Document of
The World Bank

Report No: 19844-TU

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$505MILLION

TO THE

REPUBLIC OF TURKEY

FOR A

MARMARA EARTHQUAKE EMERGENCY RECONSTRUCTION PROJECT

Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective 10/8/99)

Currency Unit = Turkish Lira
TL 1= US$ 0.0000022
US$ 1 = TL 459,516

FISCAL YEAR

January 1 December 31

ABBREVIATIONS AND ACRONYMS

BEDAS	Bogazici Elektrik Dagitim A.S.
CMH	Community Mental Health
EMAT	Emergency Management Agency of Turkey
EMDN	Emergency Management Data Network
EERL	Earthquake Emergency Recovery Loan
ERL	Emergency Recovery Loan
ESNAF	National Confederation of the Turkish Tradesmen and Handicrafts
EU	European Union
GDCD	General Directorate of Civil Defense
GDDA	General Directorate of Disaster Affairs
GDI	General Directorate of Insurance
GDP	Gross Domestic Product
GIS	Geographical Information System
GOT	Government of Turkey
HDA	Housing Development Agency
IFI	International Financial Institutions
KEDAS	Korfez Elektrik Dagitim A.S.
LV	Low Voltage
MEER	Marmara Earthquake Emergency Reconstruction Project
MLSS	Ministry of Labor and Social Security
MOI	Ministry of Interior
MPWS	Minister of Public Works and Settlements
MV/LV	Medium Voltage/Low Voltage
NGO	Non Governmental Organization
O&M	Operations & Maintenance
PIP	Project Implementation Plan
PIU	Project Implementation Unit
PIU-LOs	Project Implementation Unit Local Offices
PMCC	Prime Minister Crisis Center
PMRs	Project Management Reports
PSR	Project Status Report
PTF	Project Task Force
PTSD	Post-Traumatic Stress Disorder
SC	Steering Committee
SEDAS	Sakarya Elektrik Dagitim A.S.
SME	Small and Medium Size Enterprises
SOE	Statement of Expenses
SPO	State Planning Organization
SSIS	Small Scale Industrial Sites
SSK	Social Insurance Program
TCIP	Turkish Catastrophic Insurance Pool
TEFER	Turkey Earthquake and Flood Emergency Recovery Project
TESK	Turkýye Esnaf ve Sanatharlarý Konfederasyonu (Confederation of Micro-enterprises)
TL	Turkish Lira
TOR	Term of Reference
TPA	Turkish Psychologists Association
UHF	Ultra High Frequency
UNDP	United Nations Development Program
UNICEF	United Nations International Children Education Fund
VAT	Value Added Tax
VHF	Very High Frequency
YEDM	Yalova Elektrik Dagitim Muessesesi (Yalova Electric Authority)

Vice President:	Johannes Linn
Country Manager/Director:	Ajay Chhibber
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TURKEY
MARMARA EARTHQUAKE EMERGENCY RECONSTRUCTION PROJECT

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MAP(S)

TURKEY

Marmara Earthquake Emergency Reconstruction Project

Project Appraisal Document

Europe and Central Asia Region
ECSSD

Date: November 01, 1999

Team Leader: Piotr M. Wilczynski

Country Manager/Director: Ajay Chhibber

Sector Manager/Director: Joseph R. Goldberg

Project ID: P068368

Sector(s): BI - Institutional Development, FS - Financial Sector Development, IL - Small Scale Enterprise, UH - Urban Housing, WU - Urban Water Supply

Lending Instrument: Emergency Recovery Loan (ERL)

Theme(s):

Project Financing Data

[X] Loan [ ] Credit [ ] Grant [ ] Guarantee [ ] Other (specify)

For Loans/Credits/Others:

Amount (US$m)

Proposed Terms: [ ] to be defined [ ] Multicurrency [X] Single currency [ ] Standard Variable [X] Fixed
[ ] Libor-based

Grace period (years): 3

Years to maturity: 15

Commitment fee: standard

Front end fee on Bank loan 1.00%

Financing Plan:

