



1. Project Data

Project ID

P100584

Project Name

IN: Chiller Effcy-GEF

Country

India

Practice Area(Lead)

Environment, Natural Resources & the Blue Economy

L/C/TF Number(s)

TF-94877

Closing Date (Original)

30-Jun-2014

Total Project Cost (USD)

1,105,702.59

Bank Approval Date

30-Jun-2009

Closing Date (Actual)

31-Dec-2014

IBRD/IDA (USD)
Grants (USD)

Original Commitment

6,300,000.00

6,300,000.00

Revised Commitment

1,105,702.59

1,105,702.59

Actual

1,105,702.59

1,105,702.59

Prepared by

John Redwood

Reviewed by
J. W. van Holst
Pellekaan
ICR Review Coordinator

Christopher David Nelson

Group

IEGSD (Unit 4)

2. Project Objectives and Components

a. Objectives

The Project Development Objectives (PDOs), as stated in the Legal Agreement, were: "to accelerate the replacement of centrifugal chillers with energy efficient non-CFC [Chloroflourocarbon] - based chillers in order to promote the development of energy efficient technologies and products and to reduce GHG [Greenhouse Gas] emissions, and support the phase-out of CFC demand in India".



The Global Environmental Objective (GEO) was "to reduce GHGs while simultaneously supporting the completion of the phase-out of consumption of Ozone Depleting Substances (ODSs) required under the Montreal Protocol (MP)".

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

No

c. Will a split evaluation be undertaken?

No

d. Components

As described in the Project Appraisal Document (PAD), the project components and subcomponents were:

1. Provision of Incentives to Accelerate Replacement of Energy Inefficient Chillers (appraisal cost: US\$79.683 million of which US\$5.730 million from the GEF (Global Environment Facility) grant, US\$264,316 from the MP grant, US\$3.569 million from the Clean Development Mechanism (CDM), and US\$70.125 million from the private sector); actual cost: not stated in ICR) -- to provide a financial incentive (about 20 percent of the equipment standardized cost) to accelerate the replacement of old centrifugal chillers to non-CFC energy efficient ones.

Subcomponent 1.1 Incentive to Chiller Owners -- grant funds from GEF and MP would be used to provide incentives for the replacement of inefficient chillers, with priority given to CFC chillers, in the initial phase of the project (until grant funds are exhausted). Additional units would be replaced through revenues generated by carbon credits. In the initial phase, chiller owners would have two choices of incentives which they needed to decide upon as soon as they joined the program: (i) up-front subsidy of 20 percent of the normative cost of new non-CFC-based energy efficient centrifugal chillers; or (ii) future carbon finance revenues to be generated by energy savings from replacing old chillers with new non-CFC-Based energy efficient centrifugal chillers.

Subcomponent 1.2 Incentive to Chiller Manufacturers and Suppliers -- in order to promote their participation in the program, eligible manufacturers and suppliers would be eligible for a success fee of US\$0.5 per ton of Certified Emission Reductions (CERs) per year provided that they: (i) provide up-front a list or database of existing clients or chiller owners (for confidentiality reasons subject to non-disclosure for 18 months from the date of the submission); and (ii) secure the participation to the program from clients identified in list submitted to the project (as detailed in (i)).

2. Measurement, Monitoring and Verification (MM&V) (appraisal costs: US\$1.572 million of which US\$206,236 would come from the MP grant and US\$1.366 million from the CDM; actual costs: not stated in the ICR) -- as per the methodology approved by the CDM Executive Board (EB), the program is required to monitor data related to the power-output function of the old chiller to be replaced, electrical consumption of the new chiller, and cooling output. For this purpose a qualified energy service or audit company would be contracted by the project to establish a system to: (i) measure energy consumption of baseline and new



equipment; (ii) monitor performance of new chillers by collecting performance parameters of new chillers on an on-line basis; and (iii) analyze the data collected during the lifetime of the project.

3. Technical Assistance and Marketing (appraisal cost: US\$533,453, of which US\$305,000 would come from the MP grant and US\$228,453 from the CDM; actual costs: not stated in the ICR) -- this component would focus on enhancing the knowledge of the project participants regarding the different MM&V requirements and the financial assistance offered by the project and in order to help build the capacity of relevant stakeholders in energy conservation measures and refrigerant management.

