

Ghana Vision 2020 is a long-term plan for overall development of the Ghana economy. Water and sewage improvement is a pillar of national infrastructure development in this plan. Also, in the 2002 Ghana Poverty Reduction Strategy (GPRS) a national plan for applying the debt reduction scheme for Heavily Indebted Poor Countries (HIPCs), the provision of safe water was addressed as one of the essential elements of human health and a priority of human resource development, which formed the foundation of the GPRS. According to the year 2000 census, 39.9% of

the country's households were receiving water supply, but there were considerable regional disparities in percentage of population served. The coverage ratio of pipe-borne water exceeds 90% in the large coastal cities of Accra, Takoradi, and the Cape Coast. However, it is worse still in regions targeted by this project: in Tamale of the Northern Region, it is 22.4% (river and rain water: 46.8%), in Wa of the Upper West 15.5% (river and rain water: 25.2%), Volta region (and other 7 systems) 24.9% (river and rain water: 41.8%). Water supply infrastructure improvements are still highly necessary and urgent.

2.2 Efficiency

2.2.1 Outputs

This project carried out rehabilitation and limited expansion of water systems in the 9 locations extending over 4 regions, as listed below. It was composed of supply of associated tools and equipment, construction of operations and maintenance buildings (workshop, warehouse), procurement of tools and equipment for operations and maintenance (vehicles, tools, meters, communications equipment), and related consulting and services.

Fig. 1 Water Intake Well Pump and Water Purification Equipment
Volta Region (Denu)

Table 1. Target Water Supply Systems and Project Tasks

Administrative Division	Water Supply System	Project Tasks
Volta Region, inland Districts	Ho	rehabilitation, expansion
	Hohoe	rehabilitation, expansion
	Nkonya/Ahenkro	rehabilitation
	Sovie/Dzigbe	rehabilitation, expansion
	Anyako	rehabilitation
Volta Region, coastal Districts	Keta/Anloga	rehabilitation, expansion
	Denu/Aflao	rehabilitation
Northern Region	Tamale	rehabilitation, expansion
Upper West Region	Wa	rehabilitation, expansion

As described below, large delays in project implementation raised project costs.[3]

[3] The Water Sector Rehabilitation Project is the overall program for Ghana, and includes this project. According to its Implementation Completion Report (ICR, World Bank, December 1998), project costs were reduced 30% in Tamale and Wa. According to questions put to GWCL at the time of that project evaluation survey, almost the same reduction was carried out in the Volta Region. The "items not implemented" in the main text is based on subjective identification by the

Items not implemented include construction of a new office and a laboratory or rehabilitation of access roads in Hohoe, repair of a tank or improvement in generator room in Nkonya/Ahenkro. However, according to answers to questions posed to the executing agency, these changes did not have large visible impacts on the project effectiveness.

Fig. 2
Water Supply Station Office
Volta Region (Aflao)
(Feet of water tower on left)

Moreover, the overall composition of the Water Sector Rehabilitation Project (which includes this project) was as follows[4]:

1. Support and development of organizational system reform
   a) Detailed design and construction supervision[5]
   b) Project management, improvement of regional finance and system for operations and maintenance
   c) Improvement of headquarters operations management, and decentralization
   d) Human resource development
2. Water supply systems
   a) Urgent implementation of high-priority facilities renewal program (57 water supply systems)
   b) Rehabilitation and expansion of water supply systems (37 water supply systems, including this project)
3. Improvement of operations facilities, tools, and equipment
   a) Operation facilities
   b) Supply and installation of tools and equipment (including this project)

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person in charge of the field survey, within his range of knowledge, and it was not possible to confirm an objective record of the items cut in each region which was targeted by this project. Therefore, these items do not cover the entire actual situation.

[4] Refer to the JBIC appraisal documents, and the World Bank's ICR. This report was made in June 1998, when the financing by the World Bank was completed. In the project scope, the only part completed at that time was no. 1, Support and development of organizational system reform (however, human resource development was partially reduced). The overall Water Sector Rehabilitation Project was incomplete, and other items were still being implemented. According to that report, among the project components, the item listed in 2b (which includes this project) planned completion in May 1999. However, there is no record of when the initial WSRP scope was completed because the project management through 1b was halted when the consulting service contract expired on June 30 1998 after one-year extension.

[5] The construction works of this project were supervised by consultants, hired by the World Bank under the Water Sector Rehabilitation Project (WSRP), the master program which covers this project.

