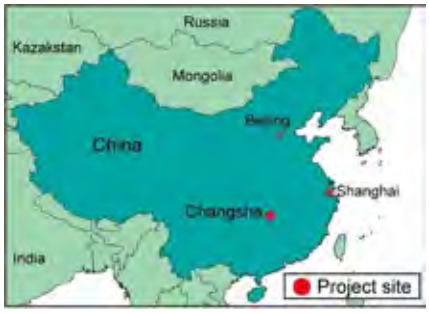
People's Republic of China

Ex-Post Evaluation of Japanese ODA Loan Project
Changsha Water Supply Project

Yasuhiro Kawabata, Sanshu Engineering Consultant

1. Project Description



Location of Project Site

No.8 Water Plant Main Entrance

1.1 Background

Under China's reform and open-door policies which commenced in 1979, construction and improvement of the waterworks facilities, especially in large cities along the coastal regions, has been implemented as part of actions to improve the investment environment for attracting enterprises. The average water usage per person in 1999 was 218ℓ/day in urban areas, and reached the same level (200 to 250ℓ/day) as that of Japan in 2000. The coverage of the water supply system in urban areas has been steadily improving at the rates of 81% in 1980, 89% in 1990, and 96% in 1998. On the other hand, following the rapid economic development in the coastal areas, inland's medium to large cities have been suffering from the water supply and demand gap caused by the rapid increase in water demand based as a result of rapid industrialization and urbanization which started in mid 1990s.

Changsha city is the capital city of Hunan Province, with a population of 5.77 million. It comprises 5 districts and peripheral 4 counties, and is the center of politics, economy, and culture of Hunan. As the end of 1999, the urban population was 1.69 million, exceeding the restricted target population of 1.60 million for 2010, which was projected in 1990. In addition, the influx population had reached 0.54 million at that time. In 2001, Changsha city ran six water purification plants, with a total water supply volume of 1.04 million m^3/day. The eastern part of Xiangjiang River (Hedong District), which is the subject to this project, had four water purification plants with a supply capacity of 740,000 m^3/day, as well as two other water purification plants in the western part of Xiangjiang River (Hexi District) with a supply capacity of 300,000 m^3/day. At appraisal, Hedong District was in short of water supply due to increasing

water demand caused by the population growth and the enhancement of living conditions. Therefore it was considered necessary to increase the water supply capacity and expand the water pipelines.

1.2 Project Outline

The objective of the project is to contribute to the improvement of living and sanitary environment and development of the region's economy by constructing the water supply system with capacity of 500,000 m^3per day to help deal with the lack of water supply capacity and increasing water demand. The location of the project site is shown in Figure 1.

