Report Number : ICRR0020313

## 1. Project Data

| Project ID | Project Name | |
|---|---|---|
| P078359 | SEISMIC RISK MITIGATION | |
| **Country** | **Practice Area(Lead)** | **Additional Financing** |
| Turkey | Social, Urban, Rural and Resilience Global Practice | P122179 |

| L/C/TF Number(s) | Closing Date (Original) | Total Project Cost (USD) |
|---|---|---|
| IBRD-47840,IBRD-80330 | 30-Sep-2010 | 550,000,000.00 |
| **Bank Approval Date** | **Closing Date (Actual)** | |
| 26-May-2005 | 31-Dec-2015 | |

| | IBRD/IDA (USD) | Grants (USD) |
|---|---|---|
| Original Commitment | 400,000,000.00 | 0.00 |
| Revised Commitment | 544,105,654.53 | 0.00 |
| Actual | 563,122,367.57 | 0.00 |

| Prepared by | Reviewed by | ICR Review Coordinator | Group |
|---|---|---|---|
| Katharina Ferl | George T. K. Pitman | Christopher David Nelson | IEGSD (Unit 4) |

## 2. Project Objectives and Components

### a. Objectives

According to the Project Appraisal Documents (PAD, p.4) the objective of the project was “to improve the city of Istanbul’s preparedness for a potential earthquake through enhancing the institutional and technical capacity for disaster management and emergency response, strengthening critical public facilities for earthquake resistance, and supporting measures for better enforcement of building codes and land use plans.”

The Loan Agreement (p. 5) of October 18, 2005 states that the objective of the project was “to assist the Borrower in improving the city of Istanbul’s preparedness for a potential earthquake, through enhancing the

institutional and technical capacity for disaster management and emergency response, strengthening critical public facilities for earthquake resistance, and supporting measures for better enforcement of building codes."
This validation will use the objective as stated in the Loan Agreement.

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

No

### c. Will a split evaluation be undertaken?

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### d. Components

The project included four components:
**A: Enhancing Emergency Preparedness (appraisal estimate US$64.74 million, actual US$49.25 million, 72% of appraisal estimate):** This component was to finance improving emergency communication systems, establishing an emergency management information system, strengthening the institutional capacity of the AYM – the Istanbul Governorship Disaster Management Center, upgrading of emergency response capacity in Istanbul, and conducting public awareness campaigns and training.
**B: Seismic Risk Mitigation for Public Facilities (appraisal estimate US$283.9 million, actual US$331.6 million, 117% of appraisal estimate):** This component was to finance retrofitting/reconstructing priority public facilities such as hospitals, clinics, schools, administrative buildings and infrastructure, conducting risk assessments of lifelines, vital infrastructure and of cultural heritage buildings.
**C: Enforcement of Building Codes (appraisal estimate US$6.4 million, actual US$6.7 million, 105% of appraisal estimate):** This component was to finance conducting public awareness campaigns, further developing the regulatory framework for the enforcement of building codes and land use plans, providing volunteer accreditation/training of engineers, and streamlining building permits procedures and promoting transparency and accountability in selected district municipalities.
**D: Project Management (appraisal estimate US$7.9 million, actual US$6.45 million, 81% of appraisal estimate):** This component was to finance technical assistance to support the Istanbul Special Provincial Administration in project implementation and monitoring and evaluation.

**Under the additional financing in 2011 several activities were scaled up:**
**A: (appraisal estimate US$38.15 million, actual US$29.49 million, 77% of appraisal estimate):** Additional activities included the updating of emergency response plans, establishing a training and exercise program for disaster response and providing equipment, developing a sustainable disaster risk management volunteer system and raising public awareness, strengthening the technical capacity of first responders and providing adequate furnishing and equipment for the disaster management centers.
**B: (appraisal estimate US$108.85 million, actual US$109.19, 100.3% of appraisal estimate):** Additional activities included retrofitting of additional 48 schools, hospitals and other public buildings, reconstructing one hospital, and conducting feasibility studies and construction supervision of additional works.
**D: (appraisal estimate US$3.0 million, actual US$2.8 million, 94% of appraisal estimate):** The

additional financing was used to provide additional support to the Istanbul Special Provincial Administration in project implementation and monitoring and evaluation.