2.2.2 Project period

Under the initial plan, the period of this project was to extend from March 1994 to October 1997 (43 months), but the actual period ran from March 1994 to December 2000 (81 months), 88.4% longer than planned. The initial final disbursement date was also extended 18 months to December 2000. The primary causes of delay were: (1) Upgrading specification for communications facilities, resulting in re-bidding; (2) Transformer procurement was not in the initial scope, and was added in the middle of the project, which created an 18-month delay. However, even after the above lending term, GWCL actually invested its own funds to continue with work within the scope of this project; after that, therefore, there is no objective measure of when this project was completed.

2.2.3 Project cost

Planned project cost was 6,405 million yen (5,444 million yen covered by ODA loan), and the total project cost at the time of ex-post evaluation was 98.6% of plan, at 6,320 million yen (5,369 million yen covered by ODA loan). The domestic currency portion greatly increased compared to the plan due to the cedi's depreciation against the yen since 1996. The total project cost was within plan on a yen basis. The details of costs covered by foreign and domestic currency are shown in Table 2 below:

Table 2. Project Cost Breakdown

	Foreign Currency Portion	Domestic Currency Portion	Total
Total project cost (At time of appraisal)	4,655 million yen	1,750 million yen (5,922 million cedi)	6,405 million yen
ODA loan portion	4,655 million yen	789 million yen	5,444 million yen
Total project cost (At time of project completion)	5,325 million yen	995 million yen	6,320 million yen
ODA loan portion	5,325 million yen	44 million yen	5,369 million yen

2.3 Effectiveness

2.3.1 Increase in GWCL Water Supply Capacity

Table 3 shows achievements in daily average water supply volume at time of ex-post evaluation, with comparisons to volume and planned targets at the time of

appraisal.

Table 3. Increases in Water Supply Capacity, and Percentage of Objectives Achieved

Water Supply System	At Time of Appraisal			At Time of Ex-Post Evaluation				
	1993 Water supply volume (m^3/day)	2005 Water demand volume (m^3/day)	Plan (m^3/day) A	Facilities capacity after this project (m^3/day) B	2006 Water supply volume (m^3/day) C	Facility utilization rate (%) C/B	Actual/ Plan (%) B/A	Non-collection rate (%)
Ho	6,389	7,686	1,260	15,000	7,747.6	52	-	51.3
Hohoe	847	3,458	2,400	2,280	1,507	66	95	33.7
Nkonya/Ahenkro	49	141	226	94	57	61	42	39
Sovie/Dzigbe	62	133	196	186	51.0	27	95	30.3
Anyako	261	359	600	336	271	81	56	19.4
Keta/Anloga	311	4,042	4,600	7,272	2,972.9	41	-	20.6
Denu/Aflao	336	3,811	2,330	960	357.4	37	-	40.3
Tamale	12,700	27,660	15,900	19,560	17,770	91	123	-
Wa	560	7,799	1,490	1,151	1,117	97	77	8

Note1. Records are not continually kept, so 1993 water supply volume data differs in the appraisal document, Project Completion Report (PCR), and the responses on Ex-Post Evaluation questionnaire. The table above includes information from local feedback obtained in September 2006. There are accuracy problems with each figure[6]. For example, reported 2006 water supply exceeds each facility's water supply capacity. Nevertheless, these figures are useful for considering the general situation.

Note2. The water demand volume in 2005 refers to the figure in "Strategic Investment Program" (Feasibility Study of this project) of 1989.

Note3. In Ho, this project was targeted to supply the 23.3% of the daily maximum demand in 1990. Therefore, the planned figure is relatively low for the demand volume.

New facilities were constructed to take water from rivers in Hohoe. The water volume supplied from facilities completed through this project became insufficient, so construction to expand the new facilities was conducted in 2006. In Tamale, increased population resulted in increased demand, exceeding forecasts at the time of appraisal. Current facility capacity achieved

Fig. 3
River Water Intake Facility
Volta Region (Hohoe)

[6] Volta Region facilities (six facilities, excluding Tamale, Wa, and Anyako) are operated and managed by the Regional Office in Ho, but all data management and computation is paper-based, so it is difficult for the headquarters to understand the actual operating situations of facilities in a timely manner.

through rehabilitation and expansion by this project has become insufficient, so new action is necessary. Also, in Ho and Keta/Anloga, water volume retrieved from wells is insufficient, so their use has been halted, and a search for other water sources is being carried out. These kinds of large differences in levels of achievement by region are a result of rough planning, using demand forecasts calculated based on one rate of population growth in almost all cities.

