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PROJECT PERFORMANCE ASSESSMENT REPORT

INDIA

ENVIRONMENTAL MANAGEMENT CAPACITY BUILDING TECHNICAL ASSISTANCE PROJECT (CREDIT 2930-IN)

June 23, 2008

Sector Evaluation Division
Independent Evaluation Group (World Bank)

Currency Equivalents (annual averages)

*Currency Unit = **Indian** Rupees (Rs.)*

1996	US$1.00	Rs.35.43	2002	US$1.00	Rs.48.61
1997	US$1.00	Rs.36.31	2003	US$1.00	Rs.46.59
1998	US$1.00	Rs.41.25	2004	US$1.00	Rs.45.08
1999	US$1.00	Rs.43.05	2005	US$1.00	Rs.43.61
2000	US$1.00	Rs.44.94	2006 (July)	US$1.00	Rs.45.11
2001	US$1.00	Rs.47.19			

Source: World Bank and UNDP databases

Abbreviations and Acronyms

AQM	Air Quality Monitoring
CETP	Common Effluent Treatment Plant
CNG	Compressed Natural Gas
CP	Clean Production Techniques
CPCB	Central Pollution Control Board
CZM	Coastal Zone Management
DOD	Department of Ocean Development
EAP	Environmental Action Plan
EIA	Environmental Impact Assessment
EMCB	Environmental Management Capacity Building Technical Assistance Project
ENVIS	Environmental Information System
GEC	Gujarat Ecology Commission
GOG	Government of Gujarat
GOI	Government of India
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation Agency)
IAS	Indian Administrative Service
ICMAM	Integrated Coastal and Marine Area Management, DOD
ICR	Implementation Completion Report
ICZM	Integrated Coastal Zone Management
IEG	Independent Evaluation Group (formerly OED)
IPCP	Industrial Pollution Control Project
MOEF	Ministry of Environment and Forests
MTR	Mid-term Review
PPAR	Project Performance Assessment Report
SDR	Special Drawing Rights
SEAP	State Environmental Action Plan
SEF	State Environment and Forestry Ministry
SME	Small and Medium Enterprise
SMOEF	State Ministry of Environment and Forestry
SPCB	State Pollution Control Board

Fiscal Year

Government: April 1 – March 31

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IEGWB Mission: Enhancing development effectiveness through excellence and independence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEGWB annually assesses about 25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEGWB staff examine project files and other documents, interview operational staff, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEGWB peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. IEGWB incorporates the comments as relevant. The completed PPAR is then sent to the borrower for review; the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEGWB Rating System

IEGWB's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEGWB evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEGWB website: http://worldbank.org/ieg).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Contents

This report was prepared by John Redwood and Daniel R. Gross, whose field mission took place in April 2006. Research support was provided by Debora Brakarz. Soon-Won Pak provided administrative support.

Principal Ratings

	*ICR**	*ICR Review**	*PPAR*
Outcome	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory
Institutional Development Impact**	Modest	Modest	NR
Risk to Development Outcome	NR	NR	Significant
Sustainability***	Likely	Non-Evaluable	NR
Bank Performance	Unsatisfactory	Unsatisfactory	Unsatisfactory****
Borrower Performance	Satisfactory	Unsatisfactory	Unsatisfactory

* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEGWB product that seeks to independently verify the findings of the ICR.
**As of July 1, 2006, Institutional Development Impact is assessed as part of the Outcome rating.
***As of July 1, 2006, Sustainability has been replaced by Risk to Development Outcome. As the scales are different, the ratings are not directly comparable.
**** Based primarily on Quality at Entry.
NR = not rated

Key Staff Responsible

Project	*Task Manager/Leader*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Richard Cambridge	Luiz Ernesto Derbez	Edwin Lim
Completion	David C. Hanrahan	Jeffrey S. Racki	Michael F. Carter

Preface

The Environmental Management Capacity Building Technical Assistance Project (hereafter EMCB) was approved on December 23, 1996 and closed on June 30, 2004, after a one-year extension of the closing date. The Credit amount was US$49.1 million, about 80 percent of the estimated total cost of US$61.6 million. Disbursements reached US$22.1 million, or about 45 percent of the original Credit. On March 30, 2001 US$ 19.54 million of the undisbursed balance was reallocated for earthquake relief in Gujarat State as part of a larger disaster response package drawing on several active projects. On the closing date, the actual cost of the EMBC project was about 45 percent of that estimated at appraisal, and a total of US$5.31 million of the original Credit had been cancelled, mainly at the time of closing. The Credit Agreement had been amended four times.

This PPAR was carried out in parallel to a broader evaluation of Bank Group effectiveness in supporting environmental sustainability for which India was one of nine country case studies. Particular attention was given to projects that aimed at strengthening environmental management capacity at the national level. The EMBC Project was selected as an example of the Bank's efforts in this regard in the 1990s and early 2000s and represents one of the relatively few stand-alone projects that have focused exclusively on strengthening environmental management capacity.

A large body of documentation was reviewed, including relevant Bank ESW and correspondence, appraisal and supervision reports, Government of India (GOI) documents, reports issued by scholars and various institutions on environmental management concerns in India, and other sources. Discussions were held with Bank staff members who had been involved in project preparation, appraisal, and/or implementation. Valuable insights were obtained from Bank staff both in Washington and New Delhi. A field mission was undertaken in April 2006 and there were several follow-up discussions over the subsequent period which afforded an opportunity to meet and discuss the project with government officials and others who had been directly involved in project implementation. Visits were made to New Delhi and to Ahmedabad and Baroda in Gujarat, for which the project had a specific component. Meetings were held with officials in the Ministry of Environment and Forests (MOEF), the Institute of Economic Growth (IEG) of Delhi University, the Gujarat State Ministry of Environment, the Gujarat Ecology Commission (GEC), and several private consultants who had participated in the project, among others.

IEG would like to express its appreciation to all those who kindly share their knowledge and assisted the evaluation team in the preparation of this report.

Following standard IEG procedures, copies of the draft PPAR were sent to the Borrower for comments, but none were received.

Summary

The Environment Management Capacity Building (EMCB) Project was intended to strengthen environmental management capacity in selected areas at the national, state, and local -- including (on a pilot basis) community -- levels. More specifically, it sought to help the Government of India (GOI) implement its environmental priorities as outlined in its Environment Action Program of December 1993. This objective was to be achieved by strengthening environmental policy planning and administration, decentralizing selected environmental activities to local communities and non-governmental organizations, implementing environmental law, and monitoring compliance with environmental laws and standards in high priority problem areas. The project was timely and responsive to the stated needs of the Borrower given that India's rapid economic, demographic, and industrial growth was, at the time, causing pollution and environmental degradation at a rising rate. In parallel, civil society was becoming stronger and beginning to demand better public controls on pollution, deforestation, and biodiversity loss.

The project was complex and involved a broad range of topics and institutions. Some components were dropped early during implementation and others were not fully implemented as designed. A Mid-Term Review (MTR) was conducted in May 1999, changes were adopted, and several amendments to the Credit Agreement were processed. Nearly half of the original Credit was reallocated to an emergency reconstruction project following a major earthquake in Gujarat in 2001. While the Ministry of Environment and Forests (MOEF) was nominally the coordinating agency, central coordination appears to have been minimal and actual implementation decisions seem to have been largely entrusted to individual participating agencies.

Due to its modest design relevance, efficacy, and efficiency the overall outcome rating for this project is **moderately unsatisfactory,** even though its objectives were relevant. This rating also reflects the project's lack of a coherent strategy to strengthen environmental management, fragmented and incremental approach to institutional capacity building, and failure to engage with organizations and sectors that were champions of environmental protection. Despite these shortcomings, the project did have some positive outcomes, perhaps the most important being expansion of the national Environmental Information System (ENVIS) and many studies generated under the Environmental Economics component, which also fostered the growth of indigenous research that could potentially help guide future policymaking.

These accomplishments notwithstanding, the risk to development outcomes is considered **significant** in part because there was no immediate follow-on operation in support of project objectives, while government commitment remains unclear, especially at the subnational level. **Bank Performance** is rated **unsatisfactory** primarily because of poor quality at entry. **Borrower Performance** is also rated **unsatisfactory** because of the low level of achievement, long delays, and apparent lack of commitment to the goals of the project.

The principal conclusions of this assessment are that: (i) the project's central weakness was that it was conceived mainly in terms of inputs to building institutional capacity and there was little concrete action to improve the environment *per se*; (ii) those components that could have had a direct impact on environmental quality were relatively neglected; (iii) the project gave too much attention to developing tools for environmental regulation and did not question the existing (command-and-control) approach to such regulation; (iv) the project was too complex for a single agency to manage and lacked the full support of the Government of India; (v) the project provided few incentives for decision makers at various levels to adopt or support major reforms; and (vi) GOI missed an opportunity to take advantage of growing civil society concern with environmental quality to help garner greater support for project objectives and activities.

Among the main lessons learned were:

- Strengthening management capacity does not necessarily or automatically lead to improvements in environmental quality; improving management capacity focused on a well-defined and socially demanded set of environmental goals would probably yield better results.

- Environmental monitoring is a necessary, but not sufficient, condition for improving environmental quality; monitoring programs should be designed around the demand for data by decision makers rather than the simple demand for data.

- To enhance the effectiveness of operations like this one, a priority-setting process which involves various stakeholders should precede project design and appraisal.

Associated lessons are that a sharper focus on environmental results and a better *ex ante* analysis of the political economy of environmental regulation could have made this a more successful project with more sustainable outcomes. The project also demonstrates the risks of designing an operation around the interests of individual institutional champions, as occurred both at the central government level and in Gujarat state, because, once those champions leave, the impetus may soon be lost.

Vinod Thomas
Director-General
Evaluation

1. Background

1. The EMCB project was designed in part to support the objective in the 1995 CAS to strengthen environmental management capacity at the Federal and State levels.[1] It was prepared over a very brief four-month period to take advantage of unallocated IDA funds. The principal source of guidance for the project was the Environmental Action Plan (EAP) issued by the Government of India in December 1993, which identified seven priority areas:

(a) conservation and sustainable utilization of biodiversity in selected ecosystems including forests, mangroves, wetlands, coral reefs, mountain ecosystems;
(b) afforestation, wasteland development and conservation of soil and moisture and ensuring that water sources are not polluted;
(c) control of industrial and related pollution with an accent on the reduction and or management of wastes, particularly hazardous wastes;
(d) improving access to clean technologies;
(e) tackling urban environmental issues;
(f) an alternative energy plan; and
(g) strengthening scientific understanding of environmental issues, as well as structures for training at different levels, orientation and creating environmental awareness.