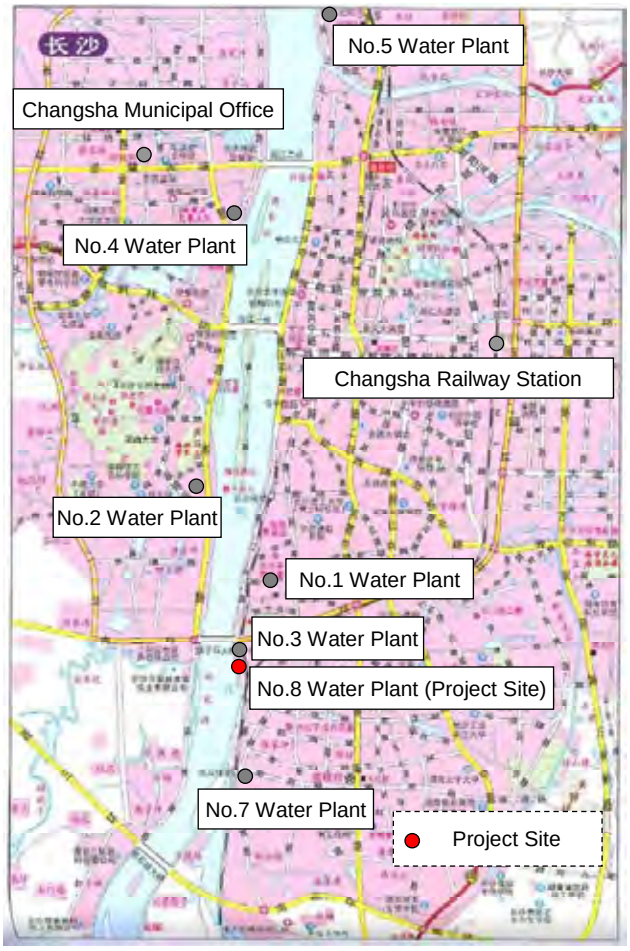


Figure 1 : Location of Project Site

Approved Amount / Disbursed Amount	4,850 million yen / 4,849 million yen
Exchange of Notes Date / Loan Agreement Signing Date	March, 2001 / March, 2001
Terms and Conditions	Interest Rate: 1.3%; Repayment Period: 30years (Grace Period: 10years) ; Conditions for Procurement: General Untied
Borrower / Executing Agency	The Government of the People's Republic of China / Changsha Municipal People's Government
Final Disbursement Date	July, 2006
Main Contractor (Over 1 billion yen)	Hubei International Trade Investment & Development Co., Ltd. (China)
Main Consultant (Over 100 million yen)	None
Feasibility Study, etc.	F/S by Hunan Province Construction Design Institute (April, 1999) EIA by Hunan Province Environmental Protection Science Institute (May, 1998)

2. Outline of the Evaluation Study

2.1 External Evaluator

Yasuhiro Kawabata, Sanshu Engineering Consultant

2.2 Duration of Evaluation Study

Duration of the Study : November, 2009 to August, 2010

Duration of the Field Study : January, 3rd to 16th, 2010 and April 11th to 22nd, 2010

3. Results of the Evaluation (Rating: A)

3.1 Relevance (Rating: a)

3.1.1 Relevance with the Development Policy of China

Since the mid 1990s, China has been suffering from water supply and demand gap (industrial water, daily life water and others) caused by the rapid industrialization and urbanization, thereby requiring the need to enhance the capacity of water supply facilities. In addition, there were issues of contamination in the water source from the river, as well as low water table level, therefore requiring better water sources and water conservation measures. Consequently, it was noted in China's 9th Five-Year Development Plan (1996-2000) that the waterworks infrastructure in rural cities was the most essential agenda, with the following set of objectives: (a) increase of nationwide water supply by 40 million m^3/day; (b) raise accessibility ratio to portable water in urban areas to 96%; and (c) increase average water supply per person by 40ℓ/day during the planned period. The current 11th Five-Year Development Plan (2006-2010)

gives priority to the enforcement of control and conservation of sources for drinking water and increase of water supply facilities.

In the 9th Hunan Five-Year Plan (1996-2000), priority was given to the development of infrastructure, which was considered essential for the province's economic development. The current Provincial 11th Five-Year Plan (2006-2010) sets targets including prioritization to infrastructure projects and raising the accessibility ratio to portable water to 93%.

Changsha's 9th Five-Year Plan (1996 – 2000) was aimed to accelerate the development of public facilities, and more specifically in the water supply sector. The new construction/ capacity enhancement of water supply plants was addressed as a top priority. The subject project was listed as one of the projects to be implemented during the period. The current 11th Five-Year Plan (2006-2011) targets to enhance major infrastructure network, with the development of the water supply sector as the top priority. In addition, Changsha Municipal Water Supply Facilities Improvement and Construction Plan (2006-2020) aims to enhance the city's water purification capacity through new construction of plants with a water supply capacity of 700,000 m^3/day and improvement of plants with a water supply capacity of 600,000 m^3/day, and notes that the water supply project is a top priority. .

3.1.2 Relevance with the Development Needs of China

In Changsha`s Hedong District, there were four water purification plants with a supply capacity of 740,000 m^3/day at the time of appraisal. However, water plants were in overload operation due to increase in water demand, as a result of population growth and urbanization. The maximum water supply had reached 940,000 m^3/day, which in turn resulted in deficit capacity of 200,000 m^3/day. In particular, during the peak season, or summer time, the water plants were occasionally forced to run with only simple treatment, such as shortening the filtration process time, or distributing only after sterilization. Thus, the urgent need for capacity enhancement was realized. At the time of evaluation, the current Changsha Water Supply Facilities Improvement and Construction Plan (2006-2020) noted that in order meet the increasing water demand pertinent to Changsha's economic development/improvement of living standards, it was necessary to increase the water supply capacity to 700,000 m^3/day and rehabilitate/construct the distribution 350km pipelines. Thus, there still exists strong water demand.