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

**Project Cost:** The project was estimated to cost US$400 million. Actual cost was US$536.9 million, 134.2% of the appraisal estimate. Cost increases were the result of scaling-up project activities.
**Financing:** The project was financed by a US$400 million loan and US$150 million additional financing by the International Bank for Reconstruction and Development. At project closing of the original loan, US$5 million was cancelled due to project cost savings. However, due to exchange rate fluctuations, the disbursement of the original loan exceeded the approval amount of US$400 million and was US$426.2 million. Actual disbursement of the additional financing was US$136.9 million, 91.3% of the appraisal estimate.
**Borrower Contribution:** There were no planned contributions by the borrower.
**Dates:**

- On March 25, 2010 the project was restructured to: i) extend the closing date from September 30, 2010 to December 31, 2011 to allow for more implementation time to compensate for delays related to difficulties contractors were facing during the global financial crisis between 2007 and 2009; ii) reduce the target value for the number of key selected public facilities to be retrofitted/reconstructed from about 800 to 500 facilities to reflect the increased construction unit costs and the higher than anticipated number of priority facilities in need of more expensive reconstruction rather than strengthening.
- On March 22, 2011 an additional loan in the amount of US$150 million was approved to allow for the acceleration of the implementation of urgent and high priority seismic retrofitting of key public buildings. Also, the project was restructured to: i) extend the closing date from December 31, 2011 to December 31, 2012; ii) revise the Results Framework to reflect the scaled up activities in components A and B; iii) increase the national competitive bidding threshold for civil works based on a portfolio-wide country procurement assessment; and iv) revision of the procurement plan to reflect modifications.
- On December 31, 2012 the original loan was closed and US$5.0 million was cancelled due to project cost savings.
- On December 5, 2014, the project was restructured to: i) extend the closing date by 12 months due to delays in the provision of site access by two hospitals and; ii) change the Project Implementing Agency from the Istanbul Special Provincial Administration (ISPA) to the Governorship of Istanbul.

## 3. Relevance of Objectives & Design

### a. Relevance of Objectives

**High:** The objective of the project was highly relevant due to Turkey's vulnerability to natural disasters, especially earthquakes. Since 1900 Turkey has experienced 76 earthquakes with around 90,000 fatalities and

direct losses of US$ 25 billion. Istanbul is Turkey's most populous province with 15 million inhabitants and accounts for 28% of the national GDP. Istanbul is located on the North Anatolian Fault, which makes it particularly vulnerable to earthquakes.
The project's objective supported the government's 10th National Development Plan (2014-2018), which recognizes Turkey's vulnerability to natural hazards, especially earthquakes, and includes a section on disaster risk management. The project's objective was also aligned with the 2003 Earthquake Master Plan for Istanbul and the current plan for seismic risk reduction. At project appraisal the project's objective was in line with the Bank's Country Assistance Strategy (FY04-06), which aimed to make Turkey's economy more resilient to crises (including natural disasters) that disproportionately affect the most vulnerable. The project was also in line with the Bank's latest Country Partnership Strategy (FY12-15) which included "improved Turkish cities" as a focus area under its "deepened sustainable development" pillar and aimed to focus on risk assessment, disaster mitigation and emergency preparedness programs.

### Rating
High

### b. Relevance of Design

**High:** The underlying assumption how project activities would lead to intended outcomes was logically and properly laid out. Project activities to enhance the institutional and technical capacity for disaster management and emergency response were all highly relevant and included improving emergency communication systems, establishing an emergency management information system, strengthening the institutional capacity of the Istanbul Governorship Disaster Management Center, upgrading the emergency response capacity in Istanbul, promoting public awareness and conducting trainings. Project activities to strengthen critical public facilities for earthquake resistance included retrofitting/reconstruction of priority public facilities, conducting of a risk assessment of lifelines and vital infrastructure and cultural heritage buildings. Activities to support measures for better enforcement of building codes included implementing public awareness campaigns, further developing the regulatory framework for the enforcement of building codes and land use plans, improving building permits issuance procedures and conducting training of engineers.

