1. Project Data

Summary project data				
GEF project ID		75		
GEF Agency project ID		P003404		
GEF Replenishment Phase		Pilot Phase		
Lead GEF Agency (inc	lude all for joint projects)	World Bank (lead), UNDP		
Project name		Sichuan Gas Transmission and	Distribution Rehabilitation	
Country/Countries		China		
Region		EAP		
Focal area		Climate Change		
Operational Program Priorities/Objectives	or Strategic	STRM – short term response m	neasure	
Executing agencies in	volved	PetroChina Ltd. (PCL); Governr Petroleum Company (CNPC); S (SPA); PetroChina Southwest C	nent of China; China National ichuan Petroleum Administration)il (PCL Southwest)	
NGOs/CBOs involven	nent	None		
Private sector involve	ement	Beneficiaries		
CEO Endorsement (FS	SP) /Approval date (MSP)	17-Mar-1994		
Effectiveness date / p	project start	16-Sept-1994		
Expected date of pro	ject completion (at start)	30-Jun-2001		
Actual date of projec	t completion	30-Jun-2003		
Project Financing				
		riojecti mancing		
		At Endorsement (US \$M)	At Completion (US \$M)	
Project Preparation	GEF funding	At Endorsement (US \$M) 1.4	At Completion (US \$M) 1.4	
Project Preparation Grant	GEF funding Co-financing	At Endorsement (US \$M) 1.4	At Completion (US \$M) 1.4	
Project Preparation Grant GEF Project Grant	GEF funding Co-financing	At Endorsement (US \$M) 1.4 10.0	At Completion (US \$M) 1.4 9.6	
Project Preparation Grant GEF Project Grant	GEF funding Co-financing IA/EA own	At Endorsement (US \$M) 1.4 10.0	At Completion (US \$M) 1.4 9.6	
Project Preparation Grant GEF Project Grant Co-financing	GEF funding Co-financing IA/EA own Government	At Endorsement (US \$M) 1.4 10.0	At Completion (US \$M) 1.4 9.6	
Project Preparation Grant GEF Project Grant Co-financing	GEF funding Co-financing IA/EA own Government Other*	At Endorsement (US \$M) 1.4 10.0	At Completion (US \$M) 1.4 9.6	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding	GEF funding Co-financing IA/EA own Government Other*	At Endorsement (US \$M) 1.4 10.0 11.4 11.4	At Completion (US \$M) 1.4 9.6 1.1	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing	GEF funding Co-financing IA/EA own Government Other*	At Endorsement (US \$M) 1.4 10.0 11.4 867.9 (from IEG review)	At Completion (US \$M) 1.4 9.6 1.1 892.8 (from IEG review)	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin	GEF funding Co-financing IA/EA own Government Other*	At Endorsement (US \$M) 1.4 10.0 11.4 6 10.0 867.9 (from IEG review) 879.3	At Completion (US \$M) 1.4 9.6 1 1 1 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev	At Endorsement (US \$M) 1.4 10.0 11.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review informatio	At Completion (US \$M) 1.4 9.6 1.1 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev	At Endorsement (US \$M) 1.4 10.0 11.4 67.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev	At Endorsement (US \$M) 1.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date Author of TE	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev	At Endorsement (US \$M) 1.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003 Salahuddin Khwaja	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date Author of TE Original GEF IEO TER	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev (2004) preparer	At Endorsement (US \$M) 1.4 10.0 11.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003 Salahuddin Khwaja Baastel	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date Author of TE Original GEF IEO TER Original GEF IEO TER	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev (2004) preparer (2004) reviewer	At Endorsement (US \$M) 1.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review information 22-Dec-2003 Salahuddin Khwaja Baastel Siv Tokle	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date Author of TE Original GEF IEO TER Original GEF IEO TER Revised TER (2014) co	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev (2004) preparer (2004) reviewer completion date	At Endorsement (US \$M) 1.4 10.0 11.4 867.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003 Salahuddin Khwaja Baastel Siv Tokle 08-May-2014	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	
Project Preparation Grant GEF Project Grant Co-financing Total GEF funding Total Co-financing Total project funding (GEF grant(s) + co-fin TE completion date TE submission date Author of TE Original GEF IEO TER Original GEF IEO TER Revised TER (2014) p	GEF funding Co-financing IA/EA own Government Other* ancing) Terminal ev (2004) preparer (2004) reviewer ompletion date repared by	At Endorsement (US \$M) 1.4 10.0 11.4 67.9 (from IEG review) 879.3 aluation/review informatio 22-Dec-2003 Salahuddin Khwaja Baastel Siv Tokle 08-May-2014 Pallavi Nuka	At Completion (US \$M) 1.4 9.6 11 892.8 (from IEG review) 935.58	

