



1. Project Data

Project ID P154669	Program Name Financing for Air Pollution Control	
Country China	Practice Area(Lead) Energy & Extractives	
L/C/TF Number(s) IBRD-85920	Closing Date (Original) 30-Jun-2022	Total Program Cost (USD) 429,724,816.15
Bank Approval Date 22-Mar-2016	Closing Date (Actual) 30-Jun-2022	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	500,000,000.00	0.00
Revised Commitment	413,043,478.26	0.00
Actual	429,724,816.15	0.00

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2. Program Context and Development Objectives

a. Objectives

The Program Development Objective (PDO) of this Program for Results (PforR) operation was “to reduce air pollution and carbon emissions through increasing energy efficiency and clean energy, with a focus in the Jing-Jin-Ji and neighboring regions”. This was identical to the wording of the PDO in the Program Appraisal Document, p.ii.



b. Were the program objectives/key associated outcome targets revised during implementation?

No

c. Will a split evaluation be undertaken?

No

d. Components

The PforR program supported implementation of activities designed to achieve priorities and goals outlined in the Government of China's Air Pollution Prevention and Control Action Plan (APPCAP), in the following key Results Areas:

Results Area 1: Reduction in coal consumption from increased EE and RE:

This results area was focused on reducing coal consumption, though the scaling up of investments in energy efficiency (EE) and renewable energy (RE) subprojects. EE activities focused on retrofit and renovation of industrial facilities, commercial buildings, and public buildings and facilities, including replacing energy-intensive industrial equipment with highly efficient equipment, and inefficient industrial processes with highly efficient ones; recovering and utilizing by-product gas, waste heat and pressure for electricity generation or cogeneration; and implementing green building EE. RE activities included centralized solar photovoltaic (PV), wind and biomass systems; distributed solar PV, and rooftop, systems; solar water heating, geothermal and water-source heat pumps.

Results Area 2: Reduction in air pollution emission through pollution abatement measures:

This results area was focused on reducing air pollutants such as SO₂, CO₂, NO_x and particulates through pollution abatement measures. Towards this end, the Program supported provision of sub-loans through Hua Xia Bank (HXB) to sub-borrowers for installing end-of-pipe equipment for desulfurization, denitrification and particulate removal, or through fuel switching (e.g. by replacing coal with natural gas in industrial boilers and power plants), and replacing gasoline vehicles with electric and compressed natural gas (CNG) vehicles.

Results Area 3: Strengthening institutional capacity of HXB:

This results area was focused on strengthening institutional capacity of HXB and mainstreaming of its green financing to support the successful implementation of activities under Results Areas 1 and 2. This would be done through a combination of measures, including establishment of a Green Finance Center (GFC) within HXB, setup of internal green credit procedures, trainings, development and deployment of innovative green financing models and products, potential lending to energy service companies (ESCOs) and strengthening capacity in monitoring and verification of results.

e. Comments on Program Cost, Financing, Borrower Contribution, and Dates

Program cost: The estimated program cost at appraisal was US\$1,000 million equivalent.



Financing: IBRD financing for the program amounted to US\$500 million. At completion, actual disbursement was US\$413.03 million.

Borrower contribution: The original contribution from HXB was US\$500 million equivalent. At completion, the actual contribution from the borrower was US\$815.2 million.

Dates: The project was approved on March 22, 2016, becoming effective on August 18, 2016. The scheduled closing date was June 30, 2022, with actual closing taking place on that date.

Mid-Term Review (MTR): A Mid-Term Review (MTR) was carried out on May 06, 2019.

Restructurings: The project underwent two minor restructurings. The first took place in October 2019, to adapt to the second phase of the government program – transitioning from APPCAP (2014-17) to the “Three Year Action Plan to Protect Blue Sky” (2018-20), with enhanced government targets for air pollution control. At approval, the PforR operation had been designed to be aligned with the APPCAP, whose targets were successfully met by 2017. The restructuring was in order to adapt the PforR Program to be aligned with the subsequent phase of the government program and ensure its sustainability. The restructuring also extended the geographical reach of the financing to one additional province. The second restructuring, completed in June 2022, just prior to Program closure, was undertaken to cancel 80 million euros of the existing IBRD loan after the results had been achieved in full. Both restructurings were carried out to adjust and adapt to enhanced targets and ambition of government programs and required no extensions of closing date.