### Rating
High

## 4. Achievement of Objectives (Efficacy)

### Objective 1
#### Objective
Enhancing the institutional and technical capacity for disaster management and emergency response:

## Rationale

**Outputs:**

- 80 new communication systems were installed and are operational in daily use, achieving the target of communication systems being fully operational in the main and back-up emergency management centers. Also, training was provided for system users and system maintenance and operations.
- The main Istanbul Disaster Management Center was expanded and fully equipped.
- The main Hasdal Disaster Management Center was constructed and is fully operational.
- Emergency response units were adequately equipped and trained. Technical capacity for emergency response was strengthened as certified by the UN International Search and Rescue Advisory Group.
- An emergency management information system was established.
- The Disaster and Emergency Prevention, Response and Recovery Plan for Istanbul was developed. The plan defines risk reduction activities, response plans, recovery activities and includes a rapid-post-disaster needs assessment.
- Over 1 million volunteers were trained through the Safe Life training program and public awareness campaigns reached approximately 2,5 million of residents in Istanbul, exceeding the original targeted number of Safe Life participants by 1,394%

**Outcomes:**

- Skills and technical capacities of the relevant emergency response units were strengthened. The Istanbul Disaster and Emergency Management Presidency was certified by the UN International Search and Rescue Advisory Group, meeting 128 criteria and capacity checks for international emergency response including equipment, preparedness, mobilization, and operations. Also, provincial disaster and emergency response plans were completed and a disaster and emergency management drill was carried out, exceeding the original and revised target under the additional financing with the provincial emergency response units now even internationally certified and internationally demonstrating their abilities.
- Two disaster management centers (main and back-up) are operational and in daily use. All systems were tested through a simulation exercise and emergency response drill with participation of all stakeholders.
- Large-scale simulation (106 military, public and non-public institutions and 400 participants) tested the Istanbul Disaster Response Plan, which provided inputs for the development of the Turkey Disaster Response Plan.

## Rating

High

## Objective 2

### Objective

Strengthening critical public facilities for earthquake resistance:

### Rationale

**Outputs:**

- 806 public buildings were retrofitted or reconstructed achieving the original target of 800 buildings. During the 2010 restructuring the target was reduced to 550 buildings due to the higher than expected number of more expensive reconstructions required (which could only be determined through feasibility studies during project implementation). The target was again revised to 763 buildings at the additional financing in 2011. At project closing, 734 buildings were retroffited/reconstructed under the original loan and 72 buildings under the additional financing.
- The designs for three major retrofittings of buildings were completed and one design was approved. Vulnerability assessments for 176 buildings were completed. Also, an inventory of cultural heritage assets was completed in 2009, exceeding the target and going beyond just conducting vulnerability assessments.
- A database of the inventory of cultural heritage buildings was developed. The database includes digitized archive data, sketches and probabilistic vulnerability assessments of 176 historical buildings located in 26 historical complexes in Istanbul.
- Retrofitting designs for three critical cultural heritage buildings in Istanbul were developed. Based on state-of-the-art seismic vulnerability assessments and 3D modelling of these buildings' potential performance in a major earthquake.
- The retrofitting designs for the Museum of Archaeology and Mecidiye Kiosk were reviewed and approved by the Istanbul Preservation Board for Cultural Heritage and Monuments.
- In November 2012, the Provincial Directorate of Culture and Tourism and the PIU organized a conference on global experience and challenges of seismic strengthening and preservation of historical assets

**Outcomes:**

- Direct damage to key public facilities in the amount of US$728 million can potentially be avoided.