2. The project also drew on a Bank sector study entitled "India's Environment: Taking Stock of Plans, Programs, and Priorities - An Assessment of the Environment Action Program – India," completed in early 1996. This study reviewed each of the focal areas identified by the EAP and estimated the magnitude of the economic costs imposed by environmental degradation in each area. Two conclusions of this study stand out, namely that: (i) even though a strong legal framework for environmental protection existed in India, enforcement was weak across the various boards and agencies responsible for implementing the law; and (ii) government alone could not reverse environmental degradation -- industry, communities, and the public at large had to be enlisted to attack problems at their base.

3. The Environmental Management Capacity Building (EMCB) Project was prepared just as an Industrial Pollution Control Project was closing (IPCP) and, during EMCB's early implementation, preparation of the follow-on Industrial Pollution Prevention Project (IPPP) had just commenced. These two projects have recently also been assessed by IEG.[2]

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1. Memorandum of the President for a Country Assistance Strategy for India, May 19, 1995. See especially paragraphs 68 and 70 and attachment 2, Sections (c)and (f).

2. IEG, Project Performance Assessment Report – India – Industrial Pollution Control Project (Loan 3334-IN and Credit 2252-IN) and Industrial Pollution Prevention Project (Loans 3779 and 3780-IN and Credit 2645-IN), Report 38472, January 25, 2007.

2. Project Design and Implementation

4. The Environmental Management Capacity Building Technical Assistance Project (hereafter EMCB) was approved on December 23, 1996, and closed on June 30, 2004, after a one-year extension of the closing date. The Credit amount was US$49.1 million,[3] about 80 percent of the estimated total cost of US$61.6 million. Disbursements reached US$22.1 million or 45 percent of the value of the Credit. On March 30, 2001, about US$19.54 million[4] in project funds were reallocated for earthquake relief in Gujarat State as part of a larger disaster response package drawing on several active projects. On the closing date, the total actual cost of the EMBC project was about 45 percent of the cost estimated at appraisal. The project was managed by four different Task Managers over its life. The Credit Agreement was amended four times.

5. The EMCB project aimed at supporting the development of tools to strengthen the capacity of Indian federal, state and local agencies to manage the environment. Although initially linked to the EAP, the EMCB did not directly tackle most of the priority areas identified by it and the project was delinked from the Plan during implementation at the Bank's insistence because none of the priority issues identified in the EAP was directly addressed by the project's activities.

6. *Objectives.* The project's general objective, as stated in the President's Memorandum to the Board of Directors, was "to assist the GOI to implement its environmental priorities as outlined in the Environment Action Program - India (EAP) of December 1993. The reference to the EAP was deleted in an Amendment to the Credit Agreement dated December 1, 2000 which read as follows: "The objective of the project is to assist the Borrower in strengthening environmental management capacity in selected areas at the national, state and local levels, as well as at the community level." According to the appraisal document, the project's "subobjectives" were: (i) strengthening environmental policy planning and administration; (ii) decentralization of selected environmental activities to local communities and non-governmental organizations; (iii) implementation of environmental law; and (iv) monitoring of compliance with environmental laws and standards in specific high priority environmental problem areas.

7. To achieve these objectives, the project was divided into six parts having the following components (and associated costs as estimated at the time of appraisal, with all monetary values expressed in US$ millions). The basic objective of each component and institution responsible for its implementation are also indicated below. Four components – specifically for environmental indicators and indices, establishing new regional MOEF offices, launching a National Environmental Awareness campaign, and expansion of local environmental brigades -- were dropped and two – for environmental impact

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3. The original Credit Agreement (denominated in Special Drawing Rights - SDR) was for SDR 34.7 million.

4. The reallocation was denominated in SDRs and totaled SDR15.5 million.

assessment and environmental education, respectively -- were added after the Mid-Term Review (MTR).

Part A: Environmental Policy Planning (US$13.91M)

Environmental Research (US$2.94M)– Ministry of Environment and Forests (MOEF) - to improve the quality of environmental research through the strengthening of the system of grant making for environmental research.

Environmental Information System (US$1.46M) – MOEF - to expand and upgrade the Environmental Information System (ENVIS) network of centers located in various institutions across the country.

Environmental Economics (US$6.8M) - Madras School of Economics - to support curriculum and faculty development in environmental economics.

Environmental Indicators and Indices (US$1.21M) – MOEF – to develop environmental indicators (later dropped).

Environmental Standards (US$1.5M) – Central Pollution Control Board (CPCB) - to support development of technical standards for industrial sectors.

Environmental Impact Assessment (EIA) – MOEF -- to improve the environmental clearance (licensing) process, the quality of EIA reporting, and compliance with Environmental Management Plans (added after MTR).

Part B: Strengthening Environmental Administration (US$3.83M)

Establish New MOEF Regional Offices (US$1.46M) – MOEF - to open additional MOEF offices, further deconcentrating its administration (later dropped).

Project Management Units (US$2.37M)

(a) Ministry of Environment and Forests – MOEF (US$0.76M)
(b) Department of Ocean Development (US$0.87M)
(c) Gujarat Department of Forests and Environment (US$0.74M)

Part C: Decentralization of Environmental Management (US$5.41M)

National Environmental Awareness Campaign (US$2.03M) – MOEF - to develop environmental education materials for a National Environmental Awareness Campaign to be disseminated through the schools and the media (later dropped).

Strengthening Paryavaran Vahini (Environmental Brigades) (US$0.98M)- MOEF - to expand an existing program of local environmental brigades, which were

intended to monitor environmental conditions locally and report them to the MOEF and state environmental agencies (later dropped).[5]

Establishment of NGO Environmental Action Fund (US$2.4M)– Gujarat Ecology Commission (GEC) -- originally intended to be implemented nationwide, but was implemented only in Gujarat as a pilot; GEC made small grants to a number of environmental NGOs to help them design and implement specific programs.

Environmental Education – MOEF -- to introduce environmental issues to school curricula at state level through teacher preparation and the development of educational materials (added after the MTR in part to compensate for dropping the awareness campaign and environmental brigade components).

Part D: Implementation of Environmental Law (US$4.15M)

Environmental Law (US$4.15M)- National Law School of India - to establish a national environmental law center and network through syllabus and curriculum development, teaching, and training. The component sought to advance environmental law as part of the curriculum of India's law schools and to help develop syllabi for environmental law courses. It also provided resources for training and participation in workshops in India and abroad.

Part E: Monitoring and Compliance in Specific High-Priority Environmental Problem Areas (US$26.93M)

Mining Sector (US$6.31M) - MOEF and sectoral agencies - to review polices, standards, and compliance and support pilot projects in the mining sector.

Zoning Atlas (Industry Siting) (US$8.44M) – CPCB - to upgrade industrial siting (i.e., locational) guidelines, the expansion of an existing mapping program, and pilot cases of industrial planning.

Ambient Air Pollution Monitoring (US$6.47M) – CPCB - to support the design of networks and acquisition of air-quality-monitoring (AQM) equipment for sixteen major urban areas.

Coastal and Marine Area Management (US$5.71M)– Department of Ocean Development – to develop GIS systems for coastal and marine area management (CMAM) and to model integrated CMAM plans. It was also intended to produce EIA guidelines for coastal zone development.

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5. The official description of the Paryavaran Vahini is "to create environmental awareness and involvement of people through active participation and reporting of illegal acts pertaining to forests, wildlife, pollution and environmental degradation, a new scheme namely Paryavaran Vahini has been launched during 1992-93. There is one Paryavaran Vahini for each district and each Vahini has 20 members. 184 districts in the country have been selected and norms will be covered."

Part F: Strengthen Environmental Management Capacity in Gujarat (US$7.33M)

Gujarat State Environmental Action Plan (SEAP) (US$6.28M) - GEC - to develop a comprehensive diagnosis of Gujarat's environmental problems and elaborate a plan to address them.

NGO Environmental Action Fund (US$1.05M) - GEC - to support activist NGOs in Gujarat and strengthen their role as environmental watchdogs.

8. In general terms, the project was not adequately prepared and there were significant quality-at-entry shortcomings. It was prepared very quickly to take advantage of available IDA funds which otherwise could have been lost. At first, it was linked to a highly ambitious but unrealistic Environmental Action Plan. At the outset, the project had an important champion in the Minister of Environment and Forests. However, he left his post shortly after implementation began, leaving several components without strong support. In addition, several implementing agencies do not appear to have been fully committed to the project's objectives and methods. The primary evidence for this conclusion is that: (i) several components were dropped shortly after implementation began; (ii) important implementation details were not agreed upon during preparation, particularly regarding procurement; (iii) there was little or no political support for many of the measures taken under the project; and (iv) many of the project's components were designed by the Central Government with little participation from states and districts.

9. A major design issue confronted by the project was the broad range of topical areas it attempted to address without a clear unifying theme other than "environmental management" broadly understood. In short, the structure of the project was blurred by the aggregation of components which had no clear linkage to one another. The environmental education and media training components, for example, were added at the MTR under the rubric of "Decentralization of Environmental Management," but the logic behind this is unclear. Once the first Minister left, moreover, there appears to have been no strong advocate within the central managing institution (MOEF) who could have imposed greater coherence on the project.

10. The result was a collection of relatively disconnected initiatives relating to a wide spectrum of environmental issues and institutions. Most of these, moreover, were neither new nor path-breaking. The level of commitment to different parts of the project appears to have varied widely, as reflected in the fact that several components were dropped shortly after implementation began while others lagged. Finally, the project was not structured to identify or stimulate demand by the public in general or by specific constituencies to improve environmental management. These features all seem to reflect the haste in its preparation and a lack of goal-setting prior to appraisal. While the 1993 EAP reportedly provided a framework for the project, it was posed in terms of very broad environmental outcomes that are difficult to attain and cannot be easily measured. The Bank at first accepted the priorities attributed to the diverse project components seemingly without question. It also appears both to have overestimated the client's capacity to implement the project and its own ability to supervise such a complex operation in a strategic fashion.

