



<b>1. Project Data:</b>		<b>Date Posted :</b> 09/30/2003	
<b>PROJ ID:</b> P003586		<b>Appraisal</b>	<b>Actual</b>
<b>Project Name:</b> Shanghai Environment Project	<b>Project Costs (US\$M)</b>	456.6	560.7
<b>Country:</b> China	<b>Loan/Credit (US\$M)</b>	160.0	153.1
<b>Sector(s):</b> Board: WS - Water supply (70%), Sewerage (21%), Sub-national government administration (8%), General water sanitation and flood protection sec (1%)	<b>Cofinancing (US\$M)</b>		
<b>L/C Number:</b> L3711			
	<b>Board Approval (FY)</b>		95
<b>Partners involved :</b>	<b>Closing Date</b>	06/30/2000	12/31/2002
<b>Prepared by :</b>	<b>Reviewed by :</b>	<b>Group Manager :</b>	<b>Group:</b>
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## 2. Project Objectives and Components

### a. Objectives

The principal project objective was to provide a sustainable environment for the long -term economic and social development of Shanghai. Specific objectives were to: (a) provide safe drinking water; (b) identify and control sources of pollution; (c) expand water quality monitoring; (d) improve solid waste and night soil management; (e) improve municipal, environmental and utility management and finances; and (f) support training, feasibility studies, and future investment project preparation in the environment area .

### b. Components

The original investment program included the following components :

*Drinking Water Quality Protection:* (US\$226.8 million or 64.5 percent of base cost) This included the construction of a new water intake on the Huangpu River, 25km upstream from the existing intake, together with the required new treatment facilities and distribution system, improvements to the existing treatment and distribution facilities, and the strengthening of operational and financial procedures .

*Upper Huangpu Catchment Pollution Control:* (US\$47.7 million or 13,5 percent of base cost). This component was designed to protect and improve the water quality at the new intake through the construction of wastewater conveyance systems in the surrounding areas, including the provision of secondary and tertiary sewers .

*Songjiang Wastewater Pollution Control:* (US\$29.1 million or 8 percent of base cost) This provided for the extension of the domestic and industrial wastewater collection and treatment facilities in Songjiang Town, a little upstream of the new intake .

*Pollution Sources and Water Quality Monitoring:* (US\$3.9 million or 1 percent of base cost). This included the construction of a water quality monitoring laboratory near the new intake, together with associated sampling and analytical equipment to monitor quality in the Upper Huangpu catchment .

*Municipal Solid Waste and Night Soil Management:* (US\$32.8 million or 9 percent of base cost). This component developed appropriate solid waste and nightsoil management strategies and financed investments in a mechanical plant and related civil works to improve the disposal system .

*Institutional Strengthening through Technical Assistance and Training :* (US\$ 10.8 million or 0.3 percent of base cost).

During project implementation cost savings were obtained because bid prices were, in many cases, below appraisal estimates, and the inflation rate also fell sharply . Advantage was taken of this situation to expand the scope of project works. The principal increases were: to the Water Quality Component; renovation of existing water treatment stations (approx US\$ 38 million); and the Pollution Control Component; rehabilitation of the Shanghai Main South Trunk Sewer and Pump Stations, separation of storm and foul discharge sewers, and rehabilitation of existing wastewater treatment plants (approx US\$177 million).

### c. Comments on Project Cost, Financing and Dates

The total project cost at completion was US\$561 million, up from the appraisal estimate of US\$457 million, because of the increase in the scope of works. Project closing was extended by 30 months to accommodate the extra works.

### 3. Achievement of Relevant Objectives:

The works planned have been completed and are operating satisfactorily. As a result, the principal project objectives have been achieved. The new water intake and treatment works provide a safe potable water supply for 8-10 million people. Works undertaken around the water intake were able to protect and improve water quality at the intake. Treated water quality has improved and chemical dosing has been reduced by 50 percent. The pollution control components have resulted in a reduction in the industrial wastewater pollution discharge of 90 percent from the 1993 levels. The capacity of the participating institutions was significantly enhanced and the institutional structure in the sector was reformed and reorganized in 2000.

### 4. Significant Outcomes/Impacts:

Shanghai was one of the first cities in China to establish a municipal Water Authority (SWA), consolidating the responsibilities for all water related affairs in the municipality, including water supply, sewerage and water resources. SWA has introduced competitive mechanisms for operations in the sector, including foreign and local non-government financing, and appropriate tariff levels in conjunction with reductions in production costs.