### Rating

Substantial

## Objective 3

### Objective

Supporting measures for better enforcement of building codes:

### Rationale

**Outputs:**

- Training and capacity building on “regulation on buildings to be constructed on earthquake zones” were provided for 3,631 engineers.
- Two pilots to streamline building permit issuance, planning and land use development procedures in two pilot municipalities (Bagcilar and Pendik) were implemented. In both municipalities, work flow analysis, compliance inspection, and process optimization were carried out. Automated document management systems, e-permitting systems and municipal call centers were established. Also, both municipalities established call centers for citizen service and introduced business standards to increase efficiency.

**Outcomes:**

- Under the automated, transparent building permitting systems, 1400 new apartment building permits are being issued annually, resulting in 67,000 people/year living in code-compliant housing.
- In the two pilot municipalities the total number of steps to issue building permits decreased from 106 to 70 steps. The approval time for a building permit decreased from 90 to 10 days, achieving the target of “document management system established, building permit process is optimized (automated, and document flow is more efficient and transparent), and municipal call centers established in both municipalities”. • In two pilot cities building code enforcement and compliance with land use plans were improved by establishing a document management system, optimizing building permits, and establishing municipal call centers, achieving the original target of “better enforcement of building codes and progress made in implementation of land use plans in selected municipalities” and the revised target of “the process of building permitting is automated, transparent and allows for compliance monitoring.”

### Rating

High

## 5. Efficiency

**Economic and Financial Efficiency**

Both the PAD and the ICR include Economic analyses. The PAD (p. 11) uses a macroeconomic model which estimated that the probability weighted annual economic loss in Istanbul due to an earthquake is expected to be approximately US$163 million using a conservative scenario and US$249 million using a more likely loss scenario. The project aimed to reduce these losses through its mitigation efforts by 25% at the end of the implementation period. It was also assumed that the project would largely play a catalytic role and attract additional investment in risk mitigation and that the government would continue investing in disaster mitigation

after the project closes. The analysis assumed a moment magnitude of 7.25 scenario earthquake at an annual probability of 2% and estimated for the project an Economic Rate of Return of 11% and a cost-benefit ratio of about 1.11 for the conservative scenario and an Economic Rate of Return of 19% and a cost-benefit ratio of 1.69 for the more likely loss scenario. In case of a higher loss scenario the mitigation benefits of the project will be higher.

**Ex post analysis.** 85% of the project's resources were allocated to civil works of which approximately 30% of funds were utilized on reconstruction of buildings (high-cost option) and 70% of funds were located towards retrofitting (low cost option).

The ICR's methodology differs from the analyses of 2005 and 2010. The ICR tries to directly quantify the (expected) avoided earthquake losses to obtain a more attributable stream of project benefits. The ICR estimated avoided fatalities for each project component assuming a fatality rate of 0.2% to 0.4%. Furthermore, the analysis assumed a mortality rate of 0.6% for schools since they are more crowded and a mortality rate of 0.4% for other buildings. It was estimated that component B could save 1,750 lives and up to 5,000 lives at full occupancy during school hours. The analysis estimated that due to the implementation of components A and C at least 1,250 lives could be saved. Taking all three components together the total of lives saved is over 3,000. Furthermore, the analysis estimated the value of statistical life to capture the benefits linked with life safety.

The ICR estimated an IRR of 10%, a Net Present Value (NPV) of US$187 million, a benefit-cost ratio of 1.37 and a pay-back period of 10.68 years for a base case scenario. When the analysis did not take building assets into account, the IRR was reduced to 9%, indicating that the asset values had a marginal impact on the overall economic performance of this project. When the lives saved through this project were eliminated, the IRR decreased to -14%, showing that the number of potential lives saved and the statistical value attributed to human life are key drivers in the analysis.

The ICR also assigns the benefits of the project to a year in which the earthquake could possibly occur and analyzes the consequences. The analysis shows that the IRR is the highest if the earthquake occurs immediately after the implementation of the project.

