Project Name: China-Second Beijing Environment Project
Region: East Asia and Pacific Region
Sector: Urban Environment; Pollution Control/Waste Management
Project ID: CNPE42109
Borrower(s): PEOPLE’S REPUBLIC OF CHINA
Implementing Agency: BEIJING MUNICIPAL GOVERNMENT
Address: Ding 2, Southern Street, Fuxingmen, Xicheng District, Beijing, 100031, P.R. China
Contact Person: Guo Junqing
Tel: (86-10) 66411754
Fax: (86-10) 66411638
Email: bepo@public.bta.net.cn
Environment Category: A
Date PID Prepared: May 16, 2000
Projected Appraisal Date: April 17, 2000
Projected Board Date: June 20, 2000

1. Country and Sector Background
1.1 Environmental Policy of China. The recent rapid growth of industries and cities of China has added heavy pressures on its environment which had already suffered significant degradation during the earlier industrialization drives. To stop and reverse the degradation, the Government of China has pursued active environmental policies, requiring environmental assessment and licensing for new investment projects, pollution levies, extensive environmental monitoring, and major national environmental performance targets. These policies are implemented in a decentralized fashion through a network of Environmental Protection Bureaus (EPBs) at all levels of government, overseen by the State Environmental Protection Agency (SEPA). National standards, targets, and regulations usually specify only the broad framework and minimum requirements, and local EPBs can set more stringent local standards and implement various programs to achieve their own environmental plans as long as they are consistent with higher-level regulations. 1.2 The active policies, combined with rapid industrial renovations with cleaner technologies, have yielded substantial environmental benefits over the last decade. Pollution discharge per industrial output value has declined rapidly in most localities, and many cities have reduced the concentrations of total suspended particles (TSP) in the ambient air, and toxic metals in wastewater. In general, however, industrial production and urban waste generation are increasing at such a rate that aggregate...
pollution is still at unhealthy levels and even rising. High levels of air pollution, especially with sulfur dioxide (SO₂), remain a major issue in most cities due to China’s heavy reliance on low-quality coal. Domestic sewage and automobile emissions are growing as serious urban pollution issues. Air Pollution in Beijing 1.3 Beijing is a preeminent showcase of these old and new environmental issues, aggravated by its semi-arid climate and highlighted by its status as the national capital. Arguably the most critical environmental issue in Beijing is air pollution. Table 1 shows that average ambient concentrations of particulates and nitrates exceed the daily healthy limit for residential areas (Chinese standard Class II, similar to WHO standards) year-round. During the heating season, sulfur dioxide and nitrogen oxides grow to levels posing acute health risks, beyond limits allowed even for industrial areas (Class III). About 5.3 million Beijing residents are estimated to be exposed to more than 150 micrograms of sulfur dioxide for more than 60 days a year. Although another critical pollutant, ultrafine particles (PM-10), are not yet systematically measured, their concentration is expected to show a similar pattern. Table 1. Air Quality in Beijing, 1998

<table>
<thead>
<tr>
<th>ActualPollutant</th>
<th>Class II</th>
<th>Class III</th>
<th>Heating Season</th>
<th>Other Times</th>
<th>Suspended particulates (TSP)</th>
<th>300</th>
<th>500</th>
<th>43</th>
<th>48</th>
<th>Sulfur Dioxide (SO₂)</th>
<th>150</th>
<th>250</th>
<th>252</th>
<th>42</th>
<th>Nitrogen oxides (NOx)</th>
<th>100</th>
<th>150</th>
<th>20</th>
<th>12</th>
<th>Carbon Monoxide (CO)</th>
<th>400</th>
<th>600</th>
<th>440</th>
<th>260</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum 24 hour concentration in micrograms/m³</td>
<td>Maximum for Standard</td>
<td>Beijing</td>
<td>Actual</td>
<td>Pollutant</td>
<td>Class II</td>
<td>Class III</td>
<td>Heating Season</td>
<td>Other Times</td>
<td>Suspended particulates (TSP)</td>
<td>300</td>
<td>500</td>
<td>43</td>
<td>48</td>
<td>Sulfur Dioxide (SO₂)</td>
<td>150</td>
<td>250</td>
<td>252</td>
<td>42</td>
<td>Nitrogen oxides (NOx)</td>
<td>100</td>
<td>150</td>
<td>20</td>
<td>12</td>
<td>Carbon Monoxide (CO)</td>
</tr>
</tbody>
</table>