11. Among the main implementation issues mentioned by various officials interviewed by IEG, in turn, were the Bank's emphasis on meeting strict timetables and rigid observation of procurement rules which, in the opinion of some participants, caused difficulties. There were numerous complaints about Bank procurement guidelines and its insistence on use of foreign consultants for various studies. The intention was evidently to assure that international expertise be brought to bear on certain problems. However, according to several Borrower representatives, this caused long delays and unnecessarily increased the cost of consultant services since, in many cases, highly qualified specialists could have been engaged inside the country at much lower cost. Some administrators also indicated that the quality of the consulting services obtained was not consistent. It is difficult to assess whether rigid adherence to procurement rules and Bank insistence on opening competition to international consultants were fully justified as Borrower complaints may have been largely motivated by the perceived complexity of international tenders, nationalistic feelings, and resentment that Bank rules limit direct contracting.

12. Bank staff apparently intended the requirement to source consulting services outside the country to ensure that new ideas would be introduced. This issue was such a significant source of friction and delay, however, that several interviewees suggested that it was the single most important factor in underperformance of the project. It appears that Bank became more flexible in this regard as the project progressed, and one supervision report contains the frank statement that the Bank "greatly overestimated" the demand for and costs of foreign consultants. Had this been recognized earlier, some of the associated difficulties might have been avoided without necessarily sacrificing quality. The Bank made use of expert consultants to review plans and designs, but this led to additional delays while consultants reviewed documents and prepared reports. Procurement guidelines should have been discussed in detail with the actual implementing agencies during project preparation, which does not appear to have been the case.

13. In addition to these general considerations regarding project design and implementation, the following paragraphs provide a brief assessment of each project component.

Part A: Environmental Policy Planning

14. Environmental Research. Under this component new procedures were designed to set priorities and invite and evaluate research proposals. The component was managed by MOEF, one of the major granting agencies for environmental research in India. Even though the impact of this component has not been formally or systematically evaluated, those interviewed by IEG indicated that it contributed to better management of environmental research sponsored by MOEF.

15. Environmental Information System. ENVIS nodes are typically research institutions specializing in a particular field, such as forest ecology. During the project period, steady progress was made in building this system. Some 25 existing ENVIS nodes were strengthened through acquisition of hardware and software, as was collection and storage of environmental data, including data on environmental clearances (licenses) issued. The project also supported creation of 85 new nodes and developed a state level information database with a GIS interface. Training programs and workshops were held

with project support. This system represents a source of key information both with respect to environmental quality and, through time series data, to determine whether it is improving or deteriorating over time. However, ENVIS data centers were reported to have been underutilized because some of the data itself was considered unreliable. After the project closed, a scoping exercise was undertaken to ensure that the datasets would be more useful to stakeholders. Stricter criteria for data inclusion were developed and responsibility for data provision has been delegated to the states. Both background data and data from post-clearance monitoring have been added.

16. Environmental Economics. This component ultimately involved not only the Madras School of Economics (as initially intended) but also Delhi University's Institute of Economic Growth, the Indira Gandhi Institute of Development Research in Mumbai, and the Indian Statistical Institute. Among other benefits, this expansion of the participating agencies allowed for sharing of ideas and information across institutional lines. Under this component, significant progress was made in consolidating and developing economic research on environmental issues in India. A large number of masters and doctoral theses and studies were financed on a broad range of topics in different parts of the country, many of which were subsequently published. These studies explored many policy-relevant aspects of environment and provide valuable guidance to policy formation. During the project period and afterward, environmental economics became a standard discipline in many Indian Universities and research institutes and many Indian scholars have begun to specialize in this field. This may be one of the project's most enduring and positive contributions, although its impact will be primarily felt over the long-term.

17. Environmental Indicators. This component was designed to develop consistent indicators that could be directly measured. It was dropped under the 2000 Amendment to the Credit Agreement at the Government's request. The explanation given informally to IEG during the field mission was that implementation of this component might have lead to adverse publicity about MOEF's efforts to reduce pollution. At that time, problems such as air pollution in India's major cities appeared to be intractable. The Bank apparently acquiesced in the decision to drop the component even though it could arguably have made an important contribution had it been implemented and the resulting information properly disseminated.

18. Environmental Standards. While some results were achieved under this component, the consensus among those interviewed by IEG was that it did not move the issue forward significantly. Various studies to develop appropriate standards were undertaken. New standards were developed for the pesticide and organic chemical industries, for example, and technical work was carried out to establish standards for oil refineries and petrochemical plant emissions. The component also supported training, both in India and abroad, for MOEF, CPCB, and State Pollution Control Board (SPCB) officials. Some equipment and infrastructure was also financed. However, the proposed new standards were not adopted by CPCB or the SPCBs during the project period. The standards in place in India at the time of the IEG mission are mainly end-of-pipe type effluent or emissions standards (see Annex C for an example). There still seems to be relatively little emphasis on ambient standards or regulations that would lend themselves

to a different type of enforcement. However, this component reportedly moved ahead after the project closed and new standards may be adopted in three sectors.

19. Environmental Impact Assessment. The work on environmental clearances (licensing) was begun after the MTR and continued after the project closed. A full proposal for clearance reform procedures was prepared during the second half of 2004. This generated a good deal of controversy and was still under discussion at the time of the IEG mission. There is a strong demand to reform EIA guidelines both from industry and NGOs. However, the preliminary versions of the streamlined guidelines produced under the project encountered resistance among environmental NGOs, industry, and the sectoral ministries of government. Industry wanted greater flexibility and faster response, while environmental NGOs and some politicians wanted stricter regulations and better post-clearance compliance monitoring and enforcement. Some states demanded that environmental clearances be handed over to state governments, but this was resisted by some NGOs.

20. The basic dilemma posed by stricter environmental regulation under a command-and-control model could possibly be resolved by new approaches to regulation, but there is resistance to such approaches, primarily from within the environmental community. After considerable discussion, draft regulations for public comment were posted in September 2006.[6] The proposed regulations would require federal government clearance only for Category A type projects in the Bank's terminology (i.e., those with significant potential environmental impact) while the states would be responsible for clearing Category B type projects (those with lower potential impact). Critics contend, however, that many states still lack the capacity to review even low-impact projects and that the proposed regulations reduce the scope for post-clearance monitoring and public consultation. Until new regulations are adopted, the 1994 provisions concerning environmental clearances remain in effect.[7] Discussion of the proposed revision to the environmental clearance law has been vigorous. According to Bank management, the EIA rules have now been notified by the MOEF and the concept of EIA decentralization is under implementation although rather slowly. The Bank cannot be held responsible for the lack of agreement, but it appears that the Bank team could have been more proactive in facilitating public participation in the debate to help reaching a consensus.

Part B: Strengthening Environmental Administration

21. Establish MOEF Regional offices. The purpose of this component was to open additional MOEF offices in various states in order to deconcentrate its administration. This was expected to provide a stronger central government presence in the states and a source of technical assistance to state environmental agencies. It was strongly supported by the Secretary of Environment who was in office when the project was prepared.

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6. Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii) Ministry of Environment and Forests. New Delhi, Sept. 14, 2006.

7. For a good summary of the differences between the 1994 Environmental Clearances Notification and the 2006 notification see http://www.cseindia.org/programme/industry/eia/existing_notification.htm produced by the Centre for Science and Environment.

However, he left office soon after the project became effective and, as a result, the component was dropped in 2000. The Bank acquiesced in this decision when it became apparent that it would not be implemented, even though strengthening decentralization of environmental management was one of the stated objectives of the project.

22. Project Management Units. The portion of the Credit allocated to project management was about $2.37 million, about four percent of the total costs, which is a relatively modest amount for this activity. These resources supported the project cells or management units for various components. But they also illustrate the extent to which the project was compartmentalized among a number of agencies, each with its own policies and procedures.

Part C: Decentralization of Environmental Management

23. National Environmental Awareness Campaign. The proposed campaign was dropped early in the project implementation period when MOEF decided not to go forward with it.

24. Paryavaran Vahini (Environmental Brigades). The basic idea underlying this component was that active governmental environmental enforcement and control depended on a popular constituency ready to detect and report environmental problems as they occur. This component would have strengthened existing Paryavaran Vahini organizations and extended them to additional areas. However, like the National Environmental Awareness campaign, it was dropped primarily because its only strong supporter in the Government was the Secretary of Environment who left office shortly after the project became effective.

25. Environmental Education. This component was added following the MTR. It was designed to introduce environmental issues into school curricula at the state level through teacher preparation and the development of educational resource and curricular materials. It included a content analysis of existing textbooks in regional languages. Environmental issues were mainstreamed by the introduction of these materials to the curricula of some 100 schools in 15 states. Some 1600 teachers were trained and some schools were equipped with internet and software. No systematic evaluation or follow up was conducted on this component, however, so its impact is unknown.

26. NGO Environmental Action Fund. This small grants component was initially designed to be applied in several states, but, in fact, was only implemented on a pilot basis in Gujarat. The funds were made available to a number of NGOs active on issues such as water and air quality. Some 48 NGO initiatives (both studies and action projects) were supported under the fund. These projects were mainly one-off exercises which appear to have had little long-term impact in mobilizing or focusing public concern or involvement in environmental issues. The beneficiary NGOs did not use the funds to leverage other resources and, as a result, initiatives begun with project support were not maintained after funding ceased. Some of the NGOs that received support are still active, however. A participatory workshop was held to evaluate this activity, but a separate study of the impact and efficacy of the NGO Action Fund is needed to make a final assessment.

Part D: Implementation of Environmental Law

27. Since the 1980s, some advances in environmental protection in India have been achieved through public interest litigation brought against state and central government agencies to require them to enforce environmental legislation.[8] During project preparation, there was considerable discussion among different agencies in India and between the Bank and the National Law School about the need to send specialists abroad since India's capacity in law is high and some experts considered the country's capacity in environmental law second to none. The component succeeded in advancing the development of environmental law as part of the curriculum of India's law schools and helped to develop syllabi for environmental law courses. It also provided resources for networking law schools across India around this topic and for training and participation in workshops in India and abroad. Other accomplishments included publication of an Environmental Law Handbook and six modules in Environmental Law. Towards the end of the project a significant amount of unused funds from this component was reallocated for acquisition of computer and other equipment for the National Law School. However, only some of the goods procured were considered to be eligible expenditures. Although the title of this component specifically refers to "implementation" of environmental law, the project does not appear to have contributed significantly to the advancement of environmental jurisprudence in India but rather more to the codification and dissemination of existing practice.