4. Project Management (appraisal cost: US\$1.480 million of which US\$0.570 million would come from the GEF grant, US\$224,448 from the MP grant, and US\$686,333 from the CDM; actual cost: not stated in the ICR) - a Project Management Unit (PMU) would be established to implement all activities under the project within the Industrial Development Bank of India (IDBI). PMU responsibilities would include: (i) marketing and effective outreach to target groups to enhance program participation; (ii) screening of potential candidates and undertaking subproject processing procedures with identified project participants; (iii) developing and managing a data management system for the program; (iv) disbursing funds according to established indicators and managing the cash-flow from the different revenue streams to ensure continued and sustained viability of the program; (v) procurement and supervision of appropriate consultancy services for monitoring, verification, and auditing purposes; (vi) offering loans on commercial terms to eligible participants; (vii) reporting on various components as per the requirements of the Bank, the MLF (Multilateral Fund for Implementation of the Montreal Protocol), GEF, and CDM; and (viii) preparation and adoption of a Project Implementation Manual (PIM) acceptable to the World Bank.

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

Project Cost: Total project cost was estimated at appraisal to be US\$83.274 million. Actual total cost is not reported in the ICR although the chillers were converted at a total investment cost of US\$2.004 million according to the ICR (para. 44). However, this total, according to the last TTL in correspondence with IEG, does not include the Montreal Protocol funds disbursed for the project (see the next item), which then bring the total to US\$2.552 million or just 3.1 percent of the appraisal estimate.

Financing: At appraisal, the project was expected to be financed from three external sources: (i) a US\$6.3 million grant from the Global Environment Facility (GEF); (ii) a US\$1.0 million grant from the Montreal Protocol (MP); and (iii) US\$5,850 million from the Clean Development Mechanism (CDM) under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). According to the ICR, actual disbursements were US\$1.106 million, or just 17.6 percent of the GEF grant. However, the ICR neglected to include the amount disbursed from the MP financing, which, according to the last TTL, was US\$518,372, or 51.8 percent of the amount originally expected from that source. In addition, the CDM component was canceled in November 2011 with no resources having been utilized by the project, while the unutilized balance (US\$5.19 million) of the GEF grant was later transferred through a GEF program amendment in the form of Additional Financing (AF) to the ongoing India Financing Energy Efficiency in MSMEs (Micro, Small, and Medium Enterprises) (FEEM) Project in December 2016.

The ICR reports that the actual amount of the GEF grant that was disbursed for this project was US\$ 0.99 million, or 15.7 percent of the original grant, while the Financing section of the Basic Data (pg. 2) states that total disbursements were US\$ 1,105,703. The ICR also indicates that the full US\$ 0.99 million had been disbursed by the time the second Implementation Status Report (ISR) was posted in on May 25, 2010



and that there were no further disbursements after that date. In addition, the ICR does not clearly indicate whether any -- or how much -- of the MP grant was disbursed.

Borrower Contributions: At appraisal, public and private sector chiller owner contributions were expected to be US\$ 70,124,604. Actual contributions were reported by the ICR (para. 49, pg. 15) as being only US\$ 517,915.

Dates: The project was approved on June 30, 2009 and became effective on November 23, 2009. Its Mid-Term Review (MTR) occurred in June 2014 and it closed on December 31, 2014, six months after the originally scheduled date (June 30, 2014). This extension was granted through a Level 2 restructuring on August 26, 2014. The ICR was issued on December 13, 2019, nearly five years after the project closed. This delay in submission of the ICR had been approved by Bank management in advance to coincide with the required delivery date for the ICR for the FEEM project, which closed in May 2019, to which the undisbursed balance of the GEF resources had been transferred. The last TTL informed IEG that a draft ICR had been prepared by the Bank (in the previous format) in 2015, but was not finalized because, even though the Bank considered the project closed, both the Government of India (GoI) and the GEF considered the project to continue to be active until the FEEM project also closed. Thus, the original ICR was converted into the current format prior to its final submission.

3. Relevance of Objectives

Rationale

The project objective was relevant insofar as the refrigeration and air conditioning (RAC) sector accounted for about 20 percent of ozone depleting substances ODS consumption when India acceded to the Montreal Protocol. However, it became less relevant when the Government of India advanced the date for the cessation of CFC production from 2010 to August 1, 2008 (i.e., almost a year before the project was approved in June 2009), which thus induced chiller owners to convert CFC-based equipment more rapidly than originally anticipated and, consequently, reduced the potential demand for project support. In short, as stated in the ICR (para. 35), the project "could not use the 'window of opportunity' optimally to transform the chiller market." In the event the relevance of the project's objective became modest. The objective nevertheless remained partially relevant in terms of the India Country Partnership Strategy for 2013-2017, which identified (pg. 27) "reduced Greenhouse Gas emissions through energy efficiency and renewable energy production" as one of six desired outcomes of World Bank Group support under its second (of three) "engagement areas" called "Transformation."