*Includes contributions mobilized for the project from other multilateral agencies, bilateral development, cooperation agencies, NGOs, the private sector, and beneficiaries.

2. Summary of Project Ratings

Criteria	Final PIR	IA Terminal Evaluation	IA Evaluation Office Review	GEF EO Review
Project Outcomes	Satisfactory	Satisfactory	S	S
Sustainability of Outcomes	Substantial	Highly Likely	L	L
M&E Design	NA	NA	NR	U/A
M&E Implementation	Satisfactory	NA	NR	MS
Quality of Implementation	Satisfactory	Satisfactory	S	S
Quality of Execution	Satisfactory	Satisfactory	S	S
Quality of the Terminal Evaluation Report	NA	NA	S	S

3. Project Objectives

3.1 Global Environmental Objectives of the project:

As noted in the project document, the global environmental objective of this project was "to reduce the GHG emission from gas pipeline leakages through the rehabilitation of the gas transmission system."

Sichuan Province's 20-year old gas transmission and distribution system consists of almost 3,000 km of pipeline. The age of the system meant that it was prone to breakdowns, accidents, and leakages. Natural gas (methane) is an important greenhouse gas contributing to global warming and climate change. At the local level it also put the safety of operating personnel and local communities at risk. This project was aimed to support system rehabilitation and to reduce small-scale methane emissions as well as large-scale escape of gas due to breakdown and malfunctioning of the system.

3.2 Development Objectives of the project:

The development objective of this project was to assist China in its efforts to reduce methane emissions, enhance the operational efficiency and safety of gas transmission and distribution in Sichuan, and to strengthen the institutional capabilities of the operating agency.

Project components included:

(a) Support the restructuring of the Borrower's upstream oil and gas sector;

(b) Promote the development and conservation of gas resources in an economic, efficient and environmentally sound manner; and

(c) Strengthen the institutional capabilities of China National Petroleum Company (CNPC) and Sichuan Petroleum Administration (SPA).

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation?

There were **no** revisions to objectives or activities.

4. GEF EO assessment of Outcomes and Sustainability

Please refer to the GEF Terminal Evaluation Review Guidelines for detail on the criteria for ratings.

Relevance can receive either a Satisfactory or Unsatisfactory rating. For Effectiveness and Cost efficiency, a six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess. Sustainability ratings are assessed on a four-point scale: Likely=no or negligible risk; Moderately Likely=low risk; Moderately Unlikely=substantial risks; Unlikely=high risk. In assessing a Sustainability rating please note if, and to what degree, sustainability of project outcomes is threatened by financial, sociopolitical, institutional/governance, or environmental factors.

Please justify ratings in the space below each box.