Comparing the planned figures at time of appraisal with actual figures at time of ex-post evaluation, the achievement rate for 6 facilities was 81.3% (78.6%, if the Hohoe expansion is also omitted). These exclude the water supply systems of Ho and Keta/Anloga and Denu/Aflao, where the goal was excessive. Also, the average utilization rate in all nine facilities was 61.4%.

In addition, the World Bank did an evaluation in 1998 of the Water Sector Rehabilitation Project, which is the master program for this project. According to its Implementation Completion Report (ICR), the goal of support for "provision and installation of tools and equipment" (including this project) to strengthen GWCL's operations and maintenance capacity was partially achieved. In particular, vehicles and other tools and equipment procured by this project contributed to the overall operation.

2.3.2 Non-Collection Rate

This ex-post evaluation confirmed the non-collection rate for 8 facilities out of 9 (excluding Tamale). The result was an average of 30.3%, a high figure. According to answers to questions posed to the executing agency, the national average percent uncollected is around 50% in Ghana, which is very high. The disparity in non-collection rate in this project's target regions is largely due to differences in locations of facilities and design complexity. Besides leakage and theft, one of the reasons for the high non-collection rate is that users pay a fixed fee in some places where meters are not installed, so fees collected do not cover the full volume used.

The executing agency is taking actions to improve the non-collection rate, including: (1) Rehabilitation of water distribution pipes, (2) Reorganization for rapid response to other breakdowns ("Instant Management"), and (3) Installation of meters.

2.3.3 Beneficiary survey results

The following are survey results from questionnaires given to beneficiaries (Enterprises [schools, hospitals, medical clinics, hotels, restaurants], individual house-

holds). This covers seven water systems, which exclude Ho and Keta/Anloga, where water intake facilities of this project are not in use.

Table 4 Summary of Beneficiary Survey Results (1)

	Considerable Improvement	Some improvement	Not much change	No change at all	Do not know
(Enterprise)	18 enterprises				
Water supply hours	33%	39%	11%	0%	17%
Water outage frequency	33%	28%	17%	11%	11%
Transparency	33%	55%	6%	0%	6%
Color	33%	55%	6%	0%	6%
Smell	61%	28%	6%	0%	5%
Water pressure	39%	28%	22%	5%	6%
Water volume	33%	39%	22%	0%	6%
(Individual households)	29 households				
Water supply hours	42%	38%	14%	3%	3%
Water outage frequency	24%	52%	10%	4%	10%
Transparency	62%	35%	3%	0%	0%
Color	69%	28%	0%	3%	0%
Smell	59%	38%	0%	0%	3%
Water pressure	42%	35%	10%	10%	3%
Water volume	31%	38%	14%	7%	10%

Source: Beneficiary Survey Response Forms

Regarding transparency, color, and smell, about 90% of beneficiary enterprises and almost 100% of beneficiary individual households reported improvement. Thus water quality considerably improved after project implementation. The impression was not so good for water supply service improvements, such as water supply hours, water outage frequency, water pressure, and water volume, but still 61% of enterprises reported improvements in frequency of water outages, and 77% of individual households reported improved water pressure.

2.3.4 Water quality

Water quality figures achieved in each water supply system are as follows. However, GWCL does not have the data for Anyako, as its operation has already been transferred to the region's Community Water and Sanitation Agency.

Table 5. Water Quality Changes

Water Supply System	Turbidity (NTU)		pH		Residual chlorine (mg/l)	
	Source water	After treatment	Source water	After treatment	Source water	After treatment
Water Quality Standard	-	<5	-	6.5-8.4	-	0.2-0.5
Ho	0.5	0.0	7.0	8.5	-	1.5
Hohoe	11.9	4.0	6.9	8.1	-	1.3
Nkonya/Ahenkro	—					
Sovie/Dzigbe	0.0	0.0	6.6	6.6	-	-
Anyako	—					
Keta/Anloga	0.5	0.4	7.3	8.4	-	1.5
Denu/Aflao	0.0	0.0	7.3	7.3	-	1.3
Tamale	—					
Wa	0.41	0.4	-	6.5	0	0.4

Source: GWCL

The above Table 5 is based on information obtained from the feedback seminar of this ex-post evaluation. Of several items related to water quality, looking at figures, residual chlorine in almost all of the water supply systems is far above Ghana's water quality standard of 0.2-0.5 mg/l. However, according to the executing agency, these figures are from measurements within the facilities, so these are not figures for water that actually passes through distribution pipes and leaves the faucet. Also, deep wells are the water source for Sovie/Dzigbe and Denu/Aflao, so the water is originally clean and is not being treated with chemicals. This is the reason why it has zero turbidity. Thus, water quality is generally not a problem.