Rating

Modest

4. Achievement of Objectives (Efficacy)



OBJECTIVE 1

Objective

Accelerate the replacement of centrifugal chillers with efficient non-CFC based centrifugal chillers in order to promote deployment of energy efficient technologies and products to reduce GHG emissions and support the phase-out of CFC demand in India

Rationale

Theory of Change. The replacement of chillers utilizing CFCs with more efficient ones that did not was expected to contribute to achieving a reduction of the consumption of Ozone Depleting Substances (ODSs) while also boosting energy efficiency in the sector and reducing its GHG emissions. The project's theory of change was based on the assumption that, in order to accelerate the achievement of this objective, a financial incentive was needed to induce chiller owners to accelerate this conversion either by reducing the upfront purchase cost by 20 percent or by providing access through the CDM to Certified Emission Reduction (CER) revenues.

In practice, however, only the first of these two incentive options was taken up since, by mid-2011, it had become evident that Clean Development Mechanism (CDM) uptake by chiller owners had reduced significantly. As a result, Industrial Development Bank of India (IDBI) and the World Bank agreed to drop the CDM component in November 2011, which also eliminated the need for establishment of the associated measurement, monitoring, and verification (MM&V) mechanism (i.e., Component 2), but the project was never restructured to reflect these changes.

Outputs

- 59 chillers were registered under the project and 31 were replaced, compared with an appraisal target of 370, or 8.4 percent of the target. According to the ICR (para 62, pg. 18, because the Government of India had advanced the date of phasing out CFCs by 17 months (i.e., from 2010 to August 2008), this significantly reduced the number of available eligible chillers from 370 to around 100. However, the appraisal target was never reduced.
- The proposed M, M & V system was discontinued when the CDM component was dropped in November 2011.

Outcomes

- 6.81 tons of CFCs were recovered, compared with an appraisal target of 159 tons, or just 4.3 percent.
- Direct and indirect CO₂ benefits achieved were not measured in the absence of data loggers (that were not installed once the CDM component was dropped), as compared with appraisal targets of 4.495 million tons of CO₂ equivalent (CO₂e) and 8.68 million tons of CO₂e.
- The replacement of 31 chillers reduced power demand by 35.89 percent (range between 15-56 percent), which, according to the ICR corresponded to 9.9 percent of energy saved in relation to the appraisal target according to the ICR (Table 2) and 49 percent of the target (2.0 MWh versus 4.08 MWh) according to Annex 1 (pg. 27) based on quarterly energy efficiency data reported by beneficiaries at the time of project closing.
- The new chillers introduced under the project were nevertheless more energy efficient than the ones they replaced, as their average energy consumption was less than 0.63 kW per ton of refrigerant (TR)



and they also reduced refrigerant leakage to less than 1 percent a year compared with an average of 10 percent annually for the older CFC-based equipment (ICR, para 39).

The project thus had some positive outcomes, but these were significantly lower than anticipated at appraisal. As a result, it contributed far less than expected at appraisal to the achievement of its stated objectives -- i.e., acceleration of the replacement of CFC-based centrifugal chillers to non-CFC-based ones in order to promote deployment of energy efficient technologies and products to reduce GHG emissions and support the phase-out of CFC demand in India. For these reasons the efficacy of the project's achievements towards its objective has been rated modest.

Rating

Modest

OVERALL EFFICACY

Rationale

Actual project achievements were far lower than anticipated at appraisal, and the project was never restructured to take into account the substantial changes in the external environment with respect to actual demand for project resources (i.e., the sharply declining number of CFC-based chillers still requiring conversion and the equally sharply falling global carbon prices at the time). The overall efficacy of the achievements towards the project's objective has been rated modest.