3. Relevance

a. Relevance of Objectives

Rationale

Country and Sector Context: The extremely rapid rate of economic growth experienced by China over the past three decades or more was accompanied by a 6-fold increase in energy consumption to feed an economy that had increased 22-fold, and to satisfy the needs of an urban population that had nearly quadrupled in size, accounting for over half of China’s population by 2013. This was also accompanied by a significant environmental burden, with many of China’s cities becoming among the most polluted in the world, and the country becoming probably the largest emitter of greenhouse gas (GHG) emissions in the world. Against this background, the Government of China (GoC) placed a very high priority on air pollution control – declaring a “war on air pollution” (PAD, p.1) and implementing a series of mitigation actions. The most noteworthy of these was the Air Pollution Prevention and Control Action Plan (APPCAP) issued by the State Council in 2013 specifically mandated the Beijing-Tianjin-Hebei region and neighboring regions (Shandong, Shanxi, Inner Mongolia and Henan provinces – together referred to as Jing-Jin-Ji region) to reduce its annual fine particulate matter (PM25) concentrations by 25 percent between 2012 and 2017.

Since coal was the single-largest source of air pollutants and GHG emissions in China, dominating 66 percent of the energy mix in 2014, reduction of coal consumption was considered essential, and the



APPCAP set targets to reduce coal consumption in the Jing-Jin-Ji (JJJ) region by 83 million tons (from 1.8 billion tons in 2014), by increasing EE in the industrial, power and building sectors, and increasing the use of clean energy, particularly natural gas (by a targeted 50 billion cubic meters) and RE. The GoC introduced mandatory targets to reduce energy intensity of 20 percent of GDP for the 11th Five Year Plan (FYP), 2006-10, and 16 percent for the 12th FYP, 2011-15, along with a plan to increase RE as a share of total primary energy from 10 percent in 2014 to 15 percent by 2020 and 20 percent by 2030. The GoC was also committed to reducing carbon-intensity (i.e. carbon emissions per unit of GDP) by 40-45 percent from 2005-2020 and 60-65 percent from 2005-2030.

Alignment with National/state-level priorities and Country Partnership Strategy/Framework:

The objectives of the PforR Program were fully consistent with the priorities identified in the Country Partnership Strategy (CPS) for FY2013-16, a key pillar of which had supported greener growth, and China's 13th FYP, 2016-20, which gave priority to green development and air pollution control in the government's long-term agenda beyond 2017. At completion, the Program remained strongly relevant and consistent with the World Bank Group's Country Partnership Framework (CPF), FY2020-25, engagement area 2 of which sought to promote greener growth by facilitating the transition to a lower-carbon energy path and by reducing air pollution. The Program was also in line with a key pillar of the Bank's Systematic Country Diagnostic (SCD) for China, 2018, aimed at making fuller use of market mechanisms to promote green growth and more efficient, sustainable use of natural resources.

The Program's development objectives were also relevant to the GoC's most recent air pollution program (titled "Further Promoting the Nationwide Battle to Prevent and Control Pollution", 2021-25), which set targets for reducing CO2 intensity by 18 percent of GDP, and particulate matter intensity by 10 percent in cities at or above prefectural level. Achievement of the PDO was supported by the proven capacity of HXB to implement the Program. HXB had shown its commitment at appraisal and enhanced its capacity to fulfil the agreed legal covenants during the implementation period, including its institutional setup, review and approval processes, reporting and M&E.

Based on the above, relevance of the PDO is rated High.