Source	Local	Foreign	Total
Government	160.17	16.01	176.18
IBRD	339.04	165.96	505.00
IDA			
BENEFICIARIES	38.00	17.93	55.93
Total Bank-Financed Project Costs:	537.21	199.90	737.11
Additional Non-Bank Financing for the Framework Program:			
Co-financiers	230.31	118.34	348.65
Government	546.48	54.61	601.09
Beneficiaries	73.98	34.65	108.90
Total Program Costs:	1387.98	407.77	1795.75

Borrower: REPUBLIC OF TURKEY

Guarantor:

Responsible agency:

UNDERSECRETARIAT OF TREASURY

Other Agency(ies):

Prime Minister's Office, Ministry of Public Works and Settlement, Ministry of Interior, General Directorate of Insurance/Treasury, Ministry of Health, Ministry of Labor and Social Security, Selected Municipalities, Housing and

Development Agency
Address: Undersecretariat of Treasury, General Directorate of External Economic Relations, Inonu Bulvari Eskisehir Yolu, Emek Ankara
Contact Person: Ms. Sen Akman
Tel: 90 312 213 0297 Fax: 90 312 212 8550

Estimated disbursements (Bank FY/US$M):

FY	2000	2001	2002	2003	2004		
Annual	266.5	200.0	37.7	0.4	0.4		
Cumulative	266.5	466.5	504.2	504.6	505.0		

Project implementation period: 1999-2004
Expected effectiveness date: 11/30/99 **Expected closing date:** 05/31/2005

OCS PAD Form: October 9, 1998

A: Project Development Objective

1. Project development objective: (see Annex 1)

Framework Program. At the request of and in cooperation with the Government of Turkey (GOT) and other international partners, the Bank has prepared a Framework Program as a comprehensive response to the August 17 Marmara earthquake. The Bank-financed elements of this program comprise the Marmara Earthquake Emergency Reconstruction project (MEER). Implementation of the Framework Program is supported by the Bank and other co-financiers as follows:

Framework Program		Indicative Costs (US$M)	Main Source of Finance
Component A:	**Disaster Response System and Risk Mitigation**	419.16	World Bank
Sub-component A1:	National Emergency Management System	110.17	World Bank
Sub-component A2:	Disaster Insurance Scheme	273.00	World Bank
Sub-component A3:	Land Use Planning and Enforcement of Construction Codes	11.78	World Bank
Sub-component A4:	Cadastre Renovation and Land Management	24.21	World Bank
Component B:	**Trauma Program for Adults**	6.89	World Bank
Component C:	**Construction of Permanent Housing in Bolu, Kocaeli and Yalova**	293.32	World Bank
Component D:	**Project Management**	12.69	World Bank
Component E:	**Business Rehabilitation**	109.72	Other co-financiers
Component F:	**Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa and Eskisehir**	177.07	Other co-financiers
Component G:	**Repair of Existing Housing Stock and Healthcare Facilities**	632.12	Other co-financiers
Component H:	**Rebuilding and Repair of Roads, Water supply Systems, Wastewater Systems, Power Distribution Networks**	139.73	Other-cofinanciers
Front-end Fee		5.05	
Total Program Costs		1795.75	of which, US$505 World Bank Financing

The Framework Program is described in Annex 2 of the present PAD. All co-financiers and the GOT have

requested that the components supported by non-Bank sources be implemented in accordance with the procedures identified by the Bank for procurement, disbursement and financial management. They also requested that the Bank-financed Project Implementation Unit (PIU) be the central agency responsible for the realization of the overall Framework Program. Each financing partner is responsible for the outcome, monitoring and supervision of the respective sub-components, as outlined above. The Bank has agreed with the GOT on the outcomes expected to be achieved at the end of the implementation period as described in Annex 1, and has clarified that its fiduciary responsibility does not extend to the sub-components financed by other co-financiers (please refer to Annex 1 for a summary of the objectives, outcomes and monitoring/supervision arrangements for the MEER project).