Note: Ultrafine particle (PM-10) concentration was incorporated into the national standards in 1996 but are not yet systematically measured. Heating season in Beijing runs November through March. Source: Beijing Municipal Environmental Research Institute, Updated Beijing Environmental Master Plan Studies Database, 1999.1.4 The main source of pollution is coal, which remains the city’s dominant (about 75%) source of energy. Especially important is coal-fired heating that contributes most of sulfur dioxides and a major share of other pollutants. Industrial boilers and power plants burn about half of all coal used in Beijing year-round, but they are responsible for only about 15% of ambient pollution of sulfur dioxide and particulates during the heating season, thanks to pollution control equipment. "Scattered" heating boilers - those with capacity of less than 20 tons of steam per hour (capable of heating up to 160,000 m² of floor space) and chimneys lower than 35 meters - are responsible for about 70% of these pollutants and even smaller stoves, tea and bath boilers contribute another 10%. Next in importance are emissions from the increasing vehicle population, which increased from about 0.5 million in 1991 to 1.36 million in 1998 and has increased the year-round ambient nitrogen oxides by about one-third. 1.5 Beijing’s air quality improvement plan, typical for Chinese cities, traditionally emphasized large investment projects to control pollution from industries and coal burning. Industries were given supports to install less-polluting production systems or end-of-pipe pollution treatment. To reduce pollution from scattered boilers, coal gas and district heating systems have been built. The Beijing Environmental Project, BEP I (ln. 3415, Cr. 2312-CHA) implemented from 1992 to 1999 with Bank Group support, accordingly devoted most of the financing to industrial pollution reduction and district heating. The policy environment had shifted, however, as rapid economic growth and liberalization changed the valuation between the environment and production and between the government and the market. In addition, statistics such as those above have illuminated the limitations of point source control strategies. The primary focus of attention of the Beijing Municipal Government (BMG) for air pollution
control has, therefore, shifted toward fuel conversion and strengthening of regulatory and pricing measures against pollution. BMG has invested heavily in natural gas supply infrastructure, strengthened emissions control, and closed an increasing number of polluting industries. 1.6 In October 1998, BMG started a major ‘clean air’ program with State Council support, partly spurred by policy deliberation during preparation of this project. The major part of the program is to convert all small scattered coal boilers and burners within the urban area to cleaner fuel or into larger district heating boilers by 2003. A sulfur tax has been imposed and the use of low-sulfur coal is mandated. Another main part of the program strengthens controls of vehicle emissions, including the mandatory use of unleaded gasoline and catalytic converters in gasoline-powered light vehicles. Other measures include strengthened control of construction dust and programs to expand vegetation. Water Pollution in Beijing1.7

Due to the scarcity of water resources and heavy population pressure, water quality has traditionally been another major environmental issue for Beijing. The earlier emphasis was primarily on protection of upstream water, most of which is diverted for potable uses. On the other hand, less than one-third of the wastewater is treated. As a result, the city’s natural streams receive a large volume of wastewater compared with little natural flows, and hence little capacity to dilute the pollutants. Downstream flows of the urban streams thus are not suitable for even the least critical economic use such as industrial cooling or irrigation. In addition, such pollution has degraded the city’s groundwater sources, which supply 40% of water for the city, and which can be used only for less critical purposes such as industrial use. Since the main river, Haihe, which receives these streams has relatively small flows, these heavily polluted discharges cannot be fully diluted, threatening the irrigation downstream. The central government recently accorded one of the highest national priorities to reducing the critical pollution of the Hai River. 1.8 In view of these concerns BMG has recently begun a major expansion of wastewater and solid waste management capacities with bilateral financing. On-going and planned works are expected to double the current sewage treatment capacity of about 560,000 m3 per day. To put this expanded sewerage system on a sustainable financial and institutional footing, BMG is taking measures to increase tariffs and strengthen the institutional capacity and autonomy of the Beijing Drainage Company (BDC) established under BEP I.

2. Objectives

The proposed project aims at a visible and sustained alleviation of air and water pollution in Beijing by helping to: (a) convert scattered coal-fired heating boilers to natural gas; (b) promote energy conservation in various heating systems; (c) construct key wastewater trunk interceptors and associated treatment facilities; and (d) strengthen environmental management institutions of Beijing. The GEF-financed components support activities (a) and (b) above, by helping to establish viable models and markets of natural gas usage and heating energy conservation. In addition to the direct and significant reduction of greenhouse gas (GHG) emissions, these will make an effective demonstration of GHG reduction measures for China as a whole and thus help to decrease the risk of global climate change significantly.