Rating

High

b. Relevance of DLIs

DLI 1

DLI

The Program, as designed, comprised three Results Areas and six Disbursement-Linked Indicators (DLIs) – one output DLI (DLI-1), two outcome DLIs (DLI-2 and DLI-3) and three institutional strengthening DLIs (DLI-4, DLI-5 and DLI-6). These were as follows:

Results Area 1: Reduced coal consumption from increased EE and RE:



and

Results Area 2: Reduced air pollution emission from pollution abatement measures

DLI-1: Sub-loans (for eligible EE, RE and pollution abatement subprojects) disbursed to sub-borrowers (US\$ m.)

DLI-2: Coal reduction from eligible EE and RE subprojects ('000 tce)

DLI-3a: Reduction of SO₂ emissions from desulfurization subprojects ('000 tons)

DLI-3b: Reduction of NO₂ emissions from denitrification subprojects ('000 tons)

Results Area 3: Strengthened institutional capacity of HXB:

DLI-4: Establishment of a Green Finance Center and adoption of internal procedures for identification, risk assessment, appraisal, and approval of green lending

DLI-5: Number of different eligible innovative financial products for green financing deployed

DLI-6: Number of different ESCOs receiving sub-loans (for eligible EE, RE and pollution abatement subprojects)

Rationale

The six Disbursement Linked Indicators were intended to trigger the Bank disbursements under the program. The DLIs were well defined, verifiable and measurable. Timelines for their achievement were relevant to maintaining the pace of investments until the end of the Program. As such, the DLIs were important milestones for HXB to implement the Program and measure progress, step-by-step.

Program indicators were integrated with the DLIs, whilst maintaining a timely flow of funds to move implementation forward. All DLIs triggered disbursement against performance; though the nature of the results achieved under each DLI varied. DLI-1 triggered outputs encouraging HXB to finance cost-effective investments in pollution abatement sub-projects. DLI-2 similarly triggered outcomes to encourage financing of coal-reduction sub-projects, and DLIs-3a and-3b, of desulfurization and denitrification sub-projects. The three institutional strengthening DLIs were intended to facilitate process and behavior changes to mainstream green financing within HXB (through DLI-4), encourage deployment of innovative green financial products (through DLI-5), and promote use of market-based mechanisms in EE (through DLI-6).

In this way, there was a clear alignment between DLIs and the Program's development objectives, and the selected DLIs were appropriate to measure progress towards achievement of development outcomes. Based on this, the relevance of DLIs is rated High.

Rating

High

OVERALL RELEVANCE RATING

Rationale

The Program's PDO and results chain remained highly relevant and aligned with the objectives and strategic priorities of GoC and the World Bank for the country and sector. The PforR approach based on DLIs provided



a valid framework for introducing results-based financing for bringing about reduction in air pollution and carbon emissions through EE and RE. The overall relevance of the Program is accordingly rated High

Rating
High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

"To reduce local air pollutants and carbon emissions through increasing energy efficiency, with a focus in the Jing-Jin-Ji and neighboring regions."

Rationale

The Program was intended to help the GoC deliver its results-oriented air-pollution prevention program (APPCAP) in Jing-Jin-Ji (JJJ) through engagement with private and public sectors. The PforR would finance a slice of APPCAP in JJJ, with a focus on achieving the coal reduction target and leveraging a financial institution as a platform to scale up green finance in China. The development objectives of the Program would be achieved through two categories of interventions designed for: (a) Reduction of emission at source, and (b) End-of-pipe control. The former focused on coal reduction through energy conservation and clean energy, coal being the single largest source of both air pollutants and GHG emissions. The latter concentrated on application of end-of-pipe technologies on particulate removal, desulfurization and denitrification in the industrial sector.