Objectives. The main objective of the Framework Program is to help restore the living conditions in the region of Turkey that was affected by the August 17, 1999 Marmara earthquake, support economic recovery and resumption of growth, and develop an institutional framework for disaster risk management and mitigation. To achieve this objective, the Framework Program will help the Government: (i) upgrade the disaster response systems, (ii) rehabilitate the damaged business sector and reduce the social effects of the earthquake, and (iii) reconstruct and repair affected housing and municipal infrastructure. In the context of this comprehensive program, the Bank will finance specific components, which constitute the MEER project, and will mainly focus on building a sustainable national emergency management response system as a way to reduce the impact of future earthquake on the country, by establishing a disaster insurance scheme and improving land use management and enforcement of building codes, and on restablishing normal living conditions in the areas hit the earthquake by supporting a trauma program for adults and reconstructing new houses.

Background. On August 17, 1999 an earthquake measuring 7.4 on the Richter scale devastated the Marmara region of Turkey. Areas of peak damage include the seven provinces of Kocaeli (Izmit, Golcuk), Sakarya (Adapazari), Yalova, Bolu, Istanbul, Bursa and Eskisehir. Over 17,000 lives have been lost, an estimated 200,000 people remain homeless in the region, and Turkey's industrial heartland has been extensively damaged. International support for Turkey for the immediate relief effort has been rapid and generous. However, a major reconstruction effort and recovery plan are now needed, in addition to a mechanism to reduce the costs of future natural disasters in the country.

A preliminary assessment was undertaken by the Bank to outline the likely impact of the earthquake on the economy and the cost of reconstruction and recovery. The team assessed the physical damages to capital assets, but also indirect effects including output losses, foregone earnings and costs of relief efforts, and secondary effects on the incidence of poverty and the shift in government policies.

The damages are estimated at US$1,100 - 3,000 million for the housing sector, around US$70 million for municipal infrastructure, around US$78 million for roads, bridges and highways, around US$38 million for telecom, approximately US$60 million for electricity and US$1,100 - 2,600 for enterprises. Small and medium enterprises have been heavily damaged, and many of these supply inputs to large companies in the area.

The current account deficit is expected to widen by some US$900 million in 1999 under the immediate impact of the quake and by some US$2 billion (one percent of GNP) in 2000. The total fiscal burden arising from the earthquake is estimated to be in the range of US$1.8-2.2 billion spread over the next 16 months. The largest direct cost to the budget, estimated to be in the range of US$740 million to US$1.2 billion, will be come from reconstruction and repair of damage to the housing stock of the region. Costs from infrastructure replacement and rehabilitation are estimated to add a further US$450 million. Revenue losses and credit programs represent one third of total estimated fiscal costs of the earthquake, totaling

US$1.3 billion. Additional costs are expected from emergency assistance to the population and associated compensation for loss of life and disability, totaling an estimated US$540 million. This figure includes costs for temporary shelters.

In addition to the physical and social damages, the gravity of the event pointed out the need for upgrading the existing emergency response system, the lack of effective enforcement of the Turkey's building codes and the inadequate coverage of earthquake insurance in the housing sector.

Bank's response. At the request of the Government of Turkey (GOT), the Bank has prepared a two stage program. The immediate response was to approve amendments to eight existing loans to the Republic of Turkey (Turkey Emergency Flood and Earthquake Recovery Project, Loan No. 4388-TU; Road Improvement and Safety Project, Loan No. 4048-TU; TEK Restructuring Project, Loan No. 3345-1-TU; National Transmission Grid Project, Loan No. 4344-TU; Employment and Training Project, Loan No. 3541-TU; Basic Education Project, Loan No. 4355-TU; Primary Health Care Services Project, Loan No. 4201-TU; Health II Project, Loan No. 3802-TU). The purpose of the amendments was to reallocate funds in the amount of US$267 to provide immediate assistance for the reconstruction of housing, infrastructure, health, employment, training and educational services in the Marmara region.

As a second stage of its assistance program, the Bank has prepared an Emergency Earthquake Recovery Loan (EERL, US$252 million) that aims to assist Turkey to respond quickly to the earthquake through financing of private sector import requirements and budgetary support for priority actions under the Government's recovery program, notably social protection for earthquake victims, and a Marmara Earthquake Emergency Reconstruction project (MEER, US$737.11 million) for the reconstruction of the areas affected by the earthquake. The MEER is a large operation aimed at financing reconstruction and interventions that will contain damages in the case of a similar event, especially since scientists anticipate that the regions of Istanbul and Izmir are under the danger of being hit by earthquakes in the relatively near future. The MEER project is part of the comprehensive Framework Program that has been prepared by the Bank in cooperation with UNDP, the European Union and other IFIs and donors.