Part E: Monitoring and Compliance in High-Priority Environmental Problem Areas

28. Strengthening Administration and Development of Environmental Regulations in the Mining Sector. This component involved a review of polices, standards, resettlement, and EIA in the mining sector. Its outputs included production and publication of technical manuals for environmental management of mines as well as institutional strengthening, training, study tours abroad, and some pilot subprojects. A national mining database was set up under the component, but it is not clear if this database is in use or widely available. Stakeholder comments were inconsistent: some attributed moderate success to the demonstration subprojects, while others affirmed that the component failed to meet its primary objectives. In any case, implementation lagged due to lack of commitment from the mining regulators and in the sector itself. The Borrower considered the demonstration projects to have been the most valuable activity supported under the component, but indicated that the Bank created too many obstacles, mainly because of its procurement rules. No evaluation was undertaken to determine the extent to which lessons learned from the demonstration subprojects were disseminated or adopted in other mining operations. Nor does it appear that new policies or regulations were formulated, although the IEG mission was informed that new mining regulations reflecting some of the experience under this component was slowly working its way through the approval process.

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8. The public interest legal case that eventually forced the closing of nearly 300 factories that burned sulfur-containing fuels around Agra and the Taj Mahal was first brought in 1984.

29. Strengthening Capacity for Industry Siting - Zoning Atlas. This activity took up where a project previously sponsored by GTZ had left off. Its goal was to develop criteria and specific recommendations for the siting (location) of industrial facilities, waste treatment, and toxic waste disposal facilities based on the sensitivity of the environment, existing pollution loads, etc. According to CPCB, "the Zoning Atlas for siting of industries zones and classifies the environment in a District and presents the pollution receiving potential of various sites/zones in the District and the possible alternate sites for industries, through easy-to-read maps. The industrial zones are identified based on the sensitivity and pollution receiving potential (carrying capacity) of the District. The risks/impacts due to industrial pollution can be minimized if the siting of industries is done based on the Zoning Atlas." Progress was made in producing the Zoning Atlas, but, due to the dynamic nature of industry, the atlas may have become obsolete shortly after it was issued. No evaluation was carried out to determine the extent to which the public or private sector actually have used the Atlas for locating industrial sites or the extent to which MOEF or state environmental agencies use it in granting clearances. The Atlas does not appear to be available online even though some states advertise its use as a tool for industrial development. Thus, it is not evident whether this potentially useful tool is being utilized for its intended purpose.

30. Strengthening Ambient Air Pollution Monitoring. This component supported the design of networks and acquisition of air quality monitoring (AQM) equipment for sixteen major urban areas. The development of adequate monitoring networks and the calibration of equipment to allow comparability with data previously collected are considered to be important measures for the design of effective air pollution controls in Indian cities.[9] Studies were designed to identify and inventory air pollution sources in each major city. The next step was to have been procurement and installation of air quality monitoring equipment. But very long delays occurred in the implementation of this component while the Borrower developed a design for the monitoring systems that was then reviewed by the Bank in multiple iterations, followed by strong differences of opinion regarding the specifications of the equipment to be procured. A Bank consultant suggested that the equipment desired by the client was more sophisticated than necessary. Had the Bank given greater attention to these matters during preparation, some of these disagreements and delays might have been avoided. As a result of the delays, however, the project closed before the equipment could be procured, although it was eventually purchased using local funds. After the project closed, Hyderabad, Calcutta and New Delhi acquired and installed AQM equipment and equipment was on order for Mumbai and Pune at the time of the IEG mission. Some 15 cities have conducted or are conducting studies on air pollution. Due in part to a number of public interest law suits, there is now a genuine commitment to strengthen AQM in major Indian cities. As a result, many cities are presently collecting data on parameters critical to human health such as nitrous oxide, particulates, sulfur dioxide, among others (see Box 1). Given the time lapse involved, it is difficult to determine the project's direct impact on recent

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9. See, for example, World Bank, For a Breath of Fresh Air: Ten Years of Progress and Challenges in Urban Air Management in India: 1993 – 2002, New Delhi, 2005 and Centre for Science and Environment (CSE), The Leapfrog Factor: Clearing the Air in Asian Cities, New Delhi 2006, which focuses specifically on the transport sector.

improvements in this regard, but the genuine commitment of several cities to continue air quality monitoring, including those which benefited from project assistance for the purchase of AQM equipment under this component, is worthy of note.

Box 1. Air Pollution Management in Indian Cities

Over the period of about ten years, the governments of India and several Indian States have made concerted efforts to reduce the source of pollution in India's major cities such as Delhi, Mumbai, Kolkota, Chennai, and Hyderabad. Measures include the mandatory adoption of low-sulfur fuels, mandatory adoption of less polluting oil additives for two-cycle engines, relocation of industries, and outright closing of some heavy polluters. The burning of diesel fuel in urban buses, gasoline in two-cycle engines in auto-rickshaws and kerosene as a cooking fuel, spewed massive emissions of particulates, nitrous oxide, sulfur dioxide and other pollutants into the air, contributing to poor air quality in many cities. There were other sources of pollution including fossil fuel use in industry, the use of kerosene for cooking, and the widespread and largely uncontrolled use of toxic solvents and other contaminants in industries both large and small.

However, focusing on the key mobile sources of air pollution may have been a strategically wise choice for several reasons. First, the contribution to air pollution by diesel and two-cycle gasoline engines was fairly well known by the scientific cadre and readily understood by the general public. Second, changes in pollution levels could be measured readily and related to specific measures. Third, the operators in the transport sector were easy to identify and mandatory compliance was perhaps more easily accomplished than it would have been in other sectors. Finally the public was widely aware both of the health impacts of air pollution and could readily perceive the benefit of conversion to CNG as a fuel. In 1996, Indian cricket fans were upset when an Australian team blamed its loss on the heavy pollution in New Delhi. In fact, the major impetus for CNG adoption came not from the environmental protection branch of government but rather from court action introduced by public interest lawsuits.

31. Coastal and Marine Area Management. This component was intended to develop GIS systems for coastal and marine area management (CMAM) and to model integrated CMAM plans. It was also intended to produce environmental impact assessment (EIA) guidelines for coastal zone development. GIS and remote sensing data were used to develop management plans for critical habitats such as mangroves and coral reefs. Studies were conducted with project support on marine, coastal, and estuarine ecosystems to determine their capacity to absorb nutrient loads and other materials. A state-of-the art training facility for Integrated Coastal Zone Management (ICZM) was built with project support at the Integrated Coastal and Marine Area Management Project Directorate of the Department of Ocean Development (ICMAM) in Chennai. Workshops and training events were held and ICZM was integrated with EIA practices in a manual produced with project support. While much of the work may have been supply driven at the outset, ICMAM was able to produce a detailed report on the December 2004 Tsunami disaster.[10] It appears that the capacity to produce this report was significantly enhanced by the project's contributions.

10. Preliminary Assessment of Impact of Tsunami in Selected Coastal Areas of India. Department of Ocean Development Integrated Coastal and Marine Area Management Project Directorate, Chennai, June 2005.

Part F: Strengthening Environmental Capacity in Gujarat

32. Among the components of the EMCB project that sought to support the strengthening of decentralized environmental management were the efforts undertaken in Gujarat, which was visited by the PPAR mission for this reason. The choice of Gujarat for this pilot was appropriate as it was – and is -- one of India's fastest growing states, particularly due to the rapid expansion of industry and its importance as the largest domestic producer of natural gas. Project actions in Gujarat were intended to serve as a model for other Indian states facing similar environmental challenges. Given the importance of this part of the project, its components are assessed in some detail. As with other parts of the project, moreover, both the importance of political leadership and the volatility of project performance when changes in such leadership occur are illustrated by the experience in Gujarat.

33. Clean Production Plan. Curbing industrial pollution was one of the seven major declared priorities on the NEAP in India. Gujarat, which is one of the most industrialized states in the country, has some 200 Industrial Estates. The concept of such estates, which is fairly well developed in India, aims at concentrating industry in areas where production chains can be developed, industries within a particular sector can be grouped, and industrial effluents can be better managed, in some cases through Common Effluent Treatment Plants (CETPs), thus avoiding or reducing damage to residential, farming, and other settlements. During project implementation, the Gujarat State Ministry of Environment and Forests (GSMOEF) launched a clean production (CP) system campaign with project support designed to encourage industries to adopt CP methods. The benefits of CP accrued both to the individual firms in the form of savings in materials, water, and energy, and to the community at large in the form of reduced emissions.

34. This component supported various demonstration projects (see Box 2) and other activities, including the upgrading of information systems, monitoring and compliance, standard setting, and improved regulation in priority areas. Changes in state government administration, however, resulted in loss of interest and enthusiasm and, in the end, the component's impact was limited. The CP activity was the central focus of the Gujarat SPCB, which emphasized identifying industries in different sectors amenable to and interested in developing clean production methods. A number of clean production clinics were held. More substantial investments were made under the parallel Industrial Pollution Control Project (IPCP) with World Bank support. IPCP also supported CETPs in Gujarat that were privately financed and organized. However, to date, CETPs are not licensed or regulated and there are no clear accountabilities since they accept effluents from multiple customers, making it difficult to assess responsibility.[11]

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11. The experience with Bank-supported CEPTs in Gujarat and elsewhere in India is discussed in further detail in the PPAR for the Industrial Pollution Control and Industrial Pollution Prevention Projects (World Bank Report No. 38472, January 25, 2007) and more generally in an evaluation undertaken by the Central Pollution Control Board entitled Performance Status of Common Effluent Treatment Plants in India (Delhi, 2006). The latter report concluded that despite design improvements in the treatment plants introduced under the Industrial Pollution Prevention Project, on the whole, performance of these facilities was "very unsatisfactory" due to poor operation and maintenance.

Box 2. Clean Production Activities Supported by EMCB Project in Gujarat

Nine demonstration projects in stone crushing mills received support under the EMCP Project in Gujarat. These were intended to be demonstration projects, the results of which would be disseminated by sectoral associations. Unfortunately, however, while hundreds of such projects were launched, data were not collected on their possible demonstration effects. The administrator of the program, which is ongoing, informed IEG that the greatest problem encountered was unwillingness of participants to share techniques they had adopted with other firms in the same sector. Even though the program produced measurable results in specific companies, it did not become firmly institutionalized and supporting policies that could have helped move it forward were not adopted. On the positive side, the Gujarat State Department of Environment and Forests has continued to allocate budget to the program and has given awards to firms that have achieved the greatest economies and emissions abatement. The program also trained some NGOs in applying CP techniques.