Theory of Change (ToR)

The Program's development activities would be realized through the various activities outlined in Section 2(d), including scaling up of EE and RE investments; increasing finance for pollution abatement measures, either by installing end-of-pipe equipment for air pollutant removal or through fuel-switching measures; and establishment of a Green Finance Center (GFC) within HXB, plus trainings and process improvements. In general, a direct causal link can be drawn between these activities and outputs, intermediate outcomes and longer-term outcomes. Under Results Area 1, sub-loans for EE and RE subprojects implemented, would result in energy savings and generation of electricity from renewable sources. Sub-loans for pollution abatement subprojects would similarly lead to SO₂ and NO_x removal. Establishment of the GFC and of internal procedures for identification, risk assessment, appraisal and approval of green financing, would encourage deployment of innovative financial products and increased market penetration of green financing. All of these in turn would contribute to a reduction in coal consumption, local air pollutants and CO₂ emissions, and to an improvement in institutional capacity and mainstreaming at the HXB. Longer term outcomes arising could include a sustained improvement in air quality through reduced air pollutants and carbon emissions in the JJJ and neighboring regions, improved public health due to better air quality,



contribution to dual carbon goals, increase of green financing in China, and a boost to sustainable development.

In assessing achievement of the PDO, it should be noted that reductions in local air pollutants and carbon emissions in JJJ region was based on methodologies agreed for each type of investment subproject, and independently verified by third parties, so that the achievements could all be attributed to the World Bank-financed PforR Program (ICR, p.20).

Outputs and Outcomes:

Air pollutants included particulate, SO₂ and NO_x, as identified in the APPCAP. A total of 33 subprojects were financed through the PforR Program, 4 of which were related to desulfurization and denitrification. PDO indicators relating to reduction of particulate emissions from eligible EE and RE subprojects, and reduction of NO_x emissions from denitrification subprojects, both exceeded their Program targets – the former by 18 percent and the later by 34 percent. The PDO indicator for reduction of SO₂ emissions from similarly eligible EE and RE subprojects fell slightly short – by 15 percent - of the target. However, the weighted average of local pollutants reduced exceeded the target by nearly 13 percent (91.4 thousand tons of SO₂ equivalent against a target value of 81.0).

The slight underachievement of the SO₂-reduction target could be attributed to the shrinking size of market for desulfurization, due to the introduction of more stringent government regulations in this area during implementation of the Program (ICR, p.20). At appraisal, this target market had been based on existing coal power plants that were operating; however, subsequently, the GoC enforced ultra-low sulfur emission standards for these power plants, which would require installation of more efficient (and costly) SO₂ removal facilities, raising the per ton cost of SO₂ removal above the targeted benchmark cost of the Program. This effectively reduced the market size for desulfurization available for the PforR Program. The PDO indicator was not however modified during the first restructuring to reflect this changed situation, as HXB felt that it could target desulfurization facilities in the non-power sector to make up for the market shortfall – which did not fully take place.

To reduce carbon emissions, the Program financed eligible EE and RE subprojects through HXB – 11 EE and 18 RE (of the total of 33) of which targeted CO₂ emission reduction. As these were successfully implemented, emission reduction was fully achieved, exceeding the planned target by 16.9 percent. In addition, the target of reducing coal consumption, which directly contributed to the GG-reduction target, was exceeded by 17.9 percent.

These PDO-level outcomes were achieved on the basis of the following intermediate results indicators:

- (a) Total investment flowing into eligible EE, RE and pollution abatement subprojects was of the order of US\$1,774 million against an original target of US\$1,400 and revised target of US\$1,156.5 million (after HXB cancelled a remaining loan amount of 80 million euros from IBRD – thereby exceeding the target by 53 percent.
- (b) The volume of sub-loans disbursed to sub-borrowers was of the order of US\$756.5 million, against a target of US\$1,000 million (originally) and US\$826 million (revised) – thereby achieving nearly 92 percent of the target.
- (c) The establishment of a green finance center at HXB did take place in December 2016, along with the



adoption of internal procedures for the identification, risk assessment, appraisal and approval of green financing.

(d) Four eligible innovative financial products for green financing were deployed during the period, against a Program target of three products.

(e) Nine different energy service companies (ESCOs) were recipients of sub-loans during the period, against a target of nine ESCOs – hence, a small shortfall.

(f) The number of subprojects financed by syndicated loans was 3, against a target of 2.