To help Turkey finance the costs of the earthquake the Bank's new lending of US$757 million is part of a US$3 billion package of assistance from the IMF, the European Investment Bank (EIB), the Council of Europe's Social Development Fund (SDF), Japan, Korea, the Islamic Deevelopment Bank and the Gulf Cooperation Council. The remaining funds will be raised domestically through additional taxation (see EERL Memorandum of the President). The outpouring of international support should help Turkey avoid the risk of crowding out other development programs.

2. Key performance indicators: (see Annex 1)

The MEER project will be evaluated against the following key performance indicators:

- reduction of damages to physical infrastructure and housing in the event of future earthquakes, especially to the most recent constructions
- prompt recovery of the social sector
- timely replacement of housing units

Output indicators for each component are specified in Annex 1. It was decided to include in Annex 1 also output indicators for the components financed by other IFIs in order to create consistency in the

implementation of the overall framework program. However, this was done to facilitate implementation by the central PIU, and the outputs indicators for the non-Bank financed components will ultimately be the subject of negotiations between the GOT and the respective co-financiers. The GOT will enter into separate loan agreements with other IFIs that will define the monitoring and reporting procedures for the components of the Framework Program that are not Bank financed.

B: Strategic Context

1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)

Document number: 16992-TU **Date of latest CAS discussion:** 09/04/97

The central thrust of the current Country Assistance Strategy for Turkey for FY1998-2000 is to increase the development impact of the Bank Group's activities in the country. The base case financing program is for up to US$1.5 billion in investment lending, to take place on the basis of gradual but steady improvement in macroeconomic adjustment. The CAS includes a high-case program of up to an additional US$3 billion over three years in adjustment financing to support a comprehensive program of structural reforms, underpinned by a macroeconomic framework endorsed by the IMF. Implementation of this CAS, prior to the earthquake, was progressing well. New commitments under investment projects already total US$1.38 billion for basic education, power transmission, water and sewerage, privatization of irrigation, commodities market development, industrial technology, export financial intermediation, and—one year ago in response to two natural disasters—emergency flood and earthquake recovery. Major non-lending services include the living standards and social welfare study under preparation, an energy sector review and workshop, forestry sector review, and sectoral workshops on selected topics in agricultural support, stabilization, municipal finance, and health insurance. A country economic memorandum is being prepared. Portfolio management is improving, although there was some slowdown during the change of government last spring. In general, the dialogue with the Government has strengthened, particularly in light of reforms implemented or outlined since May 1999.

The FY98-00 CAS did not anticipate the risk of a natural disaster on the scale of the Marmara earthquake, and hence did not present a scenario applicable to coping with the recovery. Immediately after the earthquake struck, the Bank received a request from the Government of Turkey for emergency assistance. However, it became clear that the recovery program would require far more financial support from the Bank than could be funded with the uncommitted portion of the CAS base case. Bank management has proposed an increase in the lending envelope during this CAS period of some US$750 million for new emergency lending, which will complement other aspects of the emergency assistance program including assessment of the damage and economic impact of the earthquake, assistance in coordination of external donors and agencies, policy advice on emergency preparedness and disaster management, building codes and insurance systems, and the institutional arrangements for implementation of the recovery progrm.

The core components of the Bank's emergency assistance program are as follows:

- Preparation of an Earthquake Assessment, circulated to the Board on September 15, which provides a preliminary assessment of the material damage, social costs and the impact on the economy.
- Reallocation of up to US$300 million in uncommitted funds from selected ongoing IBRD operations to redirect project activities to areas and infrastructure needs most affected by the earthquake. A total of US$267 million has already been reallocated from existing loans in six sectors to immediate sectoral priorities of the recovery effort.
- Immediate financial assistance of US$252 million to support critical imports and budgetary needs provided under the proposed Emergency Earthquake Recovery Loan.
- New loan for reconstruction and disaster mitigation of US$505 million through this project.