**Operational and Administrative Efficiency**

The project also benefited from efficient contracts management practices by focusing on contract bundling and lump sum contracting. This type of contract incentivized contractors to estimate the costs and required time of their works for their bids precisely. This led to significant time and cost savings.

Taking everything together, the project's Efficiency is rated Substantial.

## Efficiency Rating

Substantial

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

| | Rate Available? | Point value (%) | *Coverage/Scope (%) |
|---|---|---|---|
| Appraisal | ✓ | 11.00 | 0<br>☐Not Applicable |

| | | | |
|---|---|---|---|
| ICR Estimate | ✓ | 10.00 | 0<br>☐Not Applicable |

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

## 6. Outcome

The relevance of the project's objective is rated as High given Istanbul's vulnerability to earthquakes. Relevance of design was High since the underlying assumption how project activities would lead to intended outcomes was logically and properly laid out. Achievement of the objective to enhance the institutional and technical capacity for disaster management and emergency response is rated High. Achievement of the objective to strengthen critical public facilities for earthquake resistance is rated Substantial.. Achievement of the objective to support measures for better enforcement of building codes is rated High. Efficiency was Substantial. Taking everything together, the outcome rating is Satisfactory.

### a. Outcome Rating

Satisfactory

## 7. Rationale for Risk to Development Outcome Rating

**Negligible:** This project is being followed by the Bank's National Disaster Risk Management project, which is aiming to strengthen planning and implementation mechanisms for long-term risk reduction in the entire country. Also, the project has leveraged an additional 1.36 billion Euros by other international financial institutions to support the implementation of the program until 2020. Furthermore, Turkey endorsed the Worldwide Initiative for Safe Schools, aiming to continue retrofitting and reconstructing schools, improving emergency response and contingency planning across the country, and integrating disaster risk management into formal and informal education. However, the long-term sustainability of the emergency communication and information system and the response equipment depends on the budgetary support by municipal and provincial governments.

### a. Risk to Development Outcome Rating

Negligible

## 8. Assessment of Bank Performance

### a. Quality-at-Entry

In 2005 the Bank's Quality Assessment Group conducted a quality-at-entry assessment. The assessment

commended the project's decentralization efforts and the Bank's in-country and regional experience in disaster reconstruction, and support of building code enforcement to reduce earthquake risk. The assessment identified the lack of socioeconomic criteria in the selection of buildings for retrofitting and lack of consideration to overall country and political risk as shortcomings. The overall QAG quality-at-entry rating was "Satisfactory".

The project design took lessons learned from similar Bank operations in the region into account and conducted a thorough analysis of the country's disaster risk management priorities. The Bank team included experts in relevant areas and built a strong partnership with the Treasury and the PIU during project preparation. The Bank team identified relevant risk factors such as lack of institutional coordination regarding interventions on assets legally belonging to several public entities and insufficient commitment of municipalities to strict enforcement of building codes and compliance with land use planning regulations. The first risk was mitigated by giving the PIU the responsibility and temporary ownership of assets until the completion of the investment, and the use of the emergency management component to strengthen the linkages and interactions between various institutions. The second risk was mitigated by involving communities and disseminating information to increase public awareness of building codes and land use planning regulations.

### Quality-at-Entry Rating

Satisfactory

### b. Quality of supervision

The Bank team included highly experienced technical experts from relevant areas. Supervision missions were conducted on a regular and timely basis. The Bank was responsive to requests by the PIU and supported the PIU in its fiduciary and technical capacity. Supervision of safeguards was satisfactory and no negative social or environmental impacts were identified as a result of project implementation. The Bank team restructured the project successfully three times and correctly identified the need for additional financing in order to address the retrofitting needs. However, the restructurings could have been used to set more specific targets for the indicators included in the Results Framework.