Overall Efficacy Rating

Modest

Primary Reason

Low achievement

5. Efficiency

The PAD (paras. 93-95) indicated that the project would contribute "to local and global public good by reducing the emissions of ozone depleting substances (ODS), GHG, and other polluting gases such as nitrous oxides (NOx), carbon monoxide (CO) and sulfur oxides (Sox)." But since "typical economic analyses are thus difficult and problematic at best...the analysis that follows will not attempt to quantify in economic terms all of the associated environmental benefits." However, the PAD did attempt to estimate the energy savings from the project as designed which would "account for more than 3.978 million MWh worth roughly US\$398 million (undiscounted) over 20 years of the chiller lifetime. In addition, the demand reduction attributable to this projects amounts to approximately 48 MW, saving the electric utilities roughly US\$ 60 million in current dollars...At 10 percent discount rate, the NPV (Net Present Value) of the project based solely upon energy savings and capacity reduction comes to approximately US\$152.60 million with an EIRR of 68%....In addition, the carbon revenue at the price of US\$12/tCO₂e can be added to these energy conservation-based estimates of benefits, although the carbon price is emerging and not fully liquid. Inclusion of these revenues until 2014 would increase the EIRR to 71%. However, as pointed out in the ICR (para. 65), the carbon price at around US\$ 12 per ton CO₂, but crashed in 2010 (i.e., shortly after the project became effective) from this level to US\$4 per ton and



has "subsequently crashed." As a result the CDM component of the project was dropped in November 2011 and thus there were no revenues from Certified Emission Reductions (CERs).

The ICR (paras. 43-44 and Annex 4) estimated an *ex-post* IRR of around 29 percent based on the estimated energy savings over a 20 year period based on the available data for 12 of the chillers replaced under the project. On this basis, the main text of the ICR rated Efficiency as Substantial. On the other hand, Annex 4 (pg, 34) states that, "it is worth noting that this estimate was based on only about 10 percent of the targeted number of chillers -- actually only 3.2 percent of the original appraisal target, which was never formally revised -- and thus states that overall efficiency is rated "Moderate." Thus, the ICR is internally inconsistent in this regard. Considering that very little of the project's appraisal targets (which were never revised) were achieved in practice, only a very small amount of the expected investments and disbursements actually occurred, one of its major components (CDM) had to be dropped, the ICR failed to discuss implementation efficiency either in the main text or the Annex, and the project still had to be extended by six months, IEG concurs with the lower proposed assessment in Annex 4 of the ICR rather than that in the main text.

Efficiency Rating

Modest

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

| | Rate Available? | Point value (%) | *Coverage/Scope (%) |
|--------------|-----------------|-----------------|---|
| Appraisal | ✓ | 71.00 | 100.00 <input type="checkbox"/> Not Applicable |
| ICR Estimate | ✓ | 28.89 | 38.70 <input type="checkbox"/> Not Applicable |

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome

Based on the Modest ratings for Relevance of Objectives, Efficacy, and Efficiency, the overall outcome of the project is rated Unsatisfactory. The project clearly underachieved its appraisal targets, which were never modified during implementation due to the failure to restructure it in 2012 and again in 2014. Thus, it largely failed to achieve its objectives, which also became less relevant over time, especially those in relation to the reduction of Ozone Depleting Substances (ODS) and Greenhouse Gas (GHG) emissions in the chiller subsector as India proceeded to eliminate CFC production without incentives more rapidly than originally anticipated, and global carbon prices fell, thus severely reducing the expected demand for project resources for these purposes, including those potentially to be provided by the Spanish Carbon Fund for Certified Emissions Reductions (CERs) and the need for the associated Measuring, Monitoring, and Verification (MM&V) system (Component 2) previously required under the Clean Development Mechanism (CDM).



a. Outcome Rating

Unsatisfactory

7. Risk to Development Outcome

The risk to development outcome is negligible as the the phase out of CFCs in the 31 chillers that were replaced under the project has occurred and CFC-based chillers, as well as all CFC production and consumption in India, have now been phased out. Current regulations do not permit the production and use of CFC-based chillers in India.

8. Assessment of Bank Performance

a. Quality-at-Entry

Project design was based on prior studies carried out by the Bank and was innovative in that it sought to involve concessional financing from three different external sources (GEF, MP, and CDM) in order to subsidize the conversion of a substantial number of CFC-based chillers to non-CFC ones, and thus to contribute substantially to the overall phase-out of ODS in India, while simultaneously increasing energy efficiency in and reducing GHG emissions from the sector. However, the risk of coupling these funds and the bureaucratic processes associated with their access and use (especially the CDM) was underestimated and contributed to implementation delays at a time when the unit price of CO2 emissions reductions was sharply falling and the Government had advanced the date for total CFC production phase-out by 17 months. As a result of the latter, the number of eligible chillers was reduced significantly 14 months prior to Board approval of the project, but this new reality was not reflected in project targets and costs. In retrospect, moreover, the 20 percent subsidy, especially when combined with added bureaucratic and processing requirements, was insufficient to generate the initially expected private sector demand for and contributions to project resources as this approach had not been tested in advance. The ICR's discussion of quality at entry did not provide any information regarding the reasons for the long period required for project preparation although the last TTL subsequently informed IEG that this was most likely due to the complexity of project design and the need to reach agreement among the Bank, GEF, Montreal Protocol, and CDM as well as with the GoI, and more specifically the Ozone Cell (OC) in the (then) Ministry of Environment and Forests (MoEF). Nor did the ICR mention that there were at least two TTLs (according to the PAD) at the time of appraisal. In addition the ICR neglected to provide a list of the Bank staff and consultants with their responsibilities and specializations at appraisal.