3. Rationale for Bank’s Involvement

3.1 During project identification the Bank has played a catalytic role for
the BMG leadership to establish clear priorities and commit to major steps to improve its air and water quality, which has resulted in city-wide programs that go much beyond the project. Analyses and discussions during project preparation assisted in developing more effective implementation arrangements, advances in institutional structuring, and generation and adoption of more efficient technical alternatives discussed above. The Bank’s continued similar assistance during implementation would be valuable, especially as the boiler conversion program is only at the start of an experimentation, and the institutional development of BDC would benefit from the related experiences around the world.

3.2 For the boiler conversion component, the Bank would provide the critically needed financing that commercial banks and suppliers have not been willing at this stage to extend due to unfamiliarity with the technology and with the borrowers. The financing would also allow aggregation of demand at significant scales to afford economies of scale that is lacking at this stage. The GEF support associated with boiler conversion would serve as a public investment in the market and technology infrastructure for Beijing as well as China, that individual companies or even a city would be reluctant to make. GEF support for energy efficiency and conservation for the heating systems and remaining coal heating boilers complements the conversion program. While an active product market and financing may eventually develop without Bank support, the process would be long and wasteful. The technical and market frameworks as well as the enlarged installed base of boilers would encourage broad participation of market entities. 3.3 For wastewater management in the Qing and Liangshui River systems, the Bank financing allows coordinated construction of related facilities in an integrated fashion. A more piecemeal approach may result in underutilized facilities or, as in the case of trunk sewers constructed without treatment plants, lead to transfer and exacerbation of water pollution in the watercourses. Further, the Bank’s involvement would help establish technical, financial, and institutional frameworks necessary for sustained operation and expansion of the wastewater management system. The Bank has had extensive and successful experience in wastewater management elsewhere in China and this experience is being applied in this project.

4. Description

4.1 The project targets the two main pollution issues of Beijing - air pollution and wastewater. The principal air pollution control component would assist with converting the heating fuel from coal to natural gas. A GEF-financed component (B) would support this as well as enhance the replicability and sustainability of the conversion by helping to develop the gas boiler market and technology. A second GEF-financed component (C) would complement the conversion by helping to improve the energy efficiency of overall heating systems. The main two wastewater management components would complete the trunk sewer network and provide secondary sewage treatment for the Liangshui River sub-basin. A third wastewater component would provide trunk interceptor sewers in the neighboring section of the Qing River sub-basin. The project also includes components to support institutional development for air quality and wastewater management. The components, their estimated costs, and financing are listed in the table below, followed by a brief description of the main features and goals of each component.

A. Boiler Conversion
B. Gas Boiler Market and
Technology Development
C. Heating Energy Conservation
D. Air Quality Monitoring and Decision Support
E. Liangshui River Sewers
F. Liangshui River Wastewater Treatment
G. Qing River Sewers
H. Beijing Drainage Company Institutional Development
I. Land acquisition and Resettlement

5. Financing
Total (US$m)
Government 157
IBRD 349
IDA
GOVERNMENT OF CHINA 186
GLOBAL ENVIRONMENT FACILITY 25
BENEFICIARIES 355.5
OTHER PRIVATE COMMERCIAL SOURCES 182.5
Total Project Cost 1255

6. Implementation
6.1 Agencies primarily responsible for preparation and implementation of individual project components are listed in Table 2 below. The overall project would be coordinated by the Beijing Environmental Project Office (BEPO) headed by the Executive Vice Director of the Beijing Municipal Development Planning Commission. Policy guidance and support would be provided by the Project Leading Group, chaired by the Executive Vice Mayor of BMG and including two other Vice Mayors, Directors of BEPB, Construction Commission, and BEPO, and Vice Directors of Beijing Finance Bureau and Municipal Administration Commission. This in turn will be guided by the municipal leading group for environmental improvement, headed by the Mayor. Table 2 Agencies Responsible for Project Preparation and Implementation