### Quality of Supervision Rating

Satisfactory

### Overall Bank Performance Rating

Satisfactory

## 9. Assessment of Borrower Performance

### a. Government Performance

The government was very committed to the implementation of the project and consulted with stakeholders on the provincial and ministerial level adequately. The project benefitted from the appointment of qualified staff experienced in implementing Bank projects. Also, the government provided the regulatory basis for the project by developing the Earthquake Master Plan for Istanbul and amending the 1998 Building Code with

the 2007 Turkish Earthquake Code. However, the introduction of the earthquake code delayed project implementation by nine months since the technical studies and designs for the seismic mitigation investments, which had been prepared during project preparation, had to be adjusted.
The government coordinated with other donors effectively and was able to ensure an additional financing of Euro 1.36 billion from other international financing institutions.

### Government Performance Rating
Highly Satisfactory

### b. Implementing Agency Performance
Originally the PIU was located within the Istanbul Special Provincial Administration (ISPA). However, in 2014 the government's decentralization agenda led to the closing of special provincial administrations in metropolitan cities, which also included ISPA. Therefore, the PIU was moved to the governorship of Istanbul and reported to the deputy governor in charge of disaster risk management.
The PIU had high managerial and technical capacity which allowed for resolving issues in a timely fashion. Also, the PIU coordinated with partners and stakeholders which was particularly beneficial when it came to the temporary transfer of students and patients to other locations during the retrofitting/reconstruction of buildings.
The performance of the PIU's financial management function was consistently rated Highly Satisfactory and the performance of its procurement function was consistently rated Satisfactory. The PIU developed a model, which analyzed different scenarios such as fluctuations in the exchange rate or delays in the execution of contracts, allowing the PIU to develop appropriate financial risk mitigation measures. The PIU used an independent construction supervision system, involving design-cum-construction supervision consultants, which allowed for independent quality assurance of the designs developed by a different company and ensured that the construction works were implemented in accordance with the design.

### Implementing Agency Performance Rating
Highly Satisfactory

### Overall Borrower Performance Rating
Highly Satisfactory

## 10. M&E Design, Implementation, & Utilization

### a. M&E Design
The objective of the project was clearly specified. A conventional M&E method was not appropriate for this project since conventional methods assess what has taken place as a result of a project intervention rather than what has been prevented. Originally the Results Framework included three PDO indicator and ten intermediate outcome indicators. During the March 2011 restructuring of the project the Results Framework was revised to reflect the activities supported by the additional financing and the final Results Framework included 12 intermediate outcome indicators. The selected indicators reflected the objective of

the project and they were measurable in terms of numbers, timing and location. Also, the Results Framework included a mix of quantitative and qualitative targets. The proposed data collection methods and analysis were appropriate.
However, the selected indicators mainly measured outputs and could have been more specific and include clearer units of measurement.

### b. M&E Implementation

During project implementation several component specific impact assessments were carried out by external consultants. An overall assessment report was prepared and included five impact assessments for the 2009 to 2014 period. Outputs and results achieved under the project were assessed through internal and external M&E activities, which were conducted on a regular basis throughout project implementation.
The PIU developed an extensive project monitoring system, through which financial, procurement and output monitoring reports were regularly generated. The project steering committee ensured data reliability and quality of M&E. The Bank team found the progress reporting to be of consistently high quality. Progress reports were issued on a regular basis and included procurement and financial monitoring, tracking of performance indicators, and analysis of challenges encountered. The system remains in place and is being further strengthened to be more results-focused for the remainder of the program.

### c. M&E Utilization

M&E data was used to inform decision making, allocate resources and adjust project implementation.
For example, the impact assessment of retrofitting and repair works at schools found that parents and school administrators were concerned about the relocation of students during retrofitting works. In order to address these concerns, the project allocated additional resources for communicating the benefits of these works, resulting in more buy in by beneficiaries.

### M&E Quality Rating

Substantial

## 11. Other Issues

### a. Safeguards

The project was classified as category B under OP/BP 4.01 (Environmental Assessment) and triggered OP/BP 4.11 (Physical Cultural Resources).
The Environmental Assessment safeguard policy was triggered due to the impact of constructing buildings such as emissions of matter/dust, generation of wastewater, disposal of excavated material, noise pollution, and disposal of hazardous material. An Environmental Management Plan was developed and implemented. The plan identified the responsibilities of civil work contractors, consultants and the PIU. The Bank provided support in assessing the project's compliance with environmental regulations.