3.1.3 Relevance with Japan's ODA Policy

According to the Overseas Economic Cooperation Implementation Policy (December, 1999), the Japanese aid policy towards China focused on the development of the economic and social infrastructure which would promote self-motivating economic development. Thus, the subject project is consistent with the Japanese aid policy at the time of appraisal.

This project has been highly relevant with the China's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: b)

3.2.1 Project Outputs

The scope of the project is summarized below. It consists of construction of No. 8 Purification Plant (intake, conveyance, purification and transmission facilities) and distribution facilities from the plant. Facilities for water intake, conveyance, and purification were constructed as planned, while facilities for transmission and distribution were constructed almost as planned.

Table 1 : Output (Planned and actual)

Facilities	Planned	Actual
①Water intake	Intake pipes: 30m×2 Water intake pump stations	As planned
②Water conveyance	Conveyance pipes: 850m×2	As planned
③Water purification	Flocculation basin, sedimentation basin, and filtration pond Capacity: 500,000 m^3/day (built in two construction phases, with each phase accounting for 250,000 m^3/day)	As planned
④Water transmission	Transmission pipes: 400m×2	almost as planned (420m×2)
⑤Water distribution	Distribution pipe: 280km a new pressure pump station and expansion of a pressure pump station	Distribution pipe lines (about 250 km) were almost as planned. Construction of a pressure pump station and expansion of a pressure pump station were not implemented.

Source: JICA appraisal documents, Responses to the questionnaire

The water distribution pipe network was shortened to 250 km, approximately by 30 km, due to the relocation of Changsha Municipal Office. Construction of a new pressure pump station and expansion of a pressure pump station were deferred because the conveyance pipes in Nancheng district of Changsha city were replaced and the water pressure was increased. It resulted in operation load surplus.

Consulting services, or more specifically construction supervision works, were carried out by local fund during the construction period (March, 2001 to December, 2004).

No.8 Water Plant Distribution Facility

No.8 Water Plant Sedimentation Pond

3.2.2 Project Inputs

3.2.2.1 Project Period

The project period was mostly as planned. The planned project period at appraisal was from March 2001 (Loan Agreement signing) to December 2004 (completion of the project), for a total period of 46 months. The actual period was from March 2001 (Loan Agreement signing) to December 2004 (commencement of water supply), for a total period of 46 months, without any delay (100% of the planned period). Although the water supply started as scheduled, the construction period for distribution facilities was extended. Only 212 km of the distribution pipes had been completed at the commencement of the water supply service (December 2004), while installation of the remaining 38 km of distribution pipes continued during implementation of road improvements, where pipes were to be buried. Construction of a pump station was delayed by two years due to delay in internal processing clearance within the relevant authorities because the executing agency was not familiar with the International Competitive Bidding (ICB) process/procedures with respect to procurement of mechanical and electrical facilities. In addition, the ICB bidding was undertaken by dividing the bidding into small 17 contact packages. This delay however did not affect the completion of the project.

3.2.2.2 Project Cost

The total project cost estimated at appraisal was 8,857 million yen (of which the Japanese ODA loan amount was 4,850 million yen and the rest was to be locally funded) and the actual total project cost was 9,455 million yen (of which the Japanese ODA loan amount was 4,850 million yen and the rest was locally funded), slightly higher than planned (107% of the planned amount). The cost increase was due to the escalation of equipment and labor costs. In particular,

the costs of the following items were higher than estimated: 1) imported equipment for the intake facilities, 2) electricity and control panels of water purification plants, and 3) civil works to bury distribution pipes of transmission/distribution facilities.

Although the project cost was slightly higher than planned, the project period was mostly as planned, therefore efficiency of the project is fair.

3.3 Effectiveness (Rating: a)

3.3.1 Quantitative impacts

3.3.1.1 Results from Operation and Effect Indicators

(1) Meeting water supply capacity shortage and water demand

Changsha city's water supply capacity is summarized in Table 2.