<table>
<thead>
<tr>
<th>Project Component</th>
<th>Implementing Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler conversion</td>
<td>Shihuan Jietian Energy Technology Corp., Ltd. (SJET), working with the Beijing Gas Group Corporation (BGGC), District Governments, and Beijing Environmental Protection Bureau (BEPB)</td>
</tr>
<tr>
<td>B. Gas boiler market and technology development</td>
<td>SJET, in cooperation with Heating Energy Conservation Center (HECC)</td>
</tr>
<tr>
<td>C. Heating energy conservation</td>
<td>Heating Energy Conservation Center, under the Residential Heating Administration Office of the Beijing Real Estate Bureau, working with SJET on tasks involving gas boilers</td>
</tr>
<tr>
<td>D. Air quality monitoring and decision support</td>
<td>Beijing Environmental Protection Bureau in coordination with relevant research institutes</td>
</tr>
<tr>
<td>E-I. All wastewater management components</td>
<td>Beijing Drainage Company (BDC), assisted by Beijing Municipal Engineering Corporation</td>
</tr>
</tbody>
</table>

6.2 Boiler Conversion. Eight district governments (DG) had been given the primary administrative responsibility to assist and ensure conversion of coal-fired boilers and stoves under BMG’s overall fuel conversion programs, coordinating with BEPB and BGGC for the necessary regulatory and technical support. These responsibilities will continue, even though the further financial and technical assistance available under the project would be provided through the newly
established SJET on a commercial basis. To overcome the barriers to conversion and hence its sales volume, SJET will work with these agencies in identifying and assisting the buyers of its natural gas boilers. Although SJET would manage the operation as an autonomous enterprise, its pricing and installment terms would be subject to agreement with BMG in return for the concession for utilizing the Bank loan and for supplying boilers for units belonging to BMG and DG. The initial terms of the boiler sales would include the following: Price: including a mark-up of 2% of the manufacturer’s price for the first 1,000 buyers (expected by 2002), 5% for others; Down payment additional 5.5% of the boiler price paid on signing the sales contract, which will be before SJET signs contract with boiler suppliers; Financing charge: the same rate as the World Bank loan for BMG and DG units; the same plus up to 2% per annum for others depending upon SJET’s credit evaluation; Installment: in equal installments over a period, at the buyer’s choice up to one year less than the remaining maturity of the Bank loan (12-18 years depending upon the year of sales) in the case of BMG and DG units; up to 12 years for others as agreed between buyer and SJET. There would normally be no grace period, unless SJET specifically agrees as an exception and at a charge; and Security: BMG guaranty for units fully funded under BMG budget; real estate or other assets required as collateral in addition to or in lieu of third party guarantees for others. 6.3 These terms are set to provide incentives for SJET to maximize the volume and speed of conversion while minimizing its expenses and collection losses. The installment payment would be added to the natural gas bill and collected by BGGC and transferred within a month of receipt to SJET. The arrears on the gas bills have been about 10% in the recent past, but this may well go up as the usage expands beyond the early, more affluent converters. SJET therefore would need to take careful measures to secure its receivables. Major criteria for appraisal of the buyer’s credit would be the current liquidity and heating expenses, as well as the quality of collateral and guarantees. The current estimation is that there are about 350 boilers that belong directly to BMG units, and another 350 owned by DG units or those partly funded by BMG or DG, such as hospitals and research institutions. The former present little credit risk as BMG guarantee can be enforced at the point of SJET’s repayment of the Bank loan. Others present a higher risk as guarantees can be difficult to enforce in the case arrears or default. Collateral would be therefore required from these units even with BMG or DG guarantees. SJET may refuse to provide the gas boiler even for these government units, as well as non-governmental buyers, if it is not satisfied with the credit security. 6.4 In practice, however, the more serious risk would be a lack of sufficient demand, given a number of market and technological barriers, the burden of large counterpart financing (about two-thirds of the total cost), and the cost of financing. The Bank loan has a higher interest rate than domestic commercial loans though it provides much longer maturities. Therefore, SJET is encouraged by the incentives built in the pricing structure as well as BMG to adopt an aggressive rather than cautious sales strategy. Market development measures financed by GEF would aid in promoting the market demand. In order to encourage conversion during the early years when the market barriers would remain especially strong, BMG would provide counterpart financing resources for its own units to convert within the first two years. For others, BMG would make available to needy boiler owners about Y 32 million for subsidies that would decline from Y 150,000 for conversion in 2000 to Y
