



1. Project Data:		Date Posted : 05/26/2004	
PROJ ID: P058877		Appraisal	Actual
Project Name: Emgy Flood Recovery	Project Costs (US\$M)	685.0	239.8
Country: Turkey	Loan/Credit (US\$M)	369.0	191.0
Sector(s): Board: UD - Housing construction (43%), General water sanitation and flood protection sec (29%), General public administration sector (16%), Irrigation and drainage (6%), Roads and highways (6%)	Cofinancing (US\$M)	0	0
L/C Number: L4388; LP354			
	Board Approval (FY)		99
Partners involved :	Closing Date	06/30/2002	09/30/2003

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2. Project Objectives and Components

a. Objectives

On May 21, 1998, Turkey's Western Black Sea Region experienced the worst flooding of the last century, with some 151 rivers over-running their embankments, and 478 settlements left wholly or partially under water. The Marmara earthquake of August 17, 1999, Turkey's most devastating natural disaster in recent history, struck as the project was being launched and delayed and restructured the implementation of several components. The objectives of the project were to assist the GOT in: (a) restoring basic infrastructure in municipalities and rural areas affected by the flood, by repairing structures and facilities of economic and social importance; (b) providing assistance to restore housing in the earthquake affected Province of Adana; and (c) reducing vulnerability to future floods and earthquakes.

b. Components

The project consisted of four components: 1) Municipal and Rural Infrastructure (US\$209.2 million equivalent; 30.6% of the total project cost) comprising repairs to water and wastewater systems; municipal, rural, and forest roads and bridges; and irrigation facilities; 2) Flood Management and Hazard Reduction (US\$158.6 million equivalent; 23.2% of the total project cost). 3) Project Implementation Unit (US\$4.8 million equivalent; 0.7% of the total project cost). 4) After the devastating earthquake in the Marmara region, the GOT and the Bank agreed to amend the project's loan agreement to cover emergency construction needs for Marmara. Under this amendment (September, 1999, US\$ 62.5 million was reallocated, about 17 percent of the original loan amount) housing construction in the area affected by the earthquake, as well as technical assistance were provided, and the Turkish Catastrophic Insurance Pool was launched.

c. Comments on Project Cost, Financing and Dates

The lower than anticipated total project cost (US\$239.8 million compared with the PAD estimate of US\$685.0 million) resulted mainly from savings caused by the high rate of inflation, the transfer of tasks (under the institutional component) to the MEER project, tight control over costs and procurement, as well as an overestimation of the damage to flood protection infrastructure. Following the Marmara earthquake, \$62.5 million in savings was reallocated to help finance housing reconstruction in the earthquake region. US\$120 million remained uncommitted and was cancelled at project closing. The Bank financed US\$191.0 million (79.6%), and the government contributed US\$48.8 million equivalent in local costs (20.3%). The closing date of the project was extended by 15 months so that procurement of key items, such as radars, and flood infrastructure activities could be completed. During negotiations for the MEER project it was agreed that activities related to the development of a disaster assistance information system would be taken over and financed by the MEER project under the newly-created Turkey Emergency Management General Directorate (TEMAD) within the Office of the Prime Minister. Likewise, it was decided to

Integrate activities for improving disaster response capabilities into a component to be developed under the MEER project. Further, in May 2001, the Bank and TEMAD agreed that the National Flood Mitigation Strategy would also be covered under the MEER project.

3. Achievement of Relevant Objectives:

Project objectives were highly relevant in that they were consistent with the country assistance strategy and government priorities, and met the critical needs of the infrastructure sector and the affected population. The project achieved its objectives in terms of restoring basic infrastructure (1). All investments under the Municipal and Rural Infrastructure component, including municipal infrastructure, rural infrastructure, forestry roads, and afforestation of 10,000 ha in the Western Black Sea region were completed. The project was also able to provide housing (2) with minimal delay, and to help the affected communities to stabilize quickly after the disaster. For reducing vulnerability to future floods and earthquakes (3), the extended weather forecasting system at the State Meteorological Institute (DMI) is in full operation and the High Performance Computer System has been installed. The flood forecasting system at the Directorate of Hydraulic Works (DSI) has also been completed and the training of the designated staff has started. All 227 VSAT stations for DMI were procured and tested, and 129 VSAT stations for DSI were purchased and installed. Relevant training has been completed. Installation of all 206 Automated Weather Observation Stations (AWOS) stations was completed and the network is up and working. All planned radars were installed and the radar network is operational. In addition, all 129 Hydrometric Stations have also been installed. 13 flood protection schemes under Repair and Improvement of Flood Infrastructure component were completed by September 26, 2003. With regard to the strengthening of institutional capacity to reduce vulnerability to floods and earthquakes, most activities under this component were transferred to the MEER project for implementation. The project has also contributed to the restoration of the industrial and agricultural activities in the affected area through the construction of basic infrastructure in West Black Sea Region, and the construction of housing in urban and rural areas in Adana Province has contributed to an increase in tax revenues.