35. Gujarat State Environmental Action Plan (SEAP). The SEAP (which is ongoing) was implemented by the Gujarat Ecology Commission (GEC) founded in 1992 by Hasmukh Shah, a member of the elite Indian Administrative Service (IAS). Mr. Shah is a leading figure in both the public and private sectors on energy matters and former Chairman of Indian Petrochemicals Corporation, who had a vision that growth in Gujarat could take place in a controlled and sustainable fashion. GEC was created by the Government of Gujarat under the slogan, "Work with Nature, Not against It," with a broad and ambitious mandate.[12] Its first goal involved restoration of degraded lands and creation of an irrigated green belt. Under Shah, GEC took on the role of preparing a State Environmental Action Plan (SEAP). This exercise, financed by EMBC, sought to take stock of environmental conditions in Gujarat considering that both the state's natural resources and its man-made environment were being rapidly transformed by the expansion of industry and irrigated agriculture. The Gujarat SEAP was intended to set a high standard and create an example of an Action Plan that would translate into localized efforts to correct environmental problems (see Box 3). Earlier attempts at national and state environmental action plans had been widely criticized as inadequate.

36. Ultimately, the SEAP was not released to the public. Some of those with whom IEG spoke about the Plan suggested that its publication was blocked because it called for more vigorous action by the state government to curb industrial pollution and mangrove and dry land forest destruction and contained other calls for action at a time when the state was aggressively pursuing industrial growth and agricultural expansion. At this point, moreover, GEC's most prestigious member, Mr. Hasmukh Shah, had left the

12. GEC's mandate was: "(a) to provide an organization that plans and works for restoration of ecologically degraded areas; (b) to arouse ecological consciousness among the people of Gujarat and to develop a conservation ethos in the state; (c) to undertake on its own or with the support of other agencies, restoration of disturbed eco-systems of the state, with special emphasis on degraded lands; (d) to create institutions and organizations necessary for achieving the objectives of GEC; and (e) to act as the state's single umbrella for accreditation of various NGOs eligible for funding for activities aimed at ecological restoration of degraded eco-systems, and allocation of funds to various non-government agencies for ecological restoration programs."

organization and no one on the Board of Directors had sufficient political influence to push for publication. The environmental database prepared with EMCB project support was originally made available via internet but is not now accessible online.[13]

Box 3. The Gujarat State Environmental Action Plan

The Gujarat SEAP was conducted by a hand-picked team of dedicated environmentalists with the assistance of specialized consultants and considerable stakeholder consultation. Two issues were declared off limits for the SEAP, however, namely nuclear power and the Sardar Sarovar Dam on the Narmada River.[14] The SEAP looked closely at the causal factors behind environmental problems. For example, it assessed growing groundwater scarcity in parts of the state where water was being extracted from depths of up to 1200 feet. It concluded that the policy of providing free electricity to pumping stations was the key problem because it artificially lowered the cost of groundwater. The work went on for two and a half years at which point a draft SEAP was presented to a wide spectrum of government agencies. However, a highly growth oriented, pro-business state government had taken office just as the first draft of the SEAP was circulated for review.

Although some public policies were identified as contributing to environmental problems, most of the agencies participating in the review (urban, industrial, water, planning, and financial agencies) had favorable responses to the draft SEAP because they saw it as growth-enhancing. There was strong negative response, however, from the State Environment and Forestry Department and the SPCB, primarily on the grounds that it was based on outdated information.

37. Despite the failure to disseminate the SEAP, some of its key recommendations were accepted. For example, its recommendation for the northern part of the state was to refocus water capture on surface water and to stop pumping water from ground wells using subsidized electric power. The state also began to charge standard energy tariffs to pumping stations. Other recommendations included leasing salinized wastelands to corporations for tree plantations for pulp production based on a bidding process that awarded rights to the companies that offered the greatest number of amenities to the population. GEC also recommended that the government lease land on which slums were located to their occupants under long-term leases. This measure worked to encourage investment by slum dwellers in their neighborhoods, but the government did not scale up the experiment because of the political sensitivity regarding the leasing of public land.

38. Gujarat Ecology Commission. At the time of the PPAR mission, GEC appeared to have lost a great deal of ground. Its Chairman and small staff nevertheless nurtured hope that the state would allow publication of the SEAP after the chapters were updated. However, much of the interest and momentum for the plan appear to have been lost, especially in light of the highly growth-oriented state government that took office in

13. http://www.gec.gov.in/

14. The Sarovar Sardar dam on the Narmada River was financed by the Bank under a loan approved in 1985 but, after years of intense international criticism and local conflict, the Indian government requested in 1993 that the Bank withdraw from the project.

October 2001. GEC itself suffered as an appendage to the state government highly dependent on scarce state funding and soft money to carry out its projects. However, it is still involved in mangrove restoration along the coast, a mangrove valuation study, and the maintenance of an online database on Gujarat environment.

39. In summary, GEC and the SEAP were well-motivated initiatives, with good staffing and competent management. During the late 1990s, there was considerable publicity and agitation about pollution and industrial accidents in Gujarat, but GEC avoided becoming involved in sensationalism and did not seek headlines, partly because such negative publicity could alienate the agencies that it sought to work with. GEC built ties and relied on data and expertise from a wide range of state and national agencies and NGOs. This proved to be both a strength and a weakness. Although GEC cooperated heavily with other agencies, much of the data on which it relied was apparently inaccurate or out of date as GEC did not have the capacity to generate primary data. And when it came to publication of its report, some of the same agencies that had provided data opposed its release on the grounds that the data were inaccurate and/or outdated.

40. In addition, GEC was somewhat marginal to the established agencies in the state. It was located in Baroda at some distance from the capital, Gandhi-Nagar. It was also too reliant on a single prestigious leader. After he left, GEC lacked institutional influence and sustainability. On the other hand, its autonomy gave it a degree of freedom that it might not have had if it been more closely linked with line agencies. This dilemma reproduces the situation of many project implementation units. It also goes to the heart of the EMBC project's goal which was institutional strengthening. The lesson to be drawn is that the interest of a single champion in a project is usually not sufficient to sustain a project and its outputs over the longer term. Unless an influential constituency supports the work of an independent agency, even the best quality work may be ignored or underutilized because it lacks strong traction among decision makers.

3. Planned vs. Actual Costs and Financing

41. According to the ICR (as stated in two different annex tables), actual project expenditures reached only $27.45 million, or just 45 percent of the appraisal estimate. However, there is a discrepancy among the ICR annex tables in this regard. A third table in the same Annex ("Project Financing by Component") indicates that actual project costs totaled US$ 30.85 million and shows discrepancies with the figures presented in the table entitled "Project Costs and Financing" for 7 of the 12 items listed, most significantly for the industrial siting/zoning atlas where one table indicates an actual cost of US$ 6.27 million and the other (cited below) US$ 3.27 million.[15]

42. Most components underspent their appraisal targets by more than half (see the table below). Only one component, for the Environmental Information System (ENVIS),

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15. The other components for which discrepancies exist were environmental research, environmental economics, environmental standards, project implementation cells, environmental law, and the mining sector. However, for the most part, in the aggregate, these offset one another.

exceeded its appraisal estimate. The reasons for low disbursement were various. A significant downsizing of the project was proposed at the time of the Mid-term Review (MTR) and a large share of the Credit (roughly US$ 21 million) was reallocated as part of the Bank's emergency response to a major earthquake in Gujarat in 2000.[16] Priorities also shifted as new office holders brought different perspectives and priorities in relation to the environment and institutional development needs, and perhaps the political implications of some of the measures initially proposed were more carefully scrutinized.

Table 1. Appraisal Cost Estimates vs. Actual Costs

COMPONENT	Appraisal Estimate (US$ M)	Actual Costs (US$ M)	% of Appraisal Estimate
Environmental Research	2.94	$0.4	15.0%
Environmental Information ENVIS	1.46	$1.7	114.4%
Environmental Economics	6.8	$4.5	66.6%
Environmental Standards	1.5	$0.7	49.3%
Air Quality Management	3.08	$1.3	42.2%
Integrated Coastal & Marine Mgmt	3.9	$2.3	59.2%
PIU (MOEF, DOD, GDFE)	2.37	$0.6	26.2%
National Environmental Awareness Campaign	2.03	$0.0	0.0%
Paryavaran Vahini	0.98	$0.0	0.0%
Environmental Action Fund	2.4	$1.0	40.4%
Environmental Law	4.15	$1.7	41.7%
Mining Sector	6.31	$3.6	56.4%
Zoning Atlas	8.44	$3.3	38.7%
Other Components	15.2	$6.3	41.5%
TOTAL	**61.56**	**27.45**	**44.6%**

Source: ICR.

43. There were also significant difficulties and delays in the procurement of certain goods and services. The Borrower perceived the Bank as having created obstacles to smoother implementation. From the Bank's perspective, however, the Borrower did not always opt for the most appropriate goods and services. There were protracted discussions and disagreements over the best equipment to acquire for air quality monitoring and whether local or international specialists were the most appropriate providers of consulting services. While both the Bank and the Borrower ultimately displayed flexibility on these issues, precious time was lost and there was some friction. In addition, several implementing agencies had insufficient capacity to productively use

16. The ICR states the following in this regard: "Based on the MTR recommendations, the project was restructured in November 2000. The review had recommended a 26% reduction (from $ 61 million to $ 45 million) in the overall project size. While this was under discussion, a serious earthquake occurred in Gujarat and an amount of approximately SDR 16.2 million (roughly $ 21 million equivalent at the prevailing exchange rate) was transferred by IDA from EMCBP to the reconstruction efforts in Gujarat. The net results...were that the funds available under EMCBP were reduced to SDR 18.47 million (about $ 25 million) and the size of the TA project was reduced to about $ 33 million, or about 55% of the original estimate.

the volume of resources foreseen at appraisal, reflecting poor quality at entry more generally.

44. The ICR annex which records a higher total project cost amount also suggests that actual IDA financing for the project totaled US$ 22.08 million and Government counterpart resources were US$ 8.77 million equivalent. This compares with estimated IDA financing of US$ 49.06 million and estimated Government counterpart funding of US$ 12.5 million, summing to US$ 61.56 million, at the time of appraisal. However, there is no similar breakdown of IDA versus Government funding at project closing in the ICR for the US$ 27.45 million total reproduced in the table above, so it is not clear how much of the IDA Credit that was eventually disbursed was actually used to help finance this operation and how much went to support earthquake recovery in Gujarat.