50,000 in 2002, and none thereafter. Financial analyses show that the above terms would provide room for up to 5% in collection losses. After two years' experience these implementing arrangements would be reviewed and adjusted as necessary with a view to balancing BMG’s objective of maximizing conversion and SJET’s interest in maximizing profit. SJET would be allowed to enter into other businesses as long as they are strictly separated for accounting purposes and not in conflict with the operations supported by the Bank and GEF. 6.5 Global Components. SJET will manage the GEF-financed component (B) under a separate account on a cost-reimbursement basis, except that the administrative overheads will be absorbed in the main account, to be recovered through the sales margin on the Bank-financed boilers. GEF-financed component C would be the only operation of HECC during the project period. These components involve large amounts of free technical assistance for boiler owners, operators, and technical specialists by consultants hired by SJET and HECC. The assistance would be limited to promoting conversion and conservation and building relevant technical capacity. For example, assistance provided to boiler owners interested in conversion or conservation investments would include initial evaluation, identification of available options and sources of further technical assistance. Further technical services would be independently obtained and paid for by the beneficiaries. For a small number of demonstration installations, GEF financing would be applied to a greater extent, including full technical design services and core equipment, but in general they would still be not more than one-third of the total cost. 6.6 Wastewater Management Components. All wastewater management components would be managed under BDC’s responsibility, except for the restructuring of BDC itself, for which the BMG Leading Group for BDC restructuring would retain policy decision authority. Accordingly, one of three consulting teams that deals with BDC’s institutional structure and accountability would report to the Leading Group. The Beijing Municipal Engineering Bureau, now reconstituted as Beijing Municipal Engineering Corporation, carried out the sewerage component under BEP I, and has led the preparation of the sewerage works components until it changed its status as agent and advisor to BDC in this matter in 1999. It would continue to serve in this capacity. Financing sources of the wastewater components would be broadly distributed: $179 M from the Bank, $182.5 M from domestic banks, BDC internal funds $155 M, central government $154 M, and BMG $150 M. 6.7 Onlending and Disbursement. A Bank loan of $349 M and a GEF grant of $25 M will be made to the Government of China. The terms of the Bank loan would include a maturity of 20 years including 5 years’ grace, the standard interest rate for variable spread US dollar single currency loans, and standard front-end fees and commitment charges. GOC would pass on the loan and grant proceeds to the Beijing Municipal Government on the same terms and conditions. $166.7 M of the loan would be onlent to SJET and $179 M will be onlent to BDC, both on the same terms and conditions except that BMG will assume the foreign exchange and prepayment risks. SJET would also receive $16.5 M of the GEF grant proceeds. The remainder, $8.5 M of GEF grant and $3.3 M of the loan will be made available to BMG’s own units, HECC and BEPB, for project components C and D, respectively. The loan and grant proceeds would be disbursed according to the traditional procedures, through two Special Accounts managed by BEPO, with an authorization of $18 M and $2 M for Bank loan and GEF grant respectively. 6.8 Monitoring, Reporting and Mid-term Review. Implementing agencies would prepare semiannual progress reports summarizing the implementation progress and
financial expenditures by component, details of resettlement actions and revisions to the RAP, measurements of monitoring indicators, and other information requested by the Bank. The reports will be consolidated by BEPO and submitted to the Bank by February 15, 2001 and every six months thereafter. The progress report due on August 15, 2002 would contain in-depth information and evaluation of the implementation experience up to then. This would be used for a thorough mid-term review by the end of 2002 to determine the need and nature of adjustments to the project implementation plan. The focus of the mid-term review and adjustment would be: (i) the pace and risks of boiler conversion, (ii) effectiveness of GEF-financed components, and (iii) a comparison of projected and actual wastewater generation. The project is scheduled to be completed by June 30, 2006 and the loan and grant accounts to close on December 31, 2006.