Further relevant detail is provided by the achievement of DLIs, presented in Table 1 below:

Table 1 Achievement of DLIs at Closing (June 2022)

DLIs	Verified Results (June 2022)	Program Targets (June 2022)	Actual/Target (%)	IBRD Loan Allocation (US\$ million)
DLI-1: Sub-loans (for eligible EE, RE and pollution abatement subprojects) disbursed to sub-borrowers (US\$ million)	756.529	826.1	91.6	216.3
DLI-2: Coal reduction from eligible EE and RE subprojects (thousand tce)	575.251	550	104.6	125
DLI-3a: Reduction of SO2 emissions from desulfurization subprojects (thousand tonnes)	7.547	8.6	87.8	8.7
DLI-3b: Reduction of NOx emissions from denitrification subprojects (thousand tons)	9.893	5.9	168	15
DLI-4: Establishment of a Green Finance Center at HXB and adoption of relevant internal procedures	Established		100	10.75
DLI-5: Number of different eligible innovative financial products for green financing deployed	4	3	133	18
DLI-6: Number of different ESCOs receiving sub-loans	9	10	90	18



(for eligible EE and RE subprojects)				
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It should be noted that a third-party verification was performed on the achievement of each DLI. As seen from Table 1, DLI-1 and DLI-2 were the most important, as together they accounted for 83 percent of total IBRD financing. At Program closing four of the DLIs were fully met and two, substantially met. At closing the PforR had financed over US\$1.77 billion investments in EE, RE and emissions control – US\$411 million of which were from the World Bank loan, US\$817 million from commercial sources and US\$548 million from the sub-borrowers (as equity). In this way, while, at appraisal, the IBRD loan had targeted a commercial financing leverage of 1:1, the actual practice leverage achieved was at closing was substantially greater.

Among other achievements, the Program supported HXB in its efforts to mainstream its green finance business and establish itself as a green finance leader. Over the implementation period of the Program, green finance has become an important part of HXB’s business, accounting for 11.1 percent of its portfolio in 2022. Apart from the CNY 5.3 billion of loans that HXB provided for green financing under the PforR, it provided an additional CNY 66.8 billion on this account in the eight provinces, allowing it to emerge as a leader in green financing in China, its green finance model being replicated by other banks. As a result of the successful implementation of the PforR program, HXB won the ‘Green Finance Innovation Award’ at the 2020 International Finance Forum.

On a broader scale, the government programs to which the PforR contributed – APPCAP (2014-17) and the “Three Year Action Plan for Fighting for the Blue Sky” (2018-20) – both achieved their goals. As of 2020, SO2 and NOx emissions had declined by more than 15 percent over their 2015 levels. Particulate matter concentration in the cities dropped by over 18 percent, as a result of which the number of heavily-polluted days in the area were reduced by 88 percent (from 34 days in 2016 to under 4 days in 2021). As such, the enforcement of the government programs had substantially contributed to mitigating the severe air pollution in the Program area over the PforR implementation period (ICR, p.26).

Based on the above, Efficacy of the Program is rated High.

Rating
 High

OVERALL EFFICACY

Rationale

Overall efficacy is rated High, based on the fact that the PforR Program achieved results that mostly exceeded expectations at approval. The Program contributed to a significant reduction of air pollutants and carbon emissions in the Program area. Good incentives for implementation were provided by the DLIs, and incentives were also provided for mainstreaming green finance in the country – by supporting HXB’s efforts in this area, which resulted in replication within the entire banking sector in China, as a consequence of knowledge-sharing by HXB.



Rating
High

5. Outcome

With relevance and efficacy both rated High, overall outcome rating is assessed as Highly Satisfactory. The Program did make many important contributions to the reduction of pollutants and carbon emissions (in excess of Program targets). In particular, the PforR achieved a high leverage ratio of commercial financing, (2:1, as against the targeted 1:1), deploying innovative financial products in support of the government program. Support was provided for private sector participation, with one-third of the financing having been provided to the private sector. Out of a total of US\$1,774 million investments, private investment reached US\$570 million, or 32 percent of total investment. Overall, the ICR notes (p.27) that there was a dramatic improvement in air quality in the JJJ areas during the period, reflected in a reduction in numbers of heavily polluted days from 34 in 2016 to under 4 in 2021.