Improved technology has also been adopted. For example, all city utilities and other agencies now have available a common digitized base map for planning, operations, and maintenance. An Environment Information System was set up in the Shanghai Environment Protection Bureau (SEPB). This system is linked to national and provincial EPBs and provides direct monitoring of major pollution sources around Shanghai.

In part because of a downturn in general construction activity in the Shanghai region during the early stages of implementation, the project obtained very competitive bid prices, often significantly below the appraisal estimates. This, plus the ability of the Shanghai Municipality to borrow additional funds to supplement loan funds, enabled them to expand the scope of the project, in particular, to upgrade the existing sewerage and wastewater systems.

The overall quality of the works was high and, in a number of cases, the contractors received national awards for quality excellence.

Prior to the project, the traditional system of handling night soil, including storage, treatment and transport to farms in the region, was breaking down and uncontrolled dumping into local creeks and rivers was increasing. This has been eliminated.

### 5. Significant Shortcomings (including non-compliance with safeguard policies):

Although the program of works and institutional measures was undertaken as planned, and has achieved the intended improvements in most areas of water quality and reduction of water borne pollution in the Shanghai municipal area, there are indications that the project actions will not provide much more than a short run solution to the problems addressed. This is a significant issue, in that the principal objective of the project was to provide a sustainable long run environment for economic and social development.

In particular, the ICR notes that:

"The water supply intake was relocated to Da Qiao to benefit from better quality water in the upper reaches of the Huangpu River. However, water quality in [this area] is currently reported to be declining again as a consequence of pollution originating mainly outside Shanghai, principally due to polluted inflows from Jiangsu and Zhejiang provinces. The main pollutants of concern were ammonia, phosphorus and some soluble organic compounds petroleum oil (*sic*). The water quality classification at the Da Qiao intake generally reaches Category III (depending on the season and flow conditions), but on occasion declines to Category IV. [Note: Category III is acceptable for drinking purposes, but IV is not.] In particular, although ammonia concentrations are reported to exceed Category III levels 50% of the time (1998-2002 data), in Class IV have been reported (*sic*). Nevertheless, this shows a substantial improvement over pre-project conditions (1994-97 before commissioning of Da Qiao) at the former Linjiang intake, where ammonia concentrations exceeded even Category IV levels 60% of the time. .... Measures to curtail animal farming and extension of the water protection zone in the upper Huangpu are reported to assist in stabilizing water quality." (page 10)

Thus, while the project assisted in upgrading facilities and improving the supply of treated water, handling the liquid and solid waste in the Shanghai municipal area, and improving the operational efficiency of the various agencies involved in undertaking these activities, it did not initiate any steps to investigate and mitigate the longer run constraints on the quality of water in the region that are already apparent.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments

<b>Outcome :</b>	Satisfactory	Satisfactory	
<b>Institutional Dev .:</b>	High	Substantial	While the project did result in many individual institutional improvements, most of the principal agencies that undertook the project had been well established for many years. The Shanghai Municipal Waterworks Company was already the largest water utility in China and was efficiently run.
<b>Sustainability :</b>	Highly Likely	Likely	Because of problems with the quality of water arriving at the intake, it is uncertain whether measures funded by the project will insure a lasting, long run improvement in water quality in the region. There are also some uncertainties about the financial viability of some of the project entities.
<b>Bank Performance :</b>	Satisfactory	Satisfactory	
<b>Borrower Perf .:</b>	Satisfactory	Satisfactory	
<b>Quality of ICR :</b>		Satisfactory	

**NOTE:** ICR rating values flagged with '\*' don't comply with OP/BP 13.55, but are listed for completeness.

#### 7. Lessons of Broad Applicability:

Continuity and top quality of personnel from both the Bank and Borrower are important to ensure a successful project.

It is important that Project Office staff be kept abreast of Bank policies and procedures for clarity and to avoid delays in processing of Borrower requests for changes in legal agreements .

**8. Assessment Recommended?** ☐ Yes ☒ No

#### 9. Comments on Quality of ICR:

The ICR is generally satisfactory . But, the "lessons learned" are generally more in the nature of specific conclusions on project performance than lessons that might be drawn for future operations . More important, however, is the fact that the report is marred by numerous typos (e.g. 5541%) and missing words that, in some instances, leave the meaning of the relevant sentence unclear (see, for example, the text quoted in Section 5). This indicates that the report had not been adequately reviewed, or even proof read .