The CAS for the period FY2001-2003 will be brought to the Board in May 2000 and will build on the lessons learned during this emergency, including the need to recognize the risk of natural disasters and outline the potential assistance of the Bank Group when the occur. The lending envelope to be proposed in the new CAS would take into account the expanded portfolio size among other factors. In this context, it will also focus on Turkey's urban development strategy and sharpen mechanisms for institutional development.

2. Main sector issues and Government strategy:

The Government is formulating its response to the earthquake in the context of a broader economic reform program. This program builds upon and expands on the earlier framework supported by the IMF under the staff monitored program (SMP) initiated in mid-1998. The Government's structural reform program covers tax policy and public expenditure management, social security, financial sector reform, agricultural policies, and deregulation and privatization.

While the performance of the national emergency management system in the days immediately following the earthquake has been criticized, the Government's initial macroeconomic policy response was appropriate and effective. Central Bank intervention in the days following the earthquake helped calm markets and prevent a financial panic. The Government's decision to submit to Parliament a supplemental tax package to help meet the fiscal burden of the quake signaled its intent to maintain fiscal discipline. After some initial hesitation, relief efforts are now in full swing. The Government has established a crisis center in the Prime Ministry to coordinate relief efforts and activate public and private sector capacities to respond to pressing needs for food, shelter and health care including psychosocial counseling for trauma victims. Large tent cities have been set up and emergency social services are being provided. The General Directorate for Children has staff in the tent cities to address the immediate needs of approximately 1,000 highly vulnerable children (especially orphans). Many governments, local and international agencies, and NGOs have responded quickly to support relief efforts and humanitarian assistance to the affected population has been forthcoming.

The focus of the Government's efforts is now moving from relief to recovery as the components of its earthquake recovery program are put in place. At this stage, the top priority is to mobilize social protection mechanisms to help displaced persons and other vulnerable groups recover from the impact of the disaster and return to productive lives as soon as possible. The recovery program also includes support to affected enterprises, and a medium-term reconstruction and disaster mitigation program. To supplement external support for the program, the Government intends to implement a series of revenue measures to help finance earthquake-related costs.

The Government has introduced an accommodation assistance program for households that suffered heavy or medium damage to their homes of TL100 million per month for up to one year. Displaced families will be able to choose to receive this cash assistance or accept free accommodation in public facilities or pre-fabricated housing as this becomes available. The Government has also announced a repair assistance program to help families who suffered light damage to their homes. Under this program, eligible homeowners will receive a one-time grant of TL600 million to help carry out repairs. The Government is preparing a complementary package of social assistance benefits for the longer-term vulnerable among the earthquake victims, in particular families that have suffered breadwinner deaths or disabilities. As a first step, the pension legislation was amended to reduce the period of required contributions for earthquake victims in terms of their survivor benefits and disability pensions under the three social insurance programs. However, there will be survivors and disabled who still do not qualify for social insurance

benefits. The Government has announced a program to offer one-time lump-sum payments for each death and permanent disability regardless of social insurance coverage as was done following the 1992 Erzincan earthquake.

For enterprises affected by the earthquake, the authorities have announced a tax deferral scheme and a subsidized credit program through the three main state banks. The tax deferral scheme covers all businesses (and individuals) affected by the earthquake. Only about one-fourth of the deferred revenues are expected to be recoverable due to the loss of tax records and losses arising from severely damaged businesses. The subsidized credit program features: (i) rescheduling of existing loans by the three state banks to parties adversely affected by the earthquake for three years with one year grace on principal and interest, and (ii) new subsidized credits. While the high level of subsidy is a cause for concern, the banks are putting in place operational procedures for the new credit component of the program to ensure access by small and micro-enterprises (firms with less than 10 employees) thereby channeling part of the subsidy to them. For affected firms in the SME sector (representing firms with between 10 and 200 employees), IFC has indicated an interest in establishing a credit line through the commercial banks.

3. Sector issues to be addressed by the project and strategic choices:

The Framework Program will (i) assist the Government to introduce measures to reduce potential losses from natural disasters in the future, by improving the emergency response system, increasing the resistance of new buildings to earthquake by adopting and enforcing land use plans and building codes, setting up a disaster insurance scheme, and increasing public awareness of the issues and how they can best prepare themselves; (ii) help the recovery of the business and social sectors through a series of support programs to small businesses and by increasing both the quantity and quality of trauma related counseling for the affected population; and (iii) implement expeditiously the reconstruction and rehabilitation of infrastructure in the affected areas, using methods which will increase the confidence of the local population in the process and quality of the buildings in which they will live.