Table 2 : Changsha city's water supply capacity

Indicators (Unit)	1999 (Baseline)	2008 (4 yrs after completion) (Target)	2008 (4 yrs after completion) (Actual)
Population in the area to be water-supplied (million person)	1.67	1.94	2.37
Average water usage per person (ℓ /day)	255	339	291
Water supply system coverage ratio (%)	100.0	100.0	100.0
Leakage ratio (%)	18.0	14.0	15.5

Source: JICA appraisal documents, Responses to the questionnaire

The average water usage per person (ℓ /day) is lower than projected by approximately 14% because the population of the area to be supplied with water has increased faster than estimated by approximately 22%. Comparing with the target for 2008, Changsha city's leakage ratio was slightly deteriorated.

The subject project is located in Hedong District of Changsha city. Table 3 shows the estimated and actual demand and supply capacity in Hedong District. In addition to No.8 water plant (subject project), there are four other water purification plants in Hedong District.

Table 3 : Estimated and actual demand and supply capacity in Hedong District

(total of 5 water purification plants)

Indicators (Unit)	Baseline	Estimated			Actual			
	1999	2002	2005 1 yr after-completion	2008 4 yrs after-completion	2002 Before-completion	2005 1 yr after-completion	2008 4 yrs after completion	2009 5 yrs after completion
Population served (million person)	1.40	1.46	1.53	1.60	1.54	1.50	1.75	1.80
Maximum water demand (000 m^3/day)	940	1,110	1,180	1,250	1,100	1,100	1,110	1,130
Water supply capacity (000 m^3/day)	740	990*[1]	1,240*[2]	1,240	970*[3]	1,300*[4]	1,300	1,300
Shortfall (000 m^3/day)	200	120	-60	10	130	-200	-190	-170

Source: JICA appraisal documents, Responses to questionnaire

Note *1: No. 8 Purification Plant phase I: expected to be completed in end 2002, (capacity of 250,000 m^3/day)

*2: No. 8 Purification Plant phase II: expected to be completed in end 2004, (capacity of 250,000 m^3/day)

*3: No.8 water plant phase I (purification facility) completed in December 2001, and capacity increased by 250,000 m^3/day. No.7 water plant decreased its capacity by 20,000 m^3/day due to facility deterioration

*4: No 1 water plant upgrading work was completed in 2003 with a capacity increase of 80,000 m^3/day. No.8 water plant phase II was completed in December 2004 with capacity increase of 250,000 m^3/day. Construction of the No.6 water plant (capacity of 200,000 m^3/day) was planned to be completed in 2008 at the time of appraisal has not yet started.

Although the actual population in the served area after project completion is higher than estimated, the maximum water demand showed only a marginal increase due to relocation of Changsha Municipal Office to the Hexi District. The water supply capacity exceeds the maximum water demand by 170,000 m^3/day as of 2009, demonstrating that the subject project has contributed to the increase in the area's water supply capacity. No.8 water plant's operating rates in the 2nd and 3rd year after project completion (2006) were 64% and 80%, respectively. In comparing the planned and actual population served and maximum water demand, actual figures are almost identical to the estimates. The capacity expansion work for No.1 water plant was completed in 2003. Since the capacity was increased by 80,000 m^3/day, it has resulted in capacity surplus from 2005 to 2009.

(2) Stable water supply

The minimum and maximum water pressure in the water supplied area was considered the indicator to assess the stability of water supply. However, since there were no available data, the number of complaints and change of water pressure, which could be assessed indirectly, were selected.

Secular changes on number of citizen's complaints regarding the water pressure are shown in Table 4. Table 5 shows the secular changes of water pressure within the target area.