4.1 Relevance	Rating: Satisfactory
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The project is relevant to both China and the GEF. For China, the project was linked to national efforts (in the early 1990s) to diversify energy sources by moving away from coal and ensure reliable supply from local gas and oil sources to meet growing domestic demand. The rise in coal consumption over the previous decade was exacerbating the already serious environmental impacts linked with its use. By 1990 the Gov. of China had already established a regulatory framework to control pollution. In 1990, the Government of China set up a Climate Change Coordination Group, which saw an opportunity to expand the use of natural gas, a relatively cleaner fuel to significantly reduce GHG emissions. This project was part of a larger WB/IBRD/GoC funded effort to restructure the oil and gas sectors in China. The project was developed following a PRIF-financed study that found that major investments were needed in the gas distribution network to reduce GHGs.

The project was also tied to national initiatives to revive the economy in Sichuan Province and reduce reliance on coal. Sichuan had been a significant gas producing area since the 1960's but in 1990, its gas production represented 42% of national production and was declining. With about 10% of the country's population and a per capita income of only 50% of the national average, Sichuan was one of the poorest provinces in China. While the economic growth in Sichuan was averaging around 10%, the growth of energy supply had not kept pace with the demand. As a result of severe gas shortages, industrial production was curtailed and industries were switching over from gas to coal.

For the GEF, the project was covered under Short-Term Response Measures, as the GEF did not have a Operational Program at the time that focused on methane and other short-lived climate forcers. Methane is a highly-potent GHG, with a global-warming potential some 25 times that of carbon. It also contributes to the formation of stratospheric ozone which is linked to smog and other health hazards. Because of these effects, reducing climate impacts from methane emissions, as this project aims to do, is highly relevant for the GEF's climate and sustainable development objectives.

4.2 Effectiveness	Rating: Satisfactory

According to the project completion report, the project's development objectives were fully achieved and in many cases surpassed. The project successfully supported restructuring in the upstream oil and gas sectors, resulting in just two regional companies responsible for oil and gas development and marketing. The gas distribution system was rehabilitated into a modern, efficient operation minimizing GHG emissions and potential risks. The project also built up the institutional and technical capacity within the Sichuan Petroleum Administration and the China National Petroleum Company.

Based on information in the ICR, following a 1994 restructuring study, CNPC and the China National

Petrochemical Company (SINOPEC) were restructured into two regional (and afterwards competing) vertically integrated entities responsible for onshore oil and gas development, refining, petrochemicals production, and product marketing. By early 2000, the government functions were separated from the business operations of the enterprises. As part of its privatization process, PCL successfully carried out in April 2000 an initial public offering for 10% of its shares in international stock markets (New York and Hong Kong).

According to the ICR, the rehabilitation and modernizing of the gas distribution network was efficient and cost effective. This component involved (i) optimal rehabilitation through deterioration monitoring and integrity evaluation, enabling replacement of parts and components rather than outright substitution of whole plants and sections; and (ii) improvement of control, communication and maintenance capability. This approach maximized technology transfer and skills and minimized the upgrading cost. At project closure, this component was largely achieved (with extensive delays) and the network was capable of transporting 10 billion cubic meters of gas annually, compared with 6.5 billion cubic meters at project commencement in 1995 and 8 billion cubic meters targeted at appraisal.

According to the ICR and the previous TER, the project successfully built up capacity in the China National Petroleum Company (CNPC) and the Sichuan Petroleum Administration (SPA). This was accomplished through intensive training workshops and direct collaboration, working alongside engineers and technicians from a prominent international partner company. Areas in which expertise have been upgraded include: geophysics, seismic data acquisition, reservoir engineering and management, drilling, well stimulation and recovery techniques, gas purification, transmission and distribution, gas systems planning, instrumentation, telecommunication, SCADA, corrosion control, construction techniques, deterioration monitoring and integrity evaluation, rehabilitation management, environmental protection, management information systems, project planning and management, utility management, financial management, gas marketing, tariffs, and gas utilization.

4.3 Efficiency	Rating: Satisfactory
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Implementation took 2-years longer than expected, but cost overruns were less than 5% of expected costs. The actual total project cost is estimated at US\$902.83 million compared with US\$877.80 million estimated at appraisal. Some of the delays in implementation were outside of project control (i.e. SARS outbreak), but other delays were due to inefficiencies the executing or implementing agency procedures and processes.