2.4 Impact

2.4.1

According to the year 2000 census, drinking water is secured for residents of this project's target regions as follows. Excluding Tamale, the large urban capital of Northern Region, a low percentage of the population is served by water supply, and many residents rely on unsanitary natural water such as spring water or rainwater for drinking.

Table 6. Drinking Water by Sources

Water source / Project region	Spring and rain water	River/ Stream	Bore-hole	Pipe-borne water	Other (excluding pipe-borne water)
Volta region	5.8%	25.7%	32.3%	24.9%	11.3%

Wa	11.4%	9.3%	48.0%	22.3%	9.0%
Tamale	2.8%		2.3%	78.9%	16.0%

Source: Year 2000 census

A questionnaire survey using paper forms was performed with beneficiary households of 7 systems, excluding Ho and Keta/Anloga, which are not using water intake facilities of this project. The questionnaire covered questions about pipe-borne water, and also surveyed impacts of this project, such as time of access to water, and impacts on health, obtaining the following results. Regarding quality of life, 74% of households gave affirmative responses that time of access to water had improved. In contrast, the response obtained regarding impact on health was not as clear. However, about half of the households responded to the effect that they observed some kind of health improvement after implementation of this project.

Table 7. Summary of Beneficiary Survey Results (2)

Evaluation / Question	Considerable improvement	Some improvement	Not much change	No change at all	Don't know
Time of access to water	27%	47%	0%	6%	20%
Health improvement	11%	37%	7%	4%	41%

Source: Beneficiary survey response forms

From the above two results, it is clear that the increase[7] in tap water supply volume through this project directly contributes to "Improvement in Public Sanitation," "Decrease of Water-borne Diseases,"[8] and "Regional Business Development."

2.4.2 Environmental impact

This project basically focused on rehabilitation of existing water supply facilities. There was no large-scale construction associated with projects such as dam construction, so there was no impact on the environment. Instead, increased water quality brought extremely large improvements in the living environment, such as better health and hygiene. According to the views of the Environmental Protection Agency, the government institution in charge of environmental management which

[7] There is no data on the change in each region's number of contracts.

[8] GWCL is not collecting health- and hygiene-related statistical data. The Centre for Health Information Management of the Ghana Health Service in the Ministry of Health is collecting general data, but is not producing useful statistics regarding diseases caused by water.

was visited at the time of the field ex-ante evaluation, there has been virtually no adverse impact on the environment from this project.

Fig. 4 Street in Aflao
Volta Region

2.5 Sustainability

2.5.1 Executing agency

2.5.1.1 Technical capacity

Regarding the technical aspect of the maintenance and operations, the Project Completion Report does not report on the aspect of staff capabilities, but the reply was given that there are "sufficient" numbers of technical staff. The 8 locations visited in the field survey of the water supply system are accurately repairing and replacing problematic parts, and operations are being carried out smoothly, so it was judged that there are no special problems.

2.5.1.2 Structure

The information system of GWCL's operation and management is unreliable and cannot accurately report the actual system operation status. The organizational structure is inadequate to effectively maintain facilities operation. In response to this situation, the GWCL is currently strengthening the maintenance organization through the Urban Water Project (World Bank financing), in which GWCL concluded five-year operating contracts with private companies[9]. Specifically, operators are assigned to each GWCL facility, managing operations, and carrying out rehabilitation and expansion of facilities. They will also send monthly status reports to GWCL headquarters. As the preparation for it, operators are planning a tour for each facility during June-December 2006 to conduct field survey to prepare their operating organizations.

2.5.1.3 Financial status

The following shows several indicators of trends in the business results and capital of GWCL.

[9] The contracts were concluded in November 2005, and operations began in June 2006.