Quality-at-Entry Rating

Moderately Unsatisfactory

b. Quality of supervision



For reasons that are not entirely clear in the ICR, the Bank never processed the significant restructuring of the project that would have been required given the unrealistic nature of the original appraisal targets in terms of the number of chillers that could potentially be transformed and because of the decision to drop the CDM component. In addition, despite the fact that the Bank reportedly carried out regular and systematic implementation support missions and, according to the ICR (para 87) "noted issues regarding the slow implementation of the project and the causative factors and raised them with the PMU and GoI," the Mid-Term Review was substantially delayed, taking place only in mid-July 2013, or less than a year prior to the original closing date (June 30, 2014), for reasons that were not explained. However, it should be noted that the ICR's treatment of Bank performance during supervision was very superficial and did not even mention that there were several TTLs during the project's implementation. This notwithstanding, most of the problems experienced during implementation, especially the sharp decline in carbon prices, which resulted in cancellation of the CDM component in November 2011 and inaction on project restructurings, were not the Bank's fault. According to the ICR, a Technical Bank mission in 2013 had emphasized the "urgent need to restructure the project to facilitate the disbursement of the GEF grant". Eventually the closure of the project without restructuring at the end of 2014 was the result of a decision by the Ministry of Finance and Bank Management (para 86).

Quality of Supervision Rating

Moderately Unsatisfactory

Overall Bank Performance Rating

Moderately Unsatisfactory

9. M&E Design, Implementation, & Utilization

a. M&E Design

M&E design included monitoring of project performance, energy consumption, and beneficiary participation. In addition, a firm was to be hired in order to monitor, verify, and report on project-related GHG emissions reductions with the use of data loggers and transmitters in order to justify issuance of Certified Emissions Reduction (CER) payments in accordance with CDM requirements.

b. M&E Implementation

While the firm contracted in July 2010 to monitor GHG emissions reductions operated adequately during the early stages of project implementation, when the CDM component was dropped in November 2011 its services and the associated Management Information System (MIS) and data logging and transmitter systems were discontinued. While the PMU subsequently assumed responsibility for monitoring energy efficiency performance, the project's impact in relation to GHG emissions could no longer be measured.



c. M&E Utilization

Project performance data, except, as indicated above, with regard to GHG emissions reduction, were utilized. However, as pointed out in the ICR (para. 74), the market analysis undertaken in 2010 that indicated that there had been a significant decline in the anticipated potential demand (i.e., the number of eligible chillers) for project resources, were not utilized in order to adjust project design in this regard. Nor was information regarding the substantial drop in carbon prices during the early years of project implementation -- and, thus, that actual revenues from GHG emissions reductions would be sharply lower than assumed at appraisal -- utilized to motivate a timely restructuring of the project. It is not clear, moreover, why the project's actual cost data were not presented in the ICR and there is contradictory information in this document regarding total project-related investment costs, which suggests incomplete or inadequate monitoring in this regard.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards

The project was classified in Category B for Environmental Assessment (OP 4.01) and developed an Environmental Management Plan (EMP) to address potential environmental risks associated with the replacement of old CFC-based chiller systems, including, according to the ICR (para. 79) "provision of a verification mechanism to ensure that chiller replacement was undertaken in a safe and environmentally sound manner in compliance with Bank safeguards standards and the GoI Ozone Rules [while] extensive consultations were held with chiller manufacturers and owners to explain the EMP requirements which were included in the legal documents signed with all project participants." No social safeguard policies were triggered. According to the ISRs, compliance was rated Satisfactory throughout implementation and "issues involving the recovery and storage of used ODS refrigerants, decommissioning and scrapping of old chiller compressors, management of new refrigerants, and associated health and safety aspects were well managed onsite." In addition, decommissioning of the CFC chillers occurred in the presence of a PMU representative and chartered engineer, and 80 percent of the subsidy was only received by the participant once it had been verified that required environmental and safety requirements had been met.