Outcome Rating
Highly Satisfactory

6. Risk to Development Outcome

The overall risk to development outcome is Modest, for the following reasons:

Sustainability of government's air pollution policy: This risk is assessed as Low. Given its impact on public health, air pollution and its mitigation are likely to remain important priorities for the government over the foreseeable future. The PforR Program was conceived during the first of three phases of the government program, its implementation took place during the second phase, while the third phase extends well beyond the lifetime of the Program. This provides a good indication of the sustainability of the government's commitment to controlling air pollution over the medium to long term. Some concerns may arise on account of the power shortage experienced by China in late 2021, which raised energy security concerns which could have necessitated the continued use of coal power plants in the short term. That said, RE and EE still remain the main investment to boost the country's continuous green growth over the longer term.

Impact of COVID-19 on pipeline development: The Program had been affected substantially by the Covid-19 pandemic, reflected in the cancellation by HXB of 80 million euro of the IBRD loan at Program closing. The pandemic is however slowing down and its impact is likely to be smaller in the foreseeable future.

7. Assessment of Bank Performance



a. Quality-at-Entry

The strategic relevance of the approach was sound and the Program was well aligned with the priorities of the GoC regarding air pollution prevention. The lessons from two previous Bank-financed projects in China (China Energy Efficiency Financing and its follow-on operation) were incorporated in the Program design – including the adoption of an enhanced institutional arrangement to help manage a large portfolio of clean energy and EE investments. To properly handle this large portfolio of investment sub-projects, the design of the operation linked capacity building of the implementing agency and design of incentives with the introduction of specific DLIs, such as the establishment of a Green Finance Center by HXB. It was also linked to a GEF grant financing parallel technical assistance to HXB, which made use of the grant financing to promote (a) business development, deal origination and pipeline development, (b) to support development of innovative financial products under the Program, (c) due diligence of sub-projects, (d) verification of results and DLIs, (e) strengthening of HXB’s implementation capacity, and (f) knowledge sharing and dissemination.

A comprehensive Operation Manual was developed at appraisal, detailing project management arrangements, fiduciary procedures, M&E systems, DLI verification protocols and safeguards measures.

As indicated by the ICR (p.34), the design of the Program indicators and the DLIs was appropriate, target values being calculated on the basis of reasonable assumptions (hence requiring no major change during Program implementation).

Quality-at-Entry Rating Satisfactory

b. Quality of supervision

The Bank team conducted 13 supervision missions during the six-year implementation period of the Program. Aide Memoires and Implementation Status and Results Reports (ISRs) were prepared on a timely basis (ISR, p.35) and the results framework used as an effective tool for proactive management of the project. Most of the Bank team were stationed in the country office, thereby ensuring timely communication with counterparts and ability to provide proactive role in promoting solutions to implementation challenges (for instance in working closely with HXB and local governments to help identify more pipeline investments).

The Bank team also carried out a timely restructuring when the government program evolved from APPCAP to the ‘Three Year Action Plan for Fighting for the Blue Sky’ (2018-20) – aligning the PforR Program to the new government program, through expanding geographical coverage and including Volatile Organic Compounds (VOCs) as eligible air pollutants. The team also carried out a number of trainings to the client, and ensured that the Program was in compliance with fiduciary and safeguards policies.

Both the Bank team and HXB worked closely in disseminating the project’s experience to internal and external audiences, thereby expanding the influence of the PforR Program. Apart from helping HXB to establish itself as a leader in green financing among domestic banks, it also engaged more financial institutions to learn from HXB in managing its green financing businesses. The Bank teams efforts were recognized internally through a Regional Vice President (RVP) Award in the East Asia Pacific (EAP)



Region and an Energy and Extractive Practice Award in FY2018 for excellent implementation support work contributing to a strong implementation performance of the PforR during the initial several years (ICR, p.35).