The rationale for the geographic focus is based on the strategic choice to assist the most extensively damaged regions of Turkey to restore essential infrastructure, and to reduce the vulnerability to earthquakes nationwide.

C: Project Description Summary

1. Project components (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

The following are the components financed under the project:

Component A - Disaster Response System and Risk Mitigation (US$419.16 million)

Sub-component A1: Emergency Management and Response System (US$110.17 million). The objective of this sub-component is to create a comprehensive emergency management structure that focuses on the coordination and integration of risk reduction strategies (activities that reduce or eliminate the risk to human life and property), preparedness (pre-disaster activities to develop and maintain capabilities to respond rapidly and effectively to emergencies, including, planning, training, public awareness), response (activities to rapidly assess and contain the effects of disasters, provide support to the victims, and deliver emergency services), and recovery (damage assessment, activities to restore damaged facilities and equipment, and support the economic and social revitalization of affected areas). This sub-component will

finance the design and implementation of a restructured emergency management and response system. This will be achieved through institutional strengthening activities at each level, including activities at the municipal level for disaster prevention, mitigation, planning and public awareness. In particular, the sub-component will finance the development of: (i) a strategic plan to create and establish a comprehensive emergency management agency equipped with an operations center and communications and data networks, and a national earthquake mitigation plan; (ii) a comprehensive emergency management training and exercise program, and a search and rescue capacity building program; (iii) pilot activities to enhance the municipal emergency management system; (iv) the replication of the pilot activities on a regional scale; and (v) a public awareness campaign on appropriate measures to be taken before, during and after an earthquake.

Sub-component A2: Disaster Insurance Scheme (US$273.00 million). The principal development objective of this sub-component is to support the Government Earthquake Insurance Program with the view of establishing and expanding national catastrophic risk management and risk transfer capabilities. To meet these objectives, the sub-component will create an insurance mechanism, which will make liquidity readily available to real estate tax paying owners of residential dwellings destroyed or damaged by an earthquake for the purpose of their repairing or replacement; reduce government fiscal exposure and the risk to the national economy due to major earthquakes; ensure the financial solvency of the Pool after all but the most catastrophic of events, such as those in excess of the Marmara earthquake; and reduce government financial dependence on the Bank and other donors' financial assistance in the aftermath of major earthquakes. To reach these objectives, the project will finance two major activities: (i) technical assistance to the General Directorate of Insurance (GDI) in establishing a Turkish Catastrophic Insurance Pool (TCIP) and ensuring its operational efficiency and financial soundness for the first five years of its existence; and (ii) initial capitalization of TCIP through a contingent loan facility.

The total World Bank financing under the component is estimated at US$123 million, including a contingent loan facility amounting to US$100 million to finance insurance claims, premiums for reinsurance and excess of loss contracts and re-insurance intermediary services for the total of US$20.8, technical assistance in the establishment of TCIP, and incremental operating costs of US$2.2 million. The overall annual operating expenses of TCIP for the first year are estimated at around US$10 million net of reinsurance cost and will have to be exclusively financed by the Turkish Government. In addition, the Government would make a US$0.1 million in-kind contribution toward the operating costs of the TMU, and pay any taxes/duties on locally procured goods or services. The Bank will finance 100% of eligible claims, up to US$17 million, to the extent that accumulated premiums are insufficient to fund them, up to the attachment point of reinsurance of any kind. After that the Bank financing of the retention will be reduced to 40%, with the remaining 60% to be either financed by GOT or from other sources, mainly through premium income generated by TCIP. If the losses during the initial years are greater than the funds built up in the pool, together with any reinsurance or excess of loss reinsurance cover, the Bank will finance 100% of claims, which cannot be met either by TCIP itself or its reinsurers. The Implementation Agency for the Project will be TCIP. Implementation will be initiated by the TCIP Management Unit set up within the General Directorate of Insurance. Milli Reassurance has been selected by the Government to carry out the operational management of the Pool. Applications for withdrawal under TCIP component will need to be accompanied by certification that conditions have been met. At the end of five years, if the loan has not been completely drawn down, the balance may be drawn to develop TCIP capacity to insure against disasters of larger scale than the Marmara earthquake.