Table 4 : Number of citizen's complaints on water pressure

	2004 (Completion)	2005 (1 yr after-completion)	2006 (2 yrs after completion)	2007 (3 yrs after-completion)	2008 (4 yrs after completion)	2009 (5 yrs after completion)
Number of complaints	113	19	7	4	2	0

Source: Responses to the questionnaire

Note: Phase I (250,000 m^3/day) was completed in December 2001.
Phase II (250,000 m^3/day) was completed in December 2004

Table 5 : Water pressure within the target area

	2004 (Completion)	2005 (1 yr after completion)	2006 (2 yrs after completion)	2007 (3 yrs after completion)	2008 (4 yrs after completion)	2009 (5 yrs after completion)
Water Pressure (MPa[23])	0.15	0.19	0.21	0.21	0.21	0.21

Source: Responses to the questionnaire

The two tables above indicate that complaints against water pressure had dramatically decreased as the water pressure was improved upon completion of the project. In addition, complaints on water pressure have further decreased as the length of the distribution pipes has been extended until the final disbursement date and the area covered has been expanded. As a result, there were no complaints filed at the time of evaluation, except in some hilly areas located approximately 4km away from the purification plant. It also showed that the water supply is stable.

As shown in Table 6, the water quality distributed from the water plant meets all the criteria of the national standards (turbidity, bacteria count, coli form count, manganese, iron, zinc content, etc.) and is considered appropriate as tap water. The water plant has a chemical testing laboratory and the water quality has been regularly monitored.

Table 6 : Water Quality of No. 8 Water Plant

Inspection date: September 5, 2009

Item	National Standards on Water Quality (GB5749-2006)	Water Quality of No. 8 Water Plant
Ph value	>=6.5 <8.5	7.5
Turbidity (NTU)	<1	0.15
Odor	none	none
Bacteria count (CFU/ml)	<100	3
Coli form count (CFU/100ml)	0	0
Iron (mg/L)	<0.3	0.05
Manganese (mg/L)	<0.1	<0.0001
Zinc (mg/L)	<0.2	0.0415

Source: Responses to the questionnaire

23 The typical water pressure, MPa (Mega Pascal) in Japan ranges between 0.05 and 1.0 Mpa, depending on geographical conditions. For example, 0.5 Mpa is the pressure level that water can be transmitted without a pump up to 35m (equivalent to 10 to 11 floor of a building)

The leakage rate from water pipes in Changsha city has been decreasing from 18.0% in 1999, to 16.7% in 2005, 15.5% in 2008, and 14.1% in 2009 since the old pipes have been replaced with new ones.

3.3.1.2 Results of Calculations of Internal rate of return (IRR)

The financial internal rate of return (FIRR) at appraisal was calculated according to the following assumptions: (a) the total project cost and increased operation/maintenance costs during the operation stage are considered “costs”; and (b) income from the water charges is considered “benefits”. Under the same assumptions used at appraisal, the recalculated FIRR at post evaluation was 6.0%, which is almost as planned. The economic internal rate of return (EIRR) was not calculated during appraisal, therefore it was not recalculated at post evaluation.

Table 7 : Financial internal rate of return (FIRR)

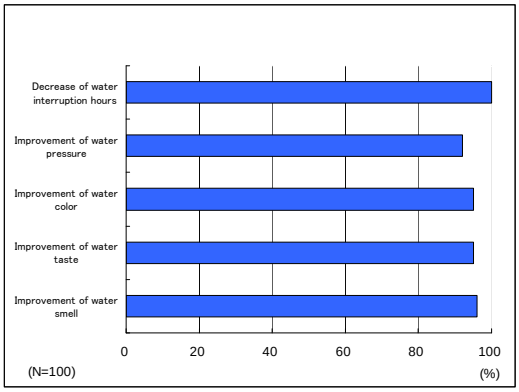
	FIRR
At appraisal	5.9%
At post evaluation	6.0%

Source: Responses to the questionnaire

3.3.2 Qualitative Effects

Beneficiary surveys through interviews were conducted in Hedong District of Changsha city. The total number of respondents was 100 and the classification of respondents by sex was 39% female and 61% male.

Respondents perceived the improvement in the following criteria: (a) the time of interruption of water supply 100% (100 persons); (b) water pressure 92% (92 persons); (c) color 95% (95 persons); (d) taste 95% (95 persons), and (e) smell 96% (96 persons). The survey showed that the project has contributed to the stable supply of clean water.