Quality of Supervision Rating

Highly Satisfactory

Overall Bank Performance Rating

Highly Satisfactory

8. M&E Design, Implementation, & Utilization

a. M&E Design

According to the ICR (p.31), the M&E framework was well designed and adopted throughout the life of the project. The framework was clear and straightforward, covering all three results areas, with PDO indicators.

The results framework (RF) and DLIs were well defined with clear and measurable output and outcome indicators. The selection of indicators was appropriate and adequately linked to the targets for the relevant government programs, and providing incentives for HXB to achieve the Program's planned objectives. There were three types of DLIs: an output indicator to measure the scale of green financing provided to support implementation of APPCAP for reduction of emissions, two outcome DLIs to measure the contribution to coal reduction target set by APPCAP and reduction of air pollution, and three institutional-strengthening DLIs. The Bank team made good efforts to reach consensus on design and selection of the DLIs with HXB and GoC (ICR, p.31).

DLI verification protocols were clearly defined during appraisal and included in the Operation Manual. They captured both quantitative and qualitative aspects of the DLI achievements. Within HXB the Green Finance Center (GFC) was responsible for the results monitoring and verification of DLIs - the latter involving appointment of an independent audit firm.

b. M&E Implementation

M&E for the Program was implemented through regular monitoring of the RF, quarterly progress reports, a mid-term review on implementation and outcome progress, and the Program implementation completion report. The GFC was responsible for daily M&E activities, including data collection, monitoring and reporting of progress to the World Bank on the basis of the agreed-upon results indicators, and coordination with all third-party verification agencies. The ICR reports (p.32) that M&E was implemented thoroughly as planned, and reported on a regular and timely basis.



c. M&E Utilization

M&E was utilized to monitor and manage Program progress, identify areas where emerging issues might require attention, and inform key decision-making. Indicators were closely aligned with Program targets. Implementing and achieving DLI targets translated into progression of the indicators as well. HXB internalized the results indicators framework and familiarized itself with the loan eligibility/feasibility evaluation process adopted by the Program and applied them to other green financing projects outside the project area - which helped the mainstreaming of green financing into HXB's lending portfolio. Finally, HXB used data collected via the M&E process to help develop innovative financial products for clean energy.

Overall, M&E quality was High. The Program was successful in monitoring progress and collecting evidence that the PDO had been met. A framework for data collection was implemented, and a verification protocol in the Operation Manual provided guidance for third parties to verify DLIs, which facilitated the fund disbursement and achievement of results.

M&E Quality Rating

High

9. Other Issues

a. Safeguards

Environmental and Social Safeguards

An Environmental and Social Systems Assessment (ESSA) was prepared, according to OP 9.00, during program preparation (PAD, p.25). The draft ESSA was based on a review of existing laws and regulations and consultations with key stakeholders, ranging from HXB, developers of different types of EE, RE and pollution abatement projects, and government officials and individuals. The ESSA concluded that the overall environment, health and safety (EHS) and social systems in China – the JJJ region in particular – were considered acceptable for use under this PforR operation.

The ESSA provided three recommended actions to strengthen the environmental and social impact management and Program management capacity of HXB during implementation. During the first Program restructuring, the geographical addition and the new air pollutant target (VOCs) were assessed from an environmental perspective. It was concluded that they would not change the risk rating/category of the Program, and hence the existing ESSA was still applicable, with no change warranted.

During implementation of the Program, the enhanced environmental and social management procedure and exclusion criteria (developed earlier for excluding activities with significant environmental and social risks) were integrated into the whole portfolio management procedure and routine monitoring work of HXB, as defined in the Operation Manual. HXB took reasonable care to maintain due diligence of environmental and social issues, as well as on screening and exclusion to ensure that only investments with moderate environmental and social risks were eligible for the PforR.



b. Fiduciary Compliance

Financial Management (FM): The ICR reports (p. 33) that FM compliance was generally adequate throughout the implementation period. The Program had generally accurate and timely information on the Program budget to determine that it was being used for its intended purpose and that the DLIs were achieved as expected. Accounting and financial reporting were in line with requirements, as specified in the Loan Agreement and Operation Manual. Program audit reports were all with unqualified opinions. The withdrawal procedure and funds flow arrangement were appropriate. DLIs were verified on time and loan proceeds were disbursed on timely basis to HXB.