Sub-component A3: Land Use Planning and Enforcement of Construction Codes (US$11.78 million). This sub-component's objective is to reduce the vulnerability of the Marmara Earthquake Region to natural hazards and future disaster losses in Turkey. To achieve this general objective, the sub-component will support: (i) the review of ongoing modifications in the current legal system and additional modifications as

required, and (ii) the strengthening of the municipal capability to regulate, plan and implement disaster resistant development. In particular, this sub-component will finance two studies on the Disaster Law and the Tender Law, as well as a comparative evaluation of operational practices in the mortage market of selective countries, key laws and practices that influence site selection for buildings and their construction, and that are therefore, inherently effective in mitigating future disasters. In addition, a study of the building code development process in Turkey will be financed, as well as a series of stakeholder seminars on the topic of "Implementation of Development Regulation for Disaster Reduction and Public Safety". It will also finance pilot projects in selected municipalities to assist planning and building departments in developing risk-based municipal master plans, establishing means for effective building code implementation, developing municipal regulations to ensure that appropriate professional licensing procedures are followed, developing programs for the evaluation of existing buildings, creating municipal ordinances that mandate removal of illegal structures, and creating mechanisms to incorporate effective community participation in the planning process. The pilot municipal projects will include technical assistance for hazard and vulnerability mapping. A program of targeted training for key decision-makers in the development process will be provided on a national scale.

Sub-component A4: Cadastre Renovation and Land Management (US$24.21 million). The primary objective of this sub-component is to establish a land information system to support the reconstruction and development of the Marmara Earthquake Region (Marmara Earthquake Region Land Information System – MERLIS). In particular, the sub-component will support activities to: (i) supply current and reliable land information to cope with the post-earthquake situation, and update and improve the obsolete registers and maps; (ii) facilitate land supply operations, with emphasis on housing schemes and the overall improvement of the land market. To achieve this, the sub-component will finance production of maps to be used as source of current information for inventory and immediate planning, renovation of cadastre registers and maps, and the creation of a database of cadastral information for the Marmara region to help the reconstruction and future development of the region. To facilitate land supply operations, the sub-component will strengthen the General Directorate of State Land in the Marmara Earthquake Region in the form of increased operational capacity of field offices, and institutional improvements.

Component B - Trauma Program for Adults (US$6.89 million). This component will finance the development of a trauma program for adults to complement the UNICEF/Ministry of Education program for children financed under the reallocation of the Basic Education Loan. The objectives are to contribute to the immediate reduction of the negative effects on health and functional ability among adults affected by the earthquake, including the restoration of normalized living and working conditions in the affected area, support the strengthening of community mental health services, including trauma related work, in the affected region and later across the whole of Turkey, ensuring that the whole country is better prepared for future disasters, and to support the reconstruction of working life and the reinsertion of adults into the workforce in the earthquake zone. This will be achieved through: (i) the establishment of community mental health centers in Izmit, Adapazari, Golcuk and Yalova, staffed by a broad base of mental health professionals trained in specialised care for trauma victims, and able to provide long term service delivery of more generalised mental health services. This activity, undertaken in coordination with existing institutions in the region, will include a public awareness campaign relating to mental health issues and preparedness for disasters, and a training/information program in the later stages for spreading the knowledge across Turkey; and (ii) the establishment of a program for psychological and organizational support to organizations and businesses affected by the earthquake.

Component C - Construction of Permanent Housing in Bolu, Kocaeli and Yalova (US$293.32 million). The principle objective of this component is to assist the Government of Turkey in reconstructing permanent housing in the urban and rural areas affected by the earthquake. The eligibility criteria will

follow the provisions of the current Disaster Law. In addition, specific criteria have been adopted for this project: assistance under this project is limited to collapsed and heavily damaged rural housing and urban multi family units; investments must be implemented under controlled and sound construction practices, and utilize appropriate cost effective design standards which protect against future seismic risk; investments must comply with environmental standards; investments are likely to be implemented in a timely manner. The component will finance technical assistance, design, supervision, training and investments to replace collapsed or heavily damaged household units in the urban areas of the provinces of Bolu and Kocaeli. The cost per unit is estimated around US$20,000 including on-site infrastructure. The component will finance the reconstruction of about 10,000 units in urban areas. The Borrower is responsible for providing an update of the damage assessment and eligibility estimates two weeks prior to the signing of the contracts. Based on this update, the Bank will review the total number of housing units to be constructed in order to mitigate the risk of over-investments.