Source: Responses to the questionnaire

Figure 2 : Results of survey (N=100)

This project has largely achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended impacts

Ninety-six percent (96 persons) of the beneficiary survey respondents evaluated that the project has contributed to the improvement of sanitary and living conditions, and 100% (100 persons) considered that the project has brought economic growth to the city (attracting new corporations/organizations, thus creating employment opportunities and others). In addition, 94% (94 persons) considered the time save from water drawing as one of impacts. Prior to the completion of the project, the amount of water supply and water pressure were insufficient, necessitating to store water in containers at night time or lave from well. After the completion of the project, water was available any time and housework was lightened.

3.4.2 Other impacts

(1) Target areas and benefits to residents in the affected areas

The water supply targeted area is Changsha city's Hedong District with a total beneficiary of approximately 1.8 million people in 2009.

(2) Impacts on the natural environment

In December 2006, No.8 water plant received the Environmental Compliance Certificate (ECC) because the plant meets all the requirements on environmental monitoring process by the China Environmental Protection State General Administration.

Sludge occurs during the water purification process, which was foreseen at the time of appraisal, is concentrated, machine dried, and transported by Changsha Environment Protection Bureau to the disposal site in Wancheng County. As a result, no negative impact to the environment has been observed.

(3) Land acquisition and Resettlement

Land acquisition of approximately 70,000 ㎡ was planned at the time of appraisal. The total land acquired was almost equivalent to the planned, which is approximately 75,750 ㎡. The planned number of households to be resettled at appraisal was 60 households with 150 persons, while the actual was 62 households with 156 persons. The total cost for land acquisition and resettlement was 19.5 million yuan. Resettled employees of the plant were

provided with apartments within the water plant compound and compensation was properly paid.

The majority of the respondents evaluated that the project has contributed to the improvement of sanitary and living conditions, and that it has brought economic growth to the city (attracting new corporations/organizations, thus creating employment opportunities and others). Almost all of the respondents perceived the time saved from water drawing as one of the positive impacts of the project. Overall, the project's impacts are remarkable.

3.5 Sustainability (Rating: a)

3.5.1 Structural Aspects of Operation and Maintenance

Originally, Changsha Water Company (CWC) will to be responsible for operation and maintenance upon completion of the project. However, in 2004 the Changsha Water Service Investment Management Company (CWSIMC) was established, dividing asset management and operations. CWSIMC will be in charge of the asset management service and water supply service. The water supply service, originally under CWC, was further divided into two business segments: (1) water intake/purification, and (2) water supply. The water intake/purification service for No.8 water plant is delegated to Chamgda Group Company by CWSIMC`s subsidiary, Changsha Water Company. While the water supply service is run independently by Changsha Water Company. No.8 water plant has a total of 38 operation and maintenance staff, which consists of 3 management staff, 20 operation and control staff, and 15 operation and maintenance staff.

3.5.2 Technical Aspects of Operation and Maintenance

The academic background of the No.8 water plant staff in charge of operation and maintenance is shown in Table 8.

Table 8 : Academic background of operation and maintenance staff

Position	Number of staff	Graduated from (Educational status)
Management	3	University
Operation and control	20	College
Maintenance	15	Technical school
Total	38	

Source: Response paper to questionnaire

The staff (technical and skilled workers) of the water purification plant have adequate skills and appropriate operation and maintenance manuals have been provided. Training courses for staff were well established. The main courses include national standards and regulations on work safety and quality management, labor laws and regulations, company regulations, operation and maintenance regulations, and technical skills for purification plant operation (production, electric facilities, distribution, water quality monitoring, maintenance standards for machine, etc.). Training was regularly provided to staff on each job post in accordance with company's regulations.

3.5.3 Financial Aspects of Operation and Maintenance

The financial status of Changsha Water Supply Company is shown in Table 9. The collection rate of water charges, which are sources for revenues, is approximately 85% as of 2008.

Table 9 : Financial Status of Changsha Water Supply Company

(Unit: million yuan)

Item	2006	2007	2008	2009
Revenue	348.44	418.20	456.26	492.35
Operating expenses	77.36	94.82	142.67	136.69
(Depreciation among operating expenses)	43.81	60.39	37.17	43.14
Profit	10.01	32.16	8.09	7.61

Source: Responses to the questionnaire

After the project completion in December 2004, revenue from water charges has been increasing every year; 9% increase against the previous year in 2008, and 8% increase in 2009. Operating expenses have been increasing as well. Since the company has sufficient revenue to allocate budget for operation and maintenance in 2009, therefore there would be no concern regarding the project's sustainability.