Despite these delays, the project fully achieved its stated objectives and cost effectiveness of the project is viewed as high. The ICR estimates a purely economic rate of return (ERR) of 24%. However, the ICR notes that "Since the benefits to the economy associated with gas efficiency, local and global environmental benefits were not taken into account, the ICR estimate of the ERR is conservative." Moreover, according to the ICR the project has had far-reaching impacts in reforming and regulating the sector, and institutionally, in separating government from the management of energy companies.

4.4 Sustainability	Rating: Likely
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Financial (**Likely**): The project supported rationalization of pricing policy and allocation criteria, as well as improvements in operational efficiency. According to the previous TER, these reforms ensure that the revenues from the overall operations of the system can yield a profit while ensuring the effective and environmentally safe distribution of the gas produced. The ICR also views financial sustainability as highly likely, noting strong investor interest, rising prices for gas (in absence of imports), and growing demand for clean(er) energy.

Socio-political (Likely): The previous TER suggests that the government is "reported to be more committed to establishing a modern regulatory framework that would promote efficient development of oil and gas resources." According to the ICR, "several provinces are putting restrictions on coal use to promote gas penetration." The Public-Private Infrastructure Advisory Facility (PPIAF) established by the project has increased awareness and established consensus on the need for a legal and regulatory framework to channel investment and further develop oil and gas resources. The ICR also notes government support for expanding cooperation with multinational energy companies

Institutional (Likely): The ICR notes the 'irreversibility' of the restructuring. Formerly state held and controlled companies have been privatized, and are now listed on stock markets and publicly traded. The project also redesigned the legal and regulatory framework for the oil and gas sector and drafted model legislation. The draft Gas Law is under consideration by the National People's Congress. There has also been institutional consolidation. Management of four (out of five) gas-producing regions is now consolidated into a single organization called the Gas Transmission Management Department (GTMD). The ICR notes "marked improvement in accountability and operational efficiency as evidenced by the successfully coordinated implementation of deterioration monitoring, integrity evaluation, rehabilitation and capacity expansion programs for upgrading the pipeline network."

Environmental (Likely): No environmental risks were noted in the ICR or the previous TER. The project took steps to limit adverse environmental impacts. According to the ICR, all drilling formation water, wastewater and work-over fluids, process waste water, and pipeline fluids are now treated before appropriate disposal. Entry of non-specification gas into the system has been completely eliminated. Emergency response arrangements have been upgraded and the installation of a supervisory control and data acquisition system (SCADA) was in progress at the time the completion report was written.

5. Processes and factors affecting attainment of project outcomes

5.1 Co-financing. To what extent was the reported co-financing essential to the achievement of GEF objectives? If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

The ICR estimates that actual total project cost was US\$902.83 million compared with US\$877.80 million estimated at appraisal. Cofinancing by the GoC and the companies involved accounted for 76% of total project costs and as such was critical for achieving project objectives. Another 23% of project costs came from an IBRD loan to GoC. From the planned IBRD loan amount of US\$255 million, about US\$37.69 was cancelled upon Borrower's request as PCL, the implementing agency, had sufficient resources to complete the project (due to increased equity after listing of PCL) and about US\$8.42 million was undisbursed. The GEF grant of US\$10 million only accounted for approx. 1% of project costs. And, about US\$0.14 of the GEF grant was undisbursed.

Additionally, the ICR notes that "various policy and pre-investment studies were conducted with the help of international consultants to determine the scope of the project." The donors who funded these studies included Technical Cooperation Credit II (US\$1.9 million), Japanese Grant Facility (US\$1.2 million), United Nations Development Program (US\$0.25 million) and Pre-investment Facility of the Global Environmental Facility (US\$1.4 million).

5.2 Project extensions and/or delays. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If so, in what ways and through what causal linkages?