In the case of rural housing, the beneficiaries will undertake the construction activities under the supervision of independent consultants, and purchase the materials. Construction training will be provided, through which the beneficiaries will gain qualification and experience in the construction of seismic resistant buildings. In addition, standard designs will be provided, that cannot be modified without the approval of the Project Implementation Unit (PIU). The supervision will be provided either through the consultants to be employed by the PIU or through the PIU staff, including staff of local offices, as appropriate. Under this activity, 2,000 household units will be reconstructed in the most affected areas in the provinces of Kocaeli and Yalova. Only beneficiaries identified before the end of April 2000 will be eligible for investments in rural housing reconstruction.

Component D – Project Management (US$12.69 million). This component will finance the costs of expanding and maintaining the existing Project Implementation Unit (PIU), set up for the TEFER project, and its local offices during the whole implementation period.

Monitoring and Evaluation. The MEER project will benefit from the work of a social scientist to be hired by the PIU as permanent staff to constantly monitor and evaluate the impact of the program on the targeted population. In addition, to maximize learning, and to respond rapidly to lessons as they emerge, the project will be monitored and evaluated in two stages towards mid-term and towards the end of the implementation period. This monitoring and evaluation exercise will (i) provide information about the needs and responses of beneficiaries and other community members, (ii) give feedback regarding project design, management and implementation, (iii) evaluate direct project impacts, and (iv) assess the roles of cooperating groups and the effectiveness of the trauma relief program. Results of the monitoring and evaluation exercise will be broadly disseminated within the project area and among stakeholders and the public at large. The objectives of the monitoring and evalaution are first to generate new information about beneficiaries and stakeholders needed to modify project components or approaches, and second to monitor project implementation and evaluate project outcomes and impact.

As part of the Framework Program, the following components will be financed by other co-financiers:

Component E - Business Rehabilitation (US$109.72 million). The primary objective is to rehabilitate businesses damaged by the earthquake, with emphasis on small shops and service establishments. In particular, the component aims at reestablishing the small commerce sector that is an important part of civil society, and creating employment through the operation of small businesses. The component will focus on retail businesses, i.e. shops and other small business establishments such as bakers, grocers, barbers etc., and small manufacturing and service enterprises, i.e. businesses with fewer than 10 employees but larger than the family run shop. It will finance three activities: (i) construction cooperatives of small shop-keepers

and owners of service establishments to build groups of shops or small scale industrial sites; (ii) credit cooperatives of small businesses to finance replacement of movable assets; (iii) credit for the reconstruction and rehabilitation of premises of unions of small businesses, and grant financing for the development of a system of disaster preparedness, and for a public relations campaign connected with the entire proposed program.

Component F - Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa and Eskisehir (US$177.07 million). The principle objective of this component is to assist the Government of Turkey in reconstructing permanent housing in the urban and rural areas affected by the earthquake. The eligibility criteria will follow the provisions of the current Disaster Law. In addition, specific criteria have been adopted for this project: assistance under this project is limited to collapsed and heavily damaged rural housing and urban multi family units; investments must be implemented under controlled and sound construction practices, and utilize appropriate cost effective design standards which protect against future seismic risk; investments must comply with environmental standards; investments are likely to be implemented in a timely manner. The component will finance investments to replace collapsed or heavily damaged household units in the urban areas of the provinces of Sakarya, Yalova, Istanbul, Bursa and Eskisehir. The cost per unit is estimated around US$20,000 including on-site infrastructure. The component will finance the reconstruction of about 30 percent of the total number of collapsed and heavily damaged units in urban areas. The Borrower is responsible for providing an update of the damage assessment and eligibility estimates two weeks prior to the signing of the contracts. Based on this update, the co-financiers will review the total number of housing units