b. Fiduciary Compliance

No major financial management (FM) or procurement problems were recorded during implementation. However, the ICR points out (para. 83) that there were not many transactions as most of the financial resources were disbursed to CFC-based chiller owners and that the project did not involve extensive procurement, which was largely limited to a few consultancy contracts representing less than 1 percent of project costs. It also affirmed that IDBI's internal control mechanism was Satisfactory and had well-defined rules, procedures and financial authority, while "The level of record keeping was adequate, fixed assets



verification process was done regularly, and IDBI maintained satisfactory external auditing arrangements" as well as "a transparent complaint handling mechanism for the project" (ICR, para 81).

c. Unintended impacts (Positive or Negative)

As noted in the ICR (para 47), the only unintended impact was the reallocation of US\$5.19 million in undisbursed project GEF resources used as Additional Financing (AF) for the Bank-assisted "Financing Energy Efficiency at MSMEs" project, thereby contributing to its results as described in a parallel ICR for that project.

d. Other

The GoI failed to establish an international standard incineration system for CFC disposal despite an initial commitment to do so.

11. Ratings

| Ratings | ICR | IEG | Reason for Disagreements/Comment |
|------------------|----------------|---------------------------|--|
| Outcome | Unsatisfactory | Unsatisfactory | |
| Bank Performance | Unsatisfactory | Moderately Unsatisfactory | Many of the problems faced by the project were totally outside the Bank's control, or at least that of the Bank task team. Nevertheless, the team could have attempted to redesign and restructure the project earlier when it became evident that the country was phasing out CFCs more rapidly than originally anticipated, thereby reducing potential demand for project support. |
| Quality of M&E | Modest | Modest | |
| Quality of ICR | --- | Modest | There are substantial shortcomings in the ICR as described in Section 14 of this ICRR.. |

12. Lessons



The ICR offers a number of lessons with regard to project design, implementation, institutional arrangements, governance, ownership, and Bank management support. Among the most important of these were the following:

1. **Pilot innovative risky approaches before scaling up.** In this project it was assumed that a 20% up-front subsidy or the prospect of later receipt of CER revenues would be sufficient to induce chiller owners to seek resources from the project in order to convert their equipment to non-CFC use. This occurred, but to a much lesser extent than initially expected. The lesson is that piloting innovative approaches to assess risks associated with such innovations may have been beneficial before launching into a comprehensive implementation.
2. **Keep the rationale for intervention under constant watch, in particular, if the project start is delayed.** Beyond this, once significant changes with respect to a project's likelihood of achieving its development objectives and/or associated results indicator targets occur during early stages of implementation, an appropriate project restructuring is usually indicated but that did not occur in this project and as a result the project's outcome was unsatisfactory. The lesson is that if project restructuring is indicated arrange it as soon as possible for it to have a positive impact on the project's outcome.
3. **CFC recovery was an important aspect of the project to ensure sustainable outcomes, making the issue of ready and safe disposal of CFCs a key consideration.** Knowing at the time of appraisal that there were no CFC incineration or recycling plants in India, the project could have been clearer as to how the recovered CFCs would be disposed of. The lesson is that if the infrastructure for a project's implementation does not exist or is weak, incorporate that building of that infrastructure into the project design and appraisal.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

While the ICR provides a generally adequate picture of project design and implementation, it also has a number of significant shortcomings. It failed to provide actual cost data either by component or for the project as a whole. Nor did it mention the partial disbursement of the resources from the Montreal Protocol (i.e., US\$518,372) or explain how these resources were used. In addition, some of the data (e.g., Annex 3) presented are clearly wrong as well as incomplete and the performance ratings for Efficiency in different parts of the report are inconsistent and its analysis in this regard is incomplete as neither the main text nor Annex 4 discussed implementation efficiency. Its discussion of Bank performance in terms of both quality at entry and quality of supervision is very perfunctory and does not even mention that the project had various TTLs both during preparation and supervision, the last of which was only appointed to this position for its final six months.



The ICR also neglects to identify the Bank staff involved in project preparation/appraisal and their respective roles. As a result significant additional information regarding project financial and implementation performance, including with regard to the two proposed restructurings (the first in 2012 and the second in 2014) needed to be obtained by IEG through subsequent interactions with the last TTL, who kindly made other project-related documentation available.

a. Quality of ICR Rating

Modest