The project experienced a two-year delay over the course of implementation. According to the ICR, the implementation of network capacity expansion and rehabilitation did not begin until 1999 due to a) extended site investigations to evaluate the condition of the various sections of the system, which was a necessary precursor to the repairs that were to be undertaken; and b) delays in the procurement of required goods and services. Of these, the ICR notes that procurement delays were the main problem. From the ICR: "Prior to sector restructuring, SPA was hamstrung due to cumbersome procedures and insufficient authority. ... Following the structural reform, the situation improved and PCL Southwest was able to speed up the pace of procurement processing. Upgrading of gas processing and transportation infrastructure was extended by about two years due to reasons mentioned above. This delayed project completion and necessitated the first and only extension of closing date by two years."

As the project neared closure, the installation of a supervisory control and data acquisition system (SCADA) was delayed due to SARS and was not completed until end December 2003.

5.3 Country ownership. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability, highlighting the causal links:

This project was very much country driven and owned. The GoC provided the bulk of financing for the project and generally supported implementation. According to the ICR, "Restructuring of CNPC and SPA was expeditiously carried out." The government also supported rationalizing of gas pricing and has provisionally approved the recommendations of the draft Gas Law which will strengthen environmental oversight and sustain project outcomes. In 2002, the government lifted restrictions on competition among the three national companies and committed during WTO negotiations to gradually opening the sector for international oil companies beginning in 2005. The GoC also established the Association for Petroleum and Chemical Industries to promote competition and to regulate the oil and gas sector.

6. Assessment of project's Monitoring and Evaluation system

Ratings are assessed on a six point scale: Highly Satisfactory=no shortcomings in this M&E component; Satisfactory=minor shortcomings in this M&E component; Moderately Satisfactory=moderate shortcomings in this M&E component; Moderately Unsatisfactory=significant shortcomings in this M&E component; Unsatisfactory=major shortcomings in this M&E component; Highly Unsatisfactory=there were no project M&E systems.

Please justify ratings in the space below each box.

6.1 M&E Design at entry	Rating: U/A

According to the 2004 TER, a logframe matrix was developed prior to implementation, but the version of the Project Document reviewed for this TER did not include a logframe and did not specify any arrangements for project M&E. The previous TER notes that the logframe lacks precise indicators and that there are weak links between the activities, outputs and outcomes.

6.2 M&E Implementation	Rating: Moderately Satisfactory
0.2 M&L Implementation	Rating. Woderatery Satisfactory

There is no specific assessment of project M&E in the ICR, but Annex 1 of the ICR does present a logframe matrix for the project. It's not clear from the information in the ICR how or whether the project used the logframe to monitor progress towards targets or objectives. According to the 2004 TER, the use of "an articulated project LFA developed prior to project implementation might have further improved reporting."

However, the ICR does provide some detail on M&E implementation in describing supervision and oversight by the IA:

- A good initial baseline study was conducted prior to the project, which was reported as instrumental to the success of the project.
- Implementation reporting was systematic and adequately detailed. The aide-memoires
 provided a good account of project implementation, flagged problem areas and remedial
 measures.
- An MTR was conducted at a critical phase of project implementation to address issues hampering progress in 1998 and facilitated progress tracking.
- Several variables were monitored and used to assess project achievement such as change in fugitive methane emission, share of natural gas and coal in Sichuan's commercial consumption, entry of non-specification gas into the transportation system.
- M&E activities undertaken allowed for useful guidance and recommendations to be provided on restructuring, institutional strengthening and technical issues."

Based on this information M&E implementation is rated Moderately Satisfactory.

7. Assessment of project implementation and execution

Quality of Implementation includes the quality of project design, as well as the quality of supervision and assistance provided by implementing agency(s) to execution agencies throughout project implementation. Quality of Execution covers the effectiveness of the executing agency(s) in performing its roles and responsibilities. In both instances, the focus is upon factors that are largely within the control of the respective implementing and executing agency(s). A six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess.