45. In short, with respect to project financing the picture is unclear, as the disbursement and cancellation figures available in the Bank's financial database for this Credit do not distinguish between that part of the funding which actually went to the EMCB Project and the part that went to the Gujarat emergency earthquake recovery efforts. What is known for sure is the following: of the original SDR 34,700,000 approved for this project (representing approximately US$ 50 million at the time it was approved, according to the ICR), SDR 735,000 were cancelled in January 2002 and another SDR 2,865,610 were cancelled in March 2005.[17] As a result, the final Credit amount net of cancellations was just under SDR 31,100,000 (or US$ 47, 278,700 equivalent at the current exchange rate) at the time of Credit closing, which occurred roughly nine months after the EMCB Project itself closed (March 2005 versus June 2004). Cumulative disbursements in dollar terms at the time of Credit closing were US$ 40,446,830 net of cancellations (i.e. the dollar equivalent to roughly SDR 31,100,000 at the current exchange rate). However, on the basis of the available data, it is not possible to determine precisely how much of this cumulative total was used for the EMCB Project and how much was for the earthquake recovery efforts.[18]

4. Monitoring and Evaluation

46. The project does not appear to have had a specific monitoring design. Its various parts and components were largely isolated from one another. There does not appear to have been any systematic effort to compare progress of one component to another, or of coordinating different agencies with others. The project appraisal document[19] does not

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17. These amounts were equivalent to roughly US$ 943,835 and US$ 4,367,735 equivalent at the exchange rates prevailing at these respective dates.

18. Beyond this, the ICR for the EMCB Project does not discuss any aspects of the actual use (and performance) of that part of the original IDA Credit (approximately SDR 16.2 million out of the original SDR 34.7 million) that was reallocated for the Gujarat emergency response in 2000, so it is also not covered in the present PPAR.

19. A Memorandum and Recommendation of The President of the International Development Association to the Executive Directors on a Proposed Credit of SDR 34.7 million to India for an Environmental Management Capacity Building Project.

include a log frame and the Project Development Objective is stated simply as assisting MOEF to implement the Government's Environmental Action Plan although it did not specifically define expected outcomes in relation to any of EAP's stated priority areas. There was no monitoring strategy outlined in the appraisal document although there is a list of indicators in the appendix. This list, however, mixes inputs and outputs and does not clarify how and by whom these indicators would be monitored. The major monitoring effort appears to have been of that of the Bank through its periodic supervision missions.

47. In short, neither the project as a whole nor the individual components were adequately monitored and evaluated by the Borrower. There were no provisions for independent monitoring of the project. A number of the problems identified in this assessment could have been detected and perhaps been corrected had there been a more systematic effort to collect and analyze information regarding project implementation. As a result, M & E design, implementation, and utilization for the project are all rated **negligible**.

5. Outputs and Outcomes by Objective

48. Project complexity and the range of institutions and issues it dealt with make it difficult to summarize overall performance. In general, however, the project did not fulfill its objectives, largely because of lack of full ownership and adequate coordination among agencies and levels of government. The focus on institutional tools rather than environmental outcomes may have been one reason for the project's lack of success. While it may seem paradoxical that the project was responsive to needs yet lacked ownership, the explanation appears to lie in lack of leadership by the Environment Ministry and its subsidiary and linked state-level organizations, government reluctance to take on some of India's most pressing environmental challenges, and failure to link the project to public demand for environmental protection as a source of support. Finally, the project was not conceived in an integrated fashion but consisted of a disparate set of initiatives aimed at strengthening capacity but not directly at solving environmental problems.

49. The present assessment does not attempt to trace the political economy of what appears to have been a "go slow" policy by the Central Government on major environmental policy reforms during the 1990s and early 2000s. Such a policy may have been motivated by a desire not to stifle economic growth by excessive regulation. An alternative explanation is that industrial, agricultural, and other stakeholders exerted effective pressure to slow environmental protection efforts because of a perception that environmental regulation would reduce their competitiveness both domestically and internationally. Whatever the ultimate reason or reasons, the project fell short of its goals. In addition, the project failed to create incentives for key actors to critically evaluate existing policies and proactively pursue needed reforms.

50. The objective of the EMCB project was to assist the Indian Government in strengthening environmental management capacity in selected areas at the national, state, and local (including community) levels. Broken down into four "subobjectives," progress toward achievement of each one can be briefly assessed as follows.

Subobjective #1: Strengthening environmental policy planning and administration

51. Project performance on this Subobjective was **modest**. While the project had the explicit goal of strengthening policy planning, the only part of the operation that clearly aimed at this goal was the Environmental Economics component. The structure and functions of environmental protection in India were not the object of any specific component of the project. Studies were not undertaken to analyze and review policy options except insofar as some of the economic studies pointed to alternative approaches to environmental regulation. The project did have a modest impact on environmental administration by developing tools such as the Industrial Zoning Atlas that would assist in the implementation of policies. But there was little or no analysis of the actual impact of these policies on environmental quality.

Subobjective #2: Decentralization of selected environmental activities to local communities and non-governmental organizations

52. Project performance on this Subobjective was also **modest**. This objective was not fully achieved, in large part because many of the components that targeted this goal were dropped. Decentralization, however, has two aspects. On the one hand it brings regulatory power closer to the source of problems. On the other, in cases where powerful interests can co-opt the regulatory process, this may result in significant damage to public goods (in this instance, environmental quality), an outcome that central regulators would not have permitted.

53. The public interest law suits that led to court decisions to phase out two-cycle gasoline powered vehicles and replace them with CNG-burning auto-rickshaws and buses in Delhi and elsewhere, for example, were brought by NGOs without any assistance. On the other hand, GOI may have been influenced by investors who feared that stronger environmental regulation would impose high costs and reduce growth in certain industries. Accordingly, project support to environmental NGOs was limited to Gujarat, while the initially proposed deconcentration of MOEF offices, which could have brought regulation closer to the sources of environmental degradation, was abandoned. On the positive side, the Environmental Information System was expanded and many new nodes were added. While the issue of the validity and usability of environmental data does not appear to have been addressed (see below), there was a significant expansion in access by the public to environmental data on a wide variety of themes.

Subobjective #3: Implementation of environmental law

54. Project performance on this Subobjective was likewise modest. While the project provided support for developing the academic field of environmental law and helped build the curriculum on this topic in several law schools across the country, however, the project did not directly support the implementation of environmental law *per se*. It is possible that more exposure of legal professionals to principles and tools of environmental law and enforcement will eventually pay dividends in the form of an increased number of citations, prosecutions, injunctions, civil suits, consent decrees, and other legal actions that will contribute directly to improved environmental quality. But

there is little evidence that these impacts are occurring in India[20] or that legal codes or regulations have been augmented to strengthen the law as a tool for environmental management. Greater enforcement of environmental legislation in recent years seems to be largely driven by the judicial system in response to public interest law suits brought by NGOs and reflecting increasing awareness by the public of the costs of environmental degradation, especially the health costs of air pollution in large cities.

Subobjective #4: Monitoring of compliance with environmental laws and standards in specific high priority environmental problem areas

55. Again, the Subobjective was only partially achieved in that monitoring of compliance with laws and standards in problem areas *per se* was not undertaken. Performance was therefore also **modest**. The project did contribute to the collection and systematization of data in the areas of coastal zone management, mining, and air pollution among others with positive results extending beyond the project implementation period with respect to air quality monitoring and the post-2004 Tsunami response. Insofar as can be determined, however, these studies and compilations did not examine the issue of compliance with laws and standards. To have done so, would have almost certainly uncovered cases of non-compliance or exceeding of standards. This would have created the need for stronger enforcement which, in turn, could have affected – and probably raised the opposition of -- powerful interests in government and the private sector. The exception to this was the Gujarat SEAP described above. As indicated, however, it was not allowed to move forward to an action phase due, paradoxically, to the resistance of the State Ministry for Environment on the pretext that it was based on outdated or inaccurate data.

6. Ratings

56. Based on its assessment, including the field mission to New Delhi and Gujarat, which has permitted a review of EMCB project accomplishments and shortcomings, IEG has rated project performance on a number of key dimensions. In several cases, these ratings, which are indicated in the table below, are less positive than those contained in the ICR for reasons which are set out for each of the aspects considered in the following paragraphs.

57. ***Relevance of Objectives and Design.*** The project's objectives were **highly relevant** to India's environmental system, but the components of the project were not strategically well chosen. Thus, the relevance of project design was only **modest**. There was little coherence in the set of components and the project appears to have been developed hastily without thorough analysis beforehand, notwithstanding the fact that its design was reportedly based on India's National Environmental Action Plan. Most of the initial components which bore the potential of bringing out adverse information regarding India's environment were not implemented. The project would be equally relevant to

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20. The public interest law suit brought by NGOs leading to the decision to phase out highly polluting public conveyances stands as a shining exception to this generalization.

today's India, especially as environmental conflicts over land and air and water quality are becoming more acute as economic growth accelerates.

58. Were the project to be prepared again, however, its design should seek to result in greater effectiveness in terms of environmental improvement. To be relevant to today's India, a new project would need to help develop a more modern and effective structure of environmental protection, emphasizing true decentralization, goal setting, a variety of instruments, and simplified and more transparent environmental monitoring. Perhaps most importantly, in order to achieve structural change it would be necessary for government and civil society together to build a constituency around new ideas for environmental protection, starting first with the "low hanging fruit" and moving on to more difficult to solve problems. Interestingly, many of the ideas suggested here have been circulating in India for some time, and important additions to knowledge and understanding did come out of the Environmental Economics and Environmental Law components.

59. ***Efficacy.*** The efficacy of the project was **modest.** While some work was carried out that could ultimately bring about better regulation, little was done that concretely strengthened the capacity of the Government of India to protect the environment more effectively. With the exception of some actions in Gujarat, the project largely failed to achieve its decentralization objective. It would be difficult to point to a single environmental agency that is more effective and capable today than in the mid-1990s as a result of the project. The way in which the project's success indicators were framed was in fact symptomatic of the problem. The establishment of a database or publication of a manual was often the measure of success, without consideration for what the database or manual was intended to accomplish, let alone linking this to tangible improvements in environmental quality.

60. ***Efficiency.*** The ICR presented no ratio of outputs to inputs that could be measured objectively or quantified. Thus, any judgment regarding project efficiency is necessarily subjective. However, the long delays in project implementation and in procurement, particularly for the air pollution monitoring subcomponent, due in good measure to poor project preparation and insufficient client buy-in, suggests that better use could have been made of the resources available through this project. In addition, a considerable share of the resources originally allocated for the project were either reallocated to a disaster relief effort or unused and, thus, canceled. On balance, therefore, efficiency also appears to have been **modest**.