Table 8. Changes in GWCL Business Results and Capital

(Unit: 1000 Cedi)

	2002	2003	2004	2005
Total capital	2,075,695,322	2,409,816,750	2,704,277,212	2,593,547,097
Current assets	313,056,662	363,117,906	438,373,012	341,996,716
Current liabilities	540,419,259	347,815,596	384,483,478	101,565,590
Capital	565,095,461	1,000,006,119	2,319,793,733	2,491,981,507
Sales	315,488,698	415,466,716	489,669,792	550,662,722
Gross profit	▲27,592,461	13,979,283	66,373,817	18,617,871
Net profit	▲402,711,917	10,520,930	▲12,407,121	▲68,326,443

Source: GWCL (However, 2004 and 2005 figures are tentative)

GWCL suffered huge currency losses due to the large drop in the local currency (cedi) at the beginning of the year 2000. These losses made inevitable the recording of large ordinary losses (net loss before extraordinary items) until 2002. But in 2003, the situation was greatly improved due to the capital allocation through a large government loan, and the ordinary profit and loss was turned into 10,521 million cedi profit that year. Moreover, the operating revenue also showed double-digit or greater continual increases, accompanying increased water supply volumes, and this trend is forecast to continue. On the other hand, finances are worsening in 2005, as the enterprise carries out expansion construction and investment in additional facilities, in response to increased demand.

Also, according to a notification from the Ghana government in June 2004, the following debt relief is planned for repayments on loans from the government accumulated since 1995.

- 1995-2003: 103.1 million dollars (about 9,097 million cedi)
- 2004-2005: 33.5 million dollars (about 2,999 million cedi)

Part of GWCL's unpaid bills to ECG (Electric Company of Ghana) is included in this. If this debt relief proceeds smoothly, GWCL's financial situation is expected to improve. However, the procedure to confirm the debt amount is taking time, continual attention to the situation seems necessary.

3. Feedback

3.1 Lessons Learned

Almost all of this project's tasks were completed in 1998, many officers who were in charge of this project have moved or left the positions due to GWCL's organizational reform. This made it difficult to collect project-related information at the time of ex-post evaluation (2006). Even though the communication decreased between the JBIC and executing agency after the Ghana government's application to HIPCs in 2001 measures should be taken to conduct ex-post evaluation at more appropriate timing in order to avoid such situation.

3.2 Recommendations

(For JBIC)

(1) When a project management consulting service is entrusted to other donors in a cofinance project with multiple donors, it is necessary to maintain frequent communication with that donor and other cofinance donors during project implementation.

(2) At the time of project preparation, a part of estimations on population growth and water volume of groundwater resources, which are fundamental for establishing each facility's supply volume for facilities planning, was unrealistic. As a result, the water intake wells that were dug for that project are unused. To avoid such a situation, the survey report at the preparatory stage should be carefully examined. Moreover, extra detailed project preparation should be planned, such as directly listening to people in each location.

(For GWCL)

(3) The weakest aspect of GWCL's operations and management is its inadequate information system (production, recording, communication, calculation, processing, sorting, etc.). In this kind of situation, not to mention the monitoring and evaluation of project results, daily decision-making for short-, medium-, and long-term business management ends up being on a trial and error basis, and accurate project operation cannot be carried out. In response, the Urban Water Project (World Bank finance) which is currently being implemented is carrying out basic research to specify the types of information necessary for operations and management control, and to understand the status of information flow in each project jurisdiction, human resource allocation, etc. In addition, it is desirable to construct a continual record system

which can share this information from each local water supply system office with the Regional Offices, and furthermore with headquarters.

Comparison of Original and Actual Scope

Item	Plan	Actual
(1) Outputs	・ Rehabilitation and limited expansion of water supply facilities in the following nine locations Ho Hohoe Nkonya/Ahenkro Sovie/Dzigbe Anyako Keta/Anloga Denu/Aflao Tamale Wa ・ Construction of operations and maintenance buildings ・ Procurement of tools and equipment for operations and maintenance (vehicles, tools, meters, communications equipment)	・ Rehabilitation and limited expansion of water supply facilities in the following nine locations Ho Hohoe Nkonya/Ahenkro Sovie/Dzigbe Anyako Keta/Anloga Denu/Aflao Tamale Wa However, some items were eliminated due to re-examination during the project ・ Construction of operations and maintenance buildings ・ Procurement of tools and equipment for operations and maintenance (vehicles, tools, meters, communications equipment)
(2) Project Period	March 1994–October 1997 (43 months)	March 1994–December 2000 (81 months) 18-month loan period extension
(3) Project Cost		

Foreign currency Local currency Total Yen Loan Portion Exchange rate	4,655 million yen 1,750 million yen (5,922 million cedi) 6,405 million yen 5,444 million yen 1 cedi = 0.296 yen (as of 1993)	5,325 million yen 995 million yen 6,320 million yen 5,369 million yen 1 cedi = 0.065-0.016 yen (1996-2002)