Please justify ratings in the space below each box.

7.1 Quality of Project Implementation	Rating: Satisfactory
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The ICR views Bank performance as Satisfactory. There is no assessment of UNDP performance and absolutely no mention of UNDP in the ICR except with relation to funding during the project preparation stage.

The GoC, CNPC, and SPA appear to have worked soley with the Bank in preparing the project. According to the ICR, the bank spurred GoC to do some initial studies on the issues hampering the development of gas resources, and helped in designing and implementing strategies that would promote sustainable development in the oil and gas sector. During project preparation, "potential risks to the project were flagged and steps were taken to mitigate these risks in the project design phase and during project implementation."

In terms of supervision and oversight, the ICR notes that the Bank "closely monitored project implementation, assisted with evaluations and in devising corrective measures. ...Good working relations were maintained among the Bank, the implementing agencies and consultants." The Bank was also responsive to government requests for additional technical assistance in devising policies and plans that would enhance and further the sectoral reforms. And, the Bank was flexible in providing a two-year project extension.

7.2 Quality of Project Execution	Rating: Satisfactory

The EAs for this project were CNPC and SPA, who during the course of implementation were actually privatized and restructured into new entities respectively named PCL and PCL Southwest.

Based on the information in the TER, the performance of the executing agencies, CNPC/PCL and SPA/PCL-Southwest, was mixed. On the restructuring component, execution was quick and efficient. However on the capacity expansion and rehabilitation component, the EAs were slow to procure the required goods and services, delaying progress until 1999 (after the MTR). According to the ICR, the restructuring helped to streamline decision-making within PCL and PCL-Southwest and eventually the objectives of this component were achieved.

According to the ICR, aside from these delays, execution was largely smooth and well managed and the ICR rates overall borrower performance as Satisfactory.

8. Assessment of Project Impacts

8.1 Environmental Change. Describe the changes in environmental stress and environmental status that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

The project has lowered fugitive methane emissions from an estimated 20,000 tons at appraisal to 390 tons in 1997 and about 50 tons in 2002. Overall, around 170,000 tons of fugitive methane emissions (3.4 million tons carbon dioxide equivalent) have been avoided since the commencement of the project. This environmental impact resulted from the successful realization of the project outcomes; the gas sector in China has been restructured appropriately with a relevant reform of the regulatory framework and capacity in gas production and distribution and has been enhanced through a good balance of diversified training, provision of good technical expertise and relevant on–the-job coaching as well as leading-edge technology for the rehabilitation of the pipelines network.

8.2 Socioeconomic change. Describe any changes in human well-being (income, education, health, community relationships, etc.) that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project

activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

No socio-economic changes were noted in the ICR.

8.3 Capacity and governance changes. Describe notable changes in capacities and governance that can lead to large-scale action (both mass and legislative) bringing about positive environmental change. "Capacities" include awareness, knowledge, skills, infrastructure, and environmental monitoring systems, among others. "Governance" refers to decision-making processes, structures and systems, including access to and use of information, and thus would include laws, administrative bodies, trust-building and conflict resolution processes, information-sharing systems, etc. Indicate how project activities contributed to/ hindered these changes, as well as how contextual factors have influenced these changes.

a) Capacities

According to the TE report, the project improved the capacities of CNPC and SPA through the restructuring process and through appointment of SOFREGAZ as a technical collaborator. The restructuring process streamlined management and operations in both entities. The ICR notes that the procurement process took significantly less time following restructuring. Collaboration with SOFREGAZ provided valuable on-site advice on the planning and implementation of the gas network rehabilitation and expansion.

b) Governance

The sector restructuring privatized two state-held companies and has had policy impacts. According to the ICR, "prior to the listing of the new companies, PetroChina and others, regulatory agencies of the selected financial markets requested the gradual development of an adequate and stable regulatory framework." This prompted the GoC to work with the Bank to develop a new framework based on the needs of the sector and aligned with international best practices. The new regulatory framework has been approved in principle by the State Council and a draft Gas Law is under consideration by the National People's Congress.