61. ***Risk to Development Outcome.*** The project is unlikely to have significant long-term impacts and many of the activities supported by it have not been maintained. The process of streamlining clearance (licensing) procedures has continued, however, and there is a possibility that this activity will be sustained because it benefits both government and the proponents of new investment projects. Evidence of the lack of sustainability will come in the kind of streamlining that takes place. To the extent that processes can occur faster and with fewer transaction costs, the clearance process will have been streamlined. If clearances are issued more quickly but without any gain for environmental protection, then effectiveness of the clearance process will not have been enhanced. Sustainability can also be measured and supported by public perception. To the

extent that the public understands that improved environmental protection can yield tangible benefits in terms of the quality of the water it drinks, the air it breathes, or the amount of green space available, the more likely it will support the maintenance and expansion of environmental protection systems. As a result of these considerations, risk to development outcome is rated **significant**.

62. ***Outcome.*** Based on its modest design relevance, efficacy and efficiency even the overall outcome rating for this project is **moderately unsatisfactory**. Despite some achievements, the project did not yield significant outcomes in regard to its stated objectives. Gains in institutional effectiveness and in the development of tools for environmental management were marginal. Even though the project helped to put the issue of reengineering environmental clearance procedures on the table, this appears to have had the effect of polarizing the debate over EIA rather than building a consensus. Many of the components that were intended to move the environmental debate forward, such as deconcentration of MOEF's facilities, strengthening of citizen participation in environmental monitoring, and promoting public debate on environmental issues were dropped from the project. Combining dropped components and those that did not reach their stated goals, favorable outcomes occurred in less than half of all components.

63. ***Bank Performance.*** Bank performance was **unsatisfactory**. The project was hastily prepared without a clearly defined strategy. It began with a set of objectives borrowed from an abstract and unrealistic Environmental Action Plan. Even after the project was decoupled from the EAP, its objectives were not changed. Many issues that should have been resolved during preparation spilled over into implementation such as the extent to which procurement of services should be done internationally and the kind of equipment to be acquired for air-quality monitoring. There were frequent turnovers in task team leaders -- four altogether during the course of the project -- which did not contribute to its continuity. The policy dialogue with the GOI was not effective and supervision focused mainly on procurement and financial management, rather than policy, issues. In addition, the Bank acquiesced in the dropping of some of the more promising activities in terms of one of the project's central "subobjectives," strengthening decentralized environmental management.

64. ***Borrower Performance.*** The Borrower's performance in this project was weak and, thus, likewise, **unsatisfactory**. There does not appear to have been strong leadership in the MOEF or the PMU and several components were dropped due to lack of interest on the Borrower's part. Monitoring and Evaluation of the project were virtually non-existent. Performance appears to have depended mainly on commitment in each of the agencies responsible for specific components, which varied considerably over time as experience both in MOEF and Gujarat illustrate. IEG did not find evidence of efforts by MOEF to stimulate interest, promote greater coherence among the components, or seek synergy. Initiatives in Gujarat, as in the central Ministry itself, were jeopardized by changes in leadership that reduced commitment to certain project objectives and components.

7. Conclusions

65. ***The central weakness of the project was that it was conceived mainly in terms of inputs to building institutional capacity.***[21] Like many other Bank environmental projects of the early and mid-1990s, its outputs were nearly all defined in terms of the compilation of data, preparation of studies, and strengthening of institutions. There was little concrete action to improve the environment *per se*. Thus, while the project could claim some modest successes in generating studies and building capacity, the ultimate purpose of these inputs – to improve environmental quality – was essentially neglected. For the most part, in short, the project sought only to improve the capacity to measure, study, and legislate. The successes that similar projects achieved elsewhere, however, were due in large measure to their focus on improving environmental quality and not simply to provide better tools for environmental management.

66. ***In addition, those components that could have had direct impact on environmental quality were relatively neglected.*** Project components that received the greatest and most consistent support generally involved actions that would have only longer-term impacts on environmental policy, while those activities that had the potential to propel the central and state governments into a more active role in the short and medium term were deemphasized or dropped altogether. Components such as the Paryavaran Vahini ("Environmental Brigades") and the National Environmental Awareness Campaign, as well as the deconcentration of MOEF's offices, for example, were dropped. Other components such as the State Environmental Action Plan (SEAP) in Gujarat were blunted by resistance from the local governmental establishment, in fact, by the local environmental agencies themselves.

67. ***The project focused too much attention on developing tools for environmental regulation and did not question the existing approach to regulation per se.*** The project assigned high priority to activities that could have strengthened India's capacity to regulate and improve environmental quality, if followed by specific regulatory actions. However, such actions did not materialize. In this regard, EMCB fell short of its goals. Furthermore, the project's tacit support for the existing regulatory model may have reduced the potential value added of Bank participation from the perspective of environmental protection. Many initiatives were rooted in what many now regard as outmoded command-and-control (as opposed to market-based) approaches that tend to pit regulators against the regulated in a confrontational fashion.[22] As a result, project impact was not dramatic and it did not substantially affect environmental policy in India. Indeed, until very recently, there has been little follow up to either it or the parallel Bank-

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21. For an assessment of the early experience with many such projects, see Margulis, S. and Vetleseter, T., Environmental Capacity Building: A Review of the World Bank's Portfolio, Environment Department Paper 68, World Bank, Washington D.C., May 1999.

22. This is ironic because Bank ESW on environmental management in India at the time was recommending greater use of economic instruments and other market-based approaches. However, this was not effectively incorporated into the design of the EMCB Project except very indirectly through the Environmental Economic component.

supported industrial pollution control and prevention projects in terms of new lending.[23] There was also too much focus on data gathering and not enough on decision making per se.[24] The data, moreover, were not developed in terms of measurement precision, scope and frequency, and they were not properly analyzed to actually support decisions.

68. ***The project was too complex for one agency to manage and lacked the full backing of the GOI.*** It also appears that it was too complex for the Bank to adequately supervise, especially from Headquarters alone. The project suffered from a lack of coherent focus and management. Good and modest results in some components were offset by negligible or unsustainable results in others. One possible explanation for this lackluster performance is that the Indian Government was not yet prepared to move forward proactively on environmental questions and was reluctant to encourage or activate a growing constituency in civil society that favored using the machinery of government to improve environmental quality.

69. ***The project provided few incentives for decision makers at various levels to adopt or support major reforms.*** It did propose, at least initially, to build environmental information systems, strengthen environmental education, and enhance public participation in environmental monitoring, as well as to develop a comprehensive action plan in one state as a pilot exercise. However, there was relatively little external demand at the time for these measures. Political pressure arising from a constituency united by a few key ideas and goals could have provided sufficient incentive for decision makers to take the risk of advocating reform. The project could also have been structured more strategically to create such incentives at the subnational level for decision makers to set priorities, focus on a limited set of reforms, and take action, as was done in the National Environment Project in Brazil, for example. This did occur to a limited extent in Gujarat, but the effort was ultimately thwarted by resistance from local interests and from within the state's own environmental ministry.

70. ***GOI could have taken advantage of growing civil society concern with environmental quality to help garner greater support for project objectives and activities.*** There have been notable advances in environmental policy in India over the past ten years as the result of civil society pressure.[25] Among these is air quality in several major cities (see Box 1 above) which provides an interesting example of how regulatory change can occur when a proactive public constituency demands it. In 1998, several

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23. A follow-on industrial pollution capacity building project is now under preparation.

24. The Bank has financed a number of environmental projects in different countries over the years, in which the primary objectives were to develop information and databases to use in managing the environment. Indeed, such activities are important and necessary for the rational application of resources to environmental problems and fine tuning of environmental management instruments. But, at the end of the day, the data generated often are not used for environmental management decision making. Their lack of usefulness often leads to the neglect or abandonment of databases, especially after external funding ends. This can be due to a number of factors, including that decision makers are indifferent to data or even feel threatened by it.

25. Perhaps the single most important event to impact environmental consciousness in India was a catastrophic at a Union Carbide fertilizer plant that occurred in 1984 and caused the death of more than 3000 people and injury to a much greater number of people.

Indian cities began a program of mandatory conversion of certain vehicles from diesel and gasoline to compressed natural gas. The results have been dramatic. The horizon in New Delhi and other cities is now much clearer while there have been measurable reductions in many pollutants. Ultimately, it was a civil suit brought by NGOs that obliged the governments of Delhi and Mumbai (and later other cities) to order the conversion of taxis and buses to CNG. Similarly, the mandatory relocation of a number of factories and conversion of others took place because of court orders following public interest lawsuits.

71. ***Finally, a basic underlying issue in this project is the ability to identify trends and influence environmental protection strategies in India.*** In supporting preparation of the EMCB Project, the Bank appears not to have questioned the basic approach of Indian environmental policy. Rather project design was geared to support existing government initiatives in key areas, but with relatively little policy leverage. An exception was the Environmental Economics component that supported studies which, added together and had their recommendations been adopted, could have resulted in major changes in the approach to regulation and may yet have that impact. Another exception was the pilot State Environmental Action Plan (SEAP) in Gujarat, which decentralized and focused the analysis of environmental conditions, but ultimately lacked the political support to overcome resistance within the state bureaucracy.

8. Lessons Learned

72. ***Strengthening management capacity does not necessarily or automatically lead to improvements in environmental quality. Improving management capacity focused on a well-defined and socially demanded set of environmental goals would probably yield better results.*** While it is sometimes assumed that enhanced environmental management capacity will naturally lead to better environmental quality, this hypothesis has never been adequately tested and is not necessarily the case. But this was still the prevailing, if implicit, assumption when the EMCB Project was designed. Bank experience over the past two decades has shown, however, that projects for environmental management are more effective if they are linked to a specific program of action which may consist of regulatory reform, strengthened enforcement, and the use of new instruments to influence private decision making.

73. ***Environmental monitoring is a necessary but not sufficient condition for improving environmental quality. Monitoring programs should be designed around the demand for data by decision makers rather than the simple demand for data.*** Monitoring alone will not yield improvements in environmental quality unless it is designed to fit into decision systems in which information is accessible, reliable, understandable, and used to support actions to improve environmental quality. Monitoring systems, thus, should be conceived in a broader context to enhance the likelihood that the data generated will be used by decision makers and the public in

general to take action.[26] In addition, more information does not always produce better decisions, which arise when decision makers are motivated to achieve a goal such as to reduce exposure by the public to hazardous chemicals. Often, moreover, databases have been designed and compiled but are not maintained.[27] Preparation of databases, atlases, and action plans, thus, can be a futile exercise, in short, unless they are not closely linked to concrete actions to improve environmental quality and geared to the actual decisions that must be taken.[28] An adequate environmental monitoring system will provide timely information in a form that decision makers can understand and use to improve their decisions.