7. Sustainability

The project investments will continue to produce environmental benefits into the future provided that they are properly operated and maintained. The benefits, however, would be overwhelmed by the growing pollution unless the pollution growth is restrained and such environmental facilities as built under the project continue to be expanded. Policy, financial and institutional development measures would be supported under the project to ensure the proper operation and expansion of the facilities, and that the growth of pollution is controlled. The fuel conversion component, in particular, is aimed at creating continuous momentum for market-based expansion. A major long-term constraint would be the supply of clean fuels which would depend not only on proper sustainable pricing, but also on the central government’s energy policy. The GEF financed institutional strengthening activities for (i) improvement of EPB air quality monitoring capacity; (ii) technical capacity building and market development for gas boilers and (iii) energy conservation will contribute to the sustainability of air pollution control and energy conservation initiatives in Beijing. Institutional support for restructuring Beijing Drainage Company through upgrading management systems, providing greater flexibility in setting appropriate tariffs, and staff development in parallel with outside monitoring would aim at assuring the sustainability of the sewerage/drainage system and wastewater treatment plants.

8. Lessons learned from past operations in the country/sector

8.1 Difficulties in utilizing the natural gas distribution mains point to a serious blind spot in BMG’s planning system in transition: the assumption that end-users, financial institutions and suppliers would carry out their part to complete the fuel conversion program. The failure of this assumption, risking serious under-utilization of the large investments, prompted BMG to accept the Bank’s offer of assistance to finance and promote end-user conversion. On the other hand, experiences with industrial pollution control subloans, financed under BEP I as well as other projects, have confirmed problems associated with industrial lending outside the normal market mechanism in general. Most of the subprojects resulted in significant pollution reduction. However, the promise of high financial returns, which motivated most of the subprojects, failed to materialize for many borrowers due to market or management weaknesses, casting doubt on the viability of any investment in such borrowers. Even where the financial returns are positive, subloan repayment has been poor due mainly to the lack of accountability on the
part of the financial agent and the government. This lesson highlights the need for clear accountability and commercial incentives for market entities, and the indispensability of regulatory enforcement. These lessons have been reflected in the project design which features substantial risks and incentives for SJET, working in conjunction with municipal and district regulations to discourage coal burning. 8.2 An insight gained during the implementation of BEP I was the apparent inefficiency of large-scale central heating systems, although this needs to be confirmed by a systematic study. One aspect of the inefficiency appears to be technical. Despite its higher efficiency in heat generation than more dispersed heating, heat losses become significant when distribution distances are great. Also contributing to the inefficiency are the management problems associated with a large public monopoly. Furthermore, the opportunity cost of high capital investments appears to offset the efficiency gains in operation, at least for the system used for less than half of the year. This lesson has resulted in reduced emphasis on the city-wide district heating system by BMG. 8.3 The most important lessons learned under many wastewater projects around the world have been that coordination of different parts of the system, between trunk sewers and secondary sewers and between collection and treatment, determine the efficacy of the investment and the institutional and financial frameworks determine the sustainability. The wastewater components of the project incorporate these lessons by tight integration of wastewater collection and treatment, and by a comprehensive and substantial financial and institutional development programs.

9. Program of Targeted Intervention (PTI)  No

10. Environment Aspects (including any public consultation)

   Issues : The environmental impact of the project is very positive overall and the benefits outweigh the limited risks. These risks for boiler conversion include safety and fire risks with gas boilers, and dust and noise during conversion. These risks will be controlled by the mandated observance of minimum standards and procedures of design, installation, and use of the boilers specified in the Boiler Handbook prepared for the project, as well as local permit procedures. For wastewater management, the risks include those during construction - resettlement, excavation, noise, dust, soil disposal and disruptions to urban services. After the construction, the main significant risk is the disposal of sludge from wastewater treatment process. These are to be controlled by the measures specified under the Resettlement Action Plan and the Environmental Assessment. A comprehensive environmental assessment has been carried out for the project by the Beijing Municipal Research Institute of Environmental Protection in accordance with the policies and procedures of China and the Bank. The detailed EA reports and a summary EA report, each incorporating Bank comments, have been reviewed and found to be satisfactory and are available in the Bank's Public Information Center and in the project files. These documents and the RAP documents also have been available to the public in Beijing. The air quality improvement component involving fuel switching from coal to gas and use of more efficient boiler technologies will significantly reduce concentrations of SO2, NOx, TSP and CO and improve the ambient air visibility within the target areas (inside 4th Ring Road and Shijingshan District). The wastewater management component in the Qing and Liangshui River basins will reduce pollution of watercourses in the catchments,
resulting in improved water quality, removal of nuisance from odors, reduced health hazards and improved environment for economic development. The projected reduction in untreated sewage entering the groundwater in the Liangshui catchment will assist in improving the quality of aquifers from which water is being withdrawn for drinking water supply in Beijing.

11. Contact Point:

Task Manager
Songsu Choi
The World Bank
1818 H Street, NW
Washington D.C. 20433
Telephone: (202) 458-2945
Fax: (202) 522-1787

12. For information on other project related documents contact:
The InfoShop
The World Bank
1818 H Street, NW
Washington, D.C. 20433
Telephone: (202) 458-5454
Fax: (202) 522-1500
Web: http://www.worldbank.org/infoshop

Note: This is information on an evolving project. Certain components may not be necessarily included in the final project.

Processed by the InfoShop week ending May 26, 2000.