8.4 Unintended impacts. Describe any impacts not targeted by the project, whether positive or negative, affecting either ecological or social aspects. Indicate the factors that contributed to these unintended impacts occurring.

No unintended impacts were noted in the ICR.

8.5 Adoption of GEF initiatives at scale. Identify any initiatives (e.g. technologies, approaches, financing instruments, implementing bodies, legal frameworks, information systems) that have been mainstreamed, replicated and/or scaled up by government and other stakeholders by project end. Include the extent to which this broader adoption has taken place, e.g. if plans and resources have been established but no actual adoption has taken place, or if market change and large-scale environmental benefits have begun to occur. Indicate how project activities and other contextual factors contributed to these taking place. If broader adoption has not taken place as expected, indicate which factors (both project-related and contextual) have hindered this from happening.

The GEF funded rehabilitation and expansion of the natural gas distribution network was implemented at a regional scale. The project also supported consolidation management of the gas transmission and distribution operations of the SPA. This consolidation makes it easier monitor performance and streamlines management across the network. There is potential to replicate these initiatives in other provinces in China.

9. Lessons and recommendations

9.1 Briefly describe the key lessons, good practices, or approaches mentioned in the terminal evaluation report that could have application for other GEF projects.

1. The dual track approach followed during project implementation, intensive policy dialog at the national level and implementation strategies designed at the project level facilitated and furthered achievement of the objectives of the project. The comprehensive studies carried out under the project allowed the Bank to respond in a timely manner to government queries about policies and actions that would enhance and further reforms in the coming years. Government ownership of and commitment to the reform process are a key determinant in the sustainability of the project's results. In this project, cooperation with the State Council for Restructuring Economic System and the provision of timely expert advice and international best experience, developed consensus amongst the various stakeholders in sector development and generally facilitated and enhanced the reform process.

2. Appropriate technology transfer can significantly improve sector performance and increase the availability of resources. In this project, it led to a 267 billion cubic meter increase in proven reserves of gas compared to the 70 billion cubic meters estimated at appraisal, a production capability of 10 billion cubic meters per year versus the appraisal target of 8 billion cubic meters and a transportation capability of 10 billion cubic meters per year as compared to the 8 billion projected at appraisal.

3. Long-term technical collaboration with an organization experienced in the rehabilitation and capacity expansion of gas processing and transportation infrastructures was highly successful as it provided onsite managerial and technical expertise, advice and training to SPA/PCL Southwest staff and simultaneously facilitated decision-making and state-of-the-art knowledge transfer.

9.2 Briefly describe the recommendations given in the terminal evaluation.

No recommendations are given in the ICR.

10. Quality of the Terminal Evaluation Report

A six point rating scale is used for each sub-criteria and overall rating of the terminal evaluation report (Highly Satisfactory to Highly Unsatisfactory)

Criteria	GEF EO comments	Rating
To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	The ICR (TE report) contains a detailed assessment of outcomes and impacts relative to expected outcomes and objectives	S
To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated?	No evidence gaps were noted. The report is internally consistent and convincing.	S
To what extent does the report properly assess project sustainability and/or project exit strategy?	The report assesses sustainability along several dimensions. There is no exit strategy.	S
To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	Lessons learned are insightful and draw on the evidence presented regarding implementation.	S
Does the report include the actual project costs (total and per activity) and actual co-financing used?	The report presents actual estimated costs at the time of writing. Costs are detailed by activity and by financing source. Actual co-financing amounts are provided.	S
Assess the quality of the report's evaluation of project M&E systems:	There is no comprehensive assessment project M&E. Some aspects of M&E, reporting and adaptive management, are mentioned in different sections of the report.	MU
Overall TE Rating		S

11. Note any additional sources of information used in the preparation of the terminal evaluation report (excluding PIRs, TEs, and PADs).

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