The Physical Cultural Resources safeguard policy was triggered due to potential civil works on structures classified as cultural heritage buildings, or on buildings located in close distance to such assets. The Environmental Management Plan included a comprehensive analysis which showed that Turkey's regulation for conserving cultural heritage is aligned with the Bank's requirements. The plan also included mitigation and monitoring measures for sub-projects, which were implemented in a satisfactorily manner (ICR para 41). Regular supervision of safeguards did not find any major negative social or environmental impacts due to project activities. Also, the project complied with social safeguards (ICR para 44).

### b. Fiduciary Compliance

**Financial Management**
The financial management team provided close supervision. The project's management information system was used to monitor all sub-projects efficiently and tracked real-time progress and disbursement status of contracts issued. Interim financial reports were prepared on a regular basis and found adequate by the Bank. Audit reports were submitted on time with unqualified opinions. The project complied with loan covenants at all times. Financial management was rated Highly Satisfactory at project closing (ICR para 47).
**Procurement**
Procurement focused on contract bundling and lump-sum contracting, which contributed to cost-effectiveness.
The project complied with the Bank's procurement procedures (ICR para 46). The procurement plan was revised seven times under the original loan and four times under the additional financing to reflect the request from various ministries, actual amounts of the signed contracts and change of dates for milestones specific to procurement packages.
The quality of bidding documents was satisfactory and procurement documentation was in order. However, given that the PIU also had to manage several procurement processes of loans from other international financial institutions, it would have been beneficial to hire additional procurement specialists to ensure an even more timely procurement of goods and civil works, especially for hospital construction.

### c. Unintended impacts (Positive or Negative)

N/A

### d. Other

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## 12. Ratings

| Ratings | ICR | IEG | Reason for Disagreements/Comment |
|---|---|---|---|
| Outcome | Highly Satisfactory | Satisfactory | The relevance of the project's objective and the relevance of design are rated as High. Achievement of the objective to enhance the institutional and technical capacity for disaster management and emergency response is rated High. Achievement of the objective to strengthen critical public facilities for earthquake resistance is rated Substantial. Achievement of the objective to support measures for better enforcement of building codes is rated High. Efficiency was Substantial. |
| Risk to Development Outcome | Negligible | Negligible | --- |
| Bank Performance | Satisfactory | Satisfactory | --- |
| Borrower Performance | Highly Satisfactory | Highly Satisfactory | --- |
| Quality of ICR | | High | --- |

**Note**
When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
The "Reason for Disagreement/Comments" column could cross-reference other sections of the ICR Review, as appropriate.

## 13. Lessons

The ICR (p. 33-34) included several lessons learned:

- **Lending operations, which include a large number of contracts, require adequate financial risk management measures.** In this project financial risk management was based on scenario-based cash-flows and disbursement projections that took exchange rate fluctuations and delays in contract execution into account. This allowed for an efficient use of project funds and a timely implementation of a complex project.
- **Combining physical investments, public awareness and disaster preparedness programs has a positive impact on the buy-in for risk reduction.** In this project in addition to physical investments, training modules on disaster preparedness for different age groups and sectors were conducted, raising awareness and having a positive impact on the behavior of users of buildings.
- **Involving beneficiaries and stakeholders from early on has a positive impact on a successful project implementation.** In this project school principals, teachers and students were reluctant to vacate schools,

which were selected for retrofitting, leading to early implementation delays. However, engaging with school principals and hospital directors and providing them with information allowed for a smoother implementation.

## 14. Assessment Recommended?

No

## 15. Comments on Quality of ICR

The ICR provides an excellent overview of project preparation and implementation. The ICR is internally consistent and results oriented. Also, it provides an extensive economic analysis of high quality. Furthermore, it provides useful lessons learned.

### a. Quality of ICR Rating

High