Procurement: The ICR reports (p. 33) that the PforR’s procurement was satisfactory and complied with requirements as specified in the Operation Manual. HXB supervised procurement activities and saw to it that relevant rules and procedures as specified in the Legal Agreement and Operation Manual were followed. For each subproject, the sub-loan agreement and relevant documents were collected and retained by the GFC, which would check compliance with Operation Manual for each subproject.

c. Unintended impacts (Positive or Negative)

N/A

d. Other

Private Sector Participation: The PforR Program engaged the private sector on a verifiable scale throughout the implementation period. 12 of the 33 subprojects were invested in by private companies, and 1 by a joint venture. As noted earlier, private investment in these subprojects was of the order of US\$570 million, out of US\$1,774 million total investments, i.e. around 32 percent. HXB and other financial institutions provided some US\$425 million to these private companies, accounting for 35 percent of commercial financing provided under the Program.

10. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Highly Satisfactory	Highly Satisfactory	
Bank Performance	Highly Satisfactory	Highly Satisfactory	
Quality of M&E	High	High	
Quality of ICR	---	High	

11. Lessons



The ICR (pages 37 to 38) lists several lessons from which IEG derives the following lessons that are relevant for similar projects implemented in comparable environments:

1. Success of the PforR Program rested upon the Government's strong commitment and effective action plans: The mitigation of air pollution on such a large geographical scale necessitated strong commitment from the government – which maintained the responsibility for identifying priority areas and issuing policies and regulations. The sustainability of the commitment was also critical. The PforR financed a time slice of the government's program (APPCAP), its design being conceived during the first phase and its implementation period coinciding with the second phase of that program, with a third phase extending well beyond the time horizon of the PforR. The government program provided a stable policy environment for RE, EE and air pollution abatement projects in China, as well as for the PforR itself. The government's action plan on air pollution prevention/control set clear targets which were helpful to achieving effective reduction of GHG emissions under the Program.

2. PforRs can be effective instruments for supporting the short-term financing needs of government programs as well for strengthening the institutional capacity needed to assure their longer-term sustainability. PforRs can balance the twin dimensions of financing investments and supporting policies and reforms, which would otherwise need to be handled separately through IPF and DPO instruments. PforRs link funds disbursement to results achieved, and the DLIs can be designed to take into account both short-term results and longer-term institutional reform. In this way, the Program supported strengthening of HXB's capacity to design and deploy innovative green financing products, with a view to mainstreaming green finance in HXB's portfolio. This allowed the impact of the Program to be enlarged substantially.

12. Assessment Recommended?

No

13. Comments on Quality of ICR

The ICR is well-written, clear, and candid, and generally complies with the relevant OPCS guidelines (except in regard to length, which may however be justified to some extent by the complexity of the operation). The ICR presents a clear theory of change with a good diagrammatic representation of the results chain from activities to outcomes. The analysis and conclusions are generally supported by evidence. One would however have liked to have seen a clarification of how exactly some of the intermediate results indicators differed from outcome and output indicators, given the overlapping nature of their descriptions (e.g. it is not absolutely clear in what way the PDO indicator for reduction in SO₂ emissions from EE, RE and desulfurization subprojects differed from the intermediate indicator for reduction in SO₂ emissions from desulfurization subprojects; same is true of the indicators for NO_x emissions). In other aspects, the ICR provided a good account of the Program's impacts – immediate and longer term – as well as of the key factors determining its achievements, its M&E framework and the Bank team's contributions in various areas.



a. Quality of ICR Rating
High