74. ***To enhance the effectiveness of projects like EMCB, a priority-setting process which involves various stakeholders should precede project design and appraisal.*** The project could have benefited from a prior exercise in strategic environmental analysis, focusing on policies and programs in specific sectors and/or regions. The principal lesson in this regard is that such projects require formulation of clear priorities and commitment to achieve these objectives. This analysis should be carried out in a political-economic framework. Commitment is measured in various ways, but certain tests can be applied to assure that there will be commitment to actually solving environmental problems. Some of the relevant questions are indicated below. While not all of these indicators may be positive, at least some of them must be present in order for environmental problems to be effectively addressed and solved.

- Does the general public, as well as environmental specialists, recognize the existence and magnitude of specific environmental problems?
- Who loses and who gains in the current distribution of pollution and degradation?
- Is there political support for solving environmental problems? Do political leaders recognize the importance of the issue?
- Which stakeholders might oppose the proposed policies?
- Which stakeholders can be counted on for support of new policies?

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26. Decision makers may include officials seeking to allocate scarce resources among objectives or investors seeking to minimize the regulatory burden on their activities. The public at large may also be considered to be decision makers concerned with places to live or for recreation where the air and water are healthful and secure. If decision makers find data useful, they will often be willing to pay for it. Maintenance of updated databases is often contingent on willingness to pay by the users

27. There is an unspoken premise in the allocation of resources to construct databases, such as GIS systems, that information will be used to take better decisions. It follows that greater quantities of information or information of greater precision compiled into a database is ipso facto desirable. However, this premise needs to be considered in light of actual decision-making processes. In some cases, decision makers refer to information but use it selectively or not at all. In others, decision makers would like to have better information, but only if it is available in a format and at a scale that they can utilize. Time-series data are essential for environmental monitoring because, without it, environmental conditions cannot be linked to specific events such as increase in industrial output or the implementation of an enforcement campaign

28. In the Maldives, for example, decisions are currently being taken on the use of islands for tourism, as residential islands or "safe islands," as industrial islands, and even as landfill islands. To date, such decisions have been taken with regard to many factors, not including the fragility or vulnerability of the habitat to the proposed use.

- Are decision makers open to new ways of dealing with environmental problems, such as pollution taxes, tradable permits or other instruments?
- Can resolving environmental problems be linked to improvements in quality of life for a segment of the population (e.g. reduction of disease)?
- Are financial resources available to manage the problems that exist?
- Are environmentalists in and outside government willing to prioritize, such as attacking the more serious problems first?
- Are the indirect measures for environmental management such as improved monitoring or adoption of new standards, developed in a context in which information is likely to lead to environmental management policies or decisions?

75. Associated lessons are that **a sharper focus on environmental results and a better *ex ante* analysis of the political economy of environmental regulation could have made this a more successful project with more sustainable outcomes**. Finally, the project also clearly demonstrates the risks of designing an operation around the interests of individual institutional champions, as occurred both at the central Ministry of Environment and Forests (MOEF) and in the Gujarat Ecology Commission (GEC), because, once those champions leave, the impetus may soon be lost. A strong focus on specific desired environmental outcomes and basing project design on a broader up-front stakeholder consultation process would help to insulate it from the kinds of abrupt changes and insufficient follow-through that characterized implementation of the EMCB operation and could also contribute to more effective enforcement of and compliance with environmental laws and regulations.

Annex A. Basic Data Sheet

INDIA ENVIRONMENTAL CAPACITY BUILDING PROJECT (CREDIT 2930-IN)

Key Project Data *(amounts in US$ million)*

	Appraisal estimate	*Actual or current estimate*	*Actual as % of appraisal estimate*
Total project costs	61.6	27.5	45
Credit amount	49.1	40.4*	82
Cofinancing	-	-	-
Cancellation	-	5.3	-

* Refers to the entire Credit amount, roughly 47 percent of which was reallocated to the Gujarat Emergency Earthquake Reconstruction Project in April 2002, as the Bank financial data base on disbursements and cancellations does not differentiate between the actual amounts used for the present operation and for the reconstruction project. As the Credit was in SDRs, the actual credit and cancellation amounts do not sum to the apprisal credit amount because of exchange rate differences.

Cumulative Estimated and Actual Disbursements

	FY98	*FY99*	*FY00*	*FY01*	*FY02*	*FY03*	*FY04*	*FY05*
Appraisal estimate (US$M)	4.9	15.5	29.2	40.8	47.3	50.2	50.2	50.2
Actual (US$M)	3.0	4.2	6.1	13.0	31.8	36.1	41.0	40.5
Actual as % of appraisal	61	27	21	32	67	72	82	81

Date of final disbursement: December 2004

Project Dates

	Original	*Actual*
Initiating memorandum	03/01/1996	03/01/1996
Negotiations	10/31/1996	10/31/1996
Board approval	12/23/1996	12/23/1996
Signing	03/14/1997	03/14/1997
Effectiveness	06/12/1997	05/13/1997
Closing date	06/30/2003	06/30/2004

Staff Inputs *(Actual/Latest Estimate)*

Stage of Project Cycle	*Staff weeks*	*US$ ('000)*
Identification/Preparation	N.A.	N.A.
Appraisal/Negotiation	N.A.	N.A.
Supervision	31.5	105.4
Completion	9.0	27.5
Total	40.5	108.1

Mission Data

Date (month/year)	*No. of persons*	*Specializations represented*	*Implemen. status*	*Devel. objectives*
Identification/ Preparation				
Appraisal				
Supervision				
06/10/1997	7	TM (2); PRINC. COUNSEL (1); ADMIN. PUBLIC&HEALTH (1); ECONOMIST (1); NGO SPEC. (1); COAST&MARINE MGT SPEC. (1)	S	U
10/17/1997	7	TM (1); MINING ENGINEER (1); ECONOMIST (1); TM/ENVIRON. OFFICER (1); NGO SPECIALIST (1); COAST & MARINE MGT SPE (1); ENV. SPECIALIST (1)	S	S
05/14/1998	7	TASK LEADER (1); MINING ENGINEER (1); ECONOMIST (2); TL/ENVIRONMENT OFFICER (1); NGO SPECIALIST (1); ENVIRONMENTAL ENGINEER	S	S
12/04/1998	6	TASK LEADER (1); ECONOMIST (2); TL/ENVIRONMENT OFFICER (1); NGO SPECIALIST (1); ENVIRONMENT SPECIALIST (1)	S	S
06/10/1999	5	TASK LEADER (1); ENV ECONOMIST (1); TL/ENVIRONMENT SPECIAL (1); ENVIRONMENT SPECIALIST (1); EDUCATION SPECIALIST (1)	U	U
11/30/1999	5	TASK LEADER (1); ENV ECONOMIST (1); TL/ENVIRONMENT SPECIAL (1); ENVIRONMENT SPECIALIST (1); EDUCATION SPECIALIST (1)	U	U
04/20/2000	8	TEAM LEADER (1); SR.ECONOMIST (2); ENV. SPECIALIST (3); SR.PROC SPECIALIST (1); SR.FIN.MGT SPECIALIST(1)	U	U
12/14/2000	3	TEAM LEADER/ECONOMICS (1); ENV. ECONOMIST (1); ENV.ENGINEER (1)	S	S
06/12/2001	2	TASK LEADER (1), ENV.ECONOMIST (1)	S	S
12/08/2001	3	TASK LEADER (1), SR.ECONOMIST (1), ENV.SPECIALIST (1)	S	S

	Date (month/year)	No. of persons	Specializations represented	Implemen. status	Devel. objectives
	06/28/2002	6	TASK LEADER/ECONOMIST (1); SR. ECONOMIST (1); ENV'L SPECIALIST (1); SR. ENV'L SPECIALIST (1); SR. PROC. SPECIALIST (1); SR FIN MGT SPECIALIST(1)	S	S
	12/30/2002	3	TASK LEADER (1), SR.ECONOMIST (1), ENV.SPECIALIST(1)	S	S
	04/14/2003	3	TTL (1); PROGRAM ASSISTANT (1); ENV SPECIALIST (1)	S	S
	11/04/2003	6	TEAM LEADER (1); TECHNICAL CONSULTANT (1); PROGRAM ASSISTANT (1); PROCUREMENT SPECIALIST (1); ENV SPECIALIST (1); ENV.EDUCATION (1)	S	S
	04/07/2004	3	TEAM LEADER (1); TECHNICAL CONSULTANT (1); PROGRAM ASSISTANT (1);	S	S
ICR					
	07/15/04	3	TEAM LEADER (1); TECHNICAL CONSULTANT (1); PROGRAM ASSISTANT (1)	S	S
	10/30/04	3	TEAM LEADER (1), SR.PROC.SPECIALIST(1); PROGRAM ASSISTANT(1)	S	S

Other Project Data

Borrower/Executing Agency:

FOLLOW-ON OPERATIONS

Operation	Credit no.	Amount (US$ million)	Board date
Capacity Building for Industrial Pollution Management	In preparation	70.0	11/10/2008 (estimate)

Annex B. Illustration of Environmental Standards

ALUMINIUM : EMISSION STANDARDS

	Pollutants	*Emission Limit*
(a) Alumina Plant		
i) Raw Material Handling (Primary and Secondary Crusher)	Particulate Matter	150 mg/Nm3
ii) Precipitation Areas – calcination	Particulate Matter Carbon Monoxide Stack Height	250 mg/Nm3 1% max. H=14 (Q)0.3 where, Q is emission rate of SO2 in kg/hr and H is stack height in metres
(b) Smelter Plant		
i) Green Anode Shop	Particulate Matter	150 mg/Nm3
ii) Anode Bake Oven	Total Fluoride(F)	150 mg/Nm3 0.3 kg/tonne of Aluminium
iii) Pot-room	Particulate Matter Total Fluoride (F)	150 mg/Nm3
	VSS	4.7 kg/tonne of Aluminium produced
	HSS	6.0 kg/tonne of Aluminium produced
	PBSW	2.5 kg/tonne of Aluminium produced
	PBCW	1.0 kg/tonne of Aluminium produced
	Stack Height	H=14(Q)0.3 where Q is emission rate of SO2 in kg/hr and H is stack height in metres.