4. Significant Outcomes/Impacts:

In the context of dealing with natural disasters, the implementation of the disaster insurance scheme is expected to have a major long-term impact. The project facilitated institutional strengthening of line ministries. The installation and/or construction of early warning system and flood protection infrastructures under the project has directly contributed to reduce the vulnerability to future disasters and the risk of future economic losses. The project also directly influenced the design of the MEER Project and has contributed to the Bank's understanding of disaster preparedness and response, including the ECA Disaster Management Strategy. A total of 1,446 km of municipal and rural roads were rehabilitated, and 93 bridges were repaired or reconstructed. There were 165 water supply systems rehabilitated and constructed in municipalities and rural areas. There were 31 irrigation systems constructed. 10 sewerage systems were rehabilitated in municipalities and 2 systems in rural areas. 5,000 urban housing units were constructed in Adana and Ceyhan, of which 2600 were allocated to earthquake victims, and the remainder were either allocated to other agencies or held in reserve pending court cases concerning eligibility. The following studies were completed: (i) Improvement of Natural Hazard Insurance and Disaster Funding Strategy (ii) Drafting the Compulsory Insurance Law and related legislation, (iii) Establishment of the Turkish Catastrophic Insurance Pool (TCIP), (iv) Preparation of draft TORs for the TCIP Public Relations Campaign, (v) Earthquake risk analysis model development. In addition, research, study tours, training, and workshops necessary for the establishment of TCIP were also conducted.

5. Significant Shortcomings (including non-compliance with safeguard policies):

The eligibility of housing component beneficiaries is still being litigated in court cases. Based on inaccurate initial estimates, the project over-built housing--many units that stood vacant in the aftermath of the disaster are now being allocated to claimants under other programs, as well as for civil service use. It is not clear even in retrospect how the damage estimating process might have been better managed. The risks of an undercount were too great --if the assessments had been accurate, many families would have been pushed into the winter of '98-'99 without shelter. The architectural design of the housing units lacks variety and social infrastructure, and site amenities were omitted in the original plan. Site drainage was not always provided and critical paving took place only after project closing in many settlements. The project did not directly contribute significantly to strengthening institutional arrangements for risk mitigation and emergency preparedness, as major activities under this component were overtaken by and incorporated into the subsequent MEER project.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Satisfactory	
Institutional Dev.:	Modest	Modest	
Sustainability:	Likely	Likely	
Bank Performance:	Satisfactory	Satisfactory	
Borrower Perf.:	Satisfactory	Satisfactory	
Quality of ICR:		Satisfactory	

NOTE: ICR rating values flagged with '*' don't comply with OP/BP 13.55, but are listed for completeness.

7. Lessons of Broad Applicability:

1. Methodologies are needed for addressing the problem of reconciling post-disaster damage and needs assessments, and tailoring project implementation to the refining of the needs estimate, such as by phasing construction and instituting checkpoints for incremental stages during implementation of construction components.
2. A strong, experienced, and independent PIU familiar with Bank procedures is especially critical to effective implementation of fast-track emergency projects; staffing should be balanced to include experience and skills in both technical aspects as well as in institutional strengthening.
3. Construction supervision by international consultants can lend credibility to reconstruction activities—necessary in an environment of distrust of local code enforcement and construction quality. Beneficiaries were comfortable with the quality of construction for this reason.
4. Activities that do not perform well in the early stages of an emergency project may perform very well later on; patience, along with careful monitoring and support, is called for.
5. In order to guarantee the sustainability of apartment blocks and their environment/landscaping arrangements, site and block management organizations should be established.
6. Ensuring stakeholder understanding of overall project goals requires that they be engaged to some degree in project implementation.
7. The maximum momentum in an emergency project is normally in the first few months after the disaster. In view of this, any substantive changes that need to be introduced into the project design should be incorporated during this period.
8. The design of residential sites under emergency construction should recognize that the sites will become permanent settlements and allow for the long-term needs of beneficiaries in the broadest sense, and allow for the higher costs of such an approach. This includes the provision or enabling of commercial development and social facilities, as well as complete environmental services such as adequate drainage and durable site amenities and finishes.
9. The Bank needs to develop appropriate, operationally-oriented protocols, procedures and design criteria for responding to situations demanding large emergency construction programs, that can be applied soon after a disaster to ensure that design meets the needs of long-term urban development, as well as the short-term emergency needs; this would include methodologies for reviewing Borrower's estimation of needed construction volumes, a design check list covering both technical and social/environmental criteria to ensure comprehensiveness; governments in hazardous areas could consider developing building and site plan prototypes that are designed and engineered and kept for use when needed.

8. Assessment Recommended? Yes No

Why? OED is planning to evaluate the Bank's approach to the Marmara earthquake, the largest disaster response program it has undertaken to date. The experience of this project will add to that effort, and permit the comparison of the earthquake related recovery efforts with those of the flood response. Turkey's experience with the catastrophic insurance pool will be of great interest to the OED Natural Disaster and Emergency Recovery study.

9. Comments on Quality of ICR:

The ICR is well written, and highlights project achievements in terms of the original objectives. Its focus on lesson-learning is also to be commended.