Current water charges are shown below.

Table 10 : Water charges by category

(Unit: yuan/ m^3)

Category	Current Water Charge (since March 2007)
Households/government	1.21
Industrial	1.38
Commercial	2.20
Other (special purpose)	4.20

Source: Responses to the questionnaire

The current water charges were set on March 1, 2007. Changsha Water Supply Company has taken into account the price escalation for the past few years, and has applied for water charge revision to Changsha Price Regulation Bureau in December 2009. The municipal government is currently conducting hearings from citizens on proposed new water charges. In the proposal, the company is seeking to raise water charges by 0.2 yuan/ m^3 for households/government uses, and in average 0.3 yuan/ m^3 for overall uses. Once the proposal is accepted, the financial status of the company will be sounder.

3.5.4 Current Status of Operation and Maintenance

No.8 water plant adopts a three-phase monitoring and inspection system (inspection by operation staff, examination by maintenance staff, and spot checks by management staff). The daily operation is conducted by four teams with three shifts per day. An examination by operation and maintenance staff is conducted once a day, and irregular spot checks by management staff. Regarding the overall safety check, intake facilities (pumps) are inspected weekly, and the chlorine treatment room in the purification plant monthly. It was confirmed during the field inspection that facilities were well organized and maintained.

The 250 km distribution pipes are maintained and managed by Changsha Water Supply Company, including distribution/transmission pipes from other purification plants. The company conducts regular inspections and old pipes have been replaced with new pipes.

No.8 Water Plant Plaque

No.8 Water Plant Intake Facility

No major problems have been observed in the operation and maintenance system, therefore sustainability of the project is high.

4. Conclusion, Lessons Learned, Recommendations

4.1 Conclusion

This project has been highly relevant with the development policies and development needs of Hunan Province and Changsha city, as well as Japanese aid policies. The project period was almost as planned, but the project cost slightly exceeded the plan. Therefore, the evaluation for efficiency is moderate. Since the project has largely achieved its objectives, its effectiveness is highly satisfactory. No major problem has been observed in the capacity of the executing agency nor its operation and maintenance system. Therefore, sustainability of this project is high.

In light of above, this project is evaluated to be (A) highly satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the executing agency

None.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Procurement under one of the project components (pump station) took longer than expected because the equipment needed for the purification plant was procured through International Competitive Bidding (ICB) procedure with 17 contract packages. At the project preparation stage, procurement methods (International Competitive Bidding, National Competitive Bidding, and Supply and Installation of Plants and Equipment) should be well considered. A realistic procurement plan needs be prepared, particularly under ICB procedures where appropriate size of contract amount and packages are proposed.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
① Output		
1) Intake facilities	Intake pipes: 30m×2	as planned
	Water intake pump stations	as planned
2) Conveyance facilities	Conveyance pipes: 850m×2	as planned
3) Purification facilities	Flocculation basin, sedimentation basin, and filtration pond	as planned
	Capacity: 500,000 m^3/day (built in two construction phases, with each phase accounting for 250,000 m^3/day)	
4) Transmission facilities	Transmission pipes: 400m×2	almost as planned (420m×2)
5) Distribution facilities	Distribution pipe: 280km	Distribution pipe lines (250km) were almost as planned. Construction of a pressure pump station and expansion of a pressure pump station were not implemented.
	1 new pressure pump station and expansion of a pressure pump station	
② Period	March 2001 to December 2004 (46 months)	March 2001 to December 2004 (46 months)
③ Cost (Total Project Cost)		
Foreign currency	4,850 million yen	4,849 million yen
Local currency	4,007 million yen	4,605 million yen
	(308 million yuan)	(327 million yuan)
Total	8,857 million yen	9,455 million yen
Japanese ODA loan	4,850 million yen	4,849 million yen
Exchange rates	1yuan = 13 yen	1yuan = 14.10 yen
	(as of June 2000)	(March 2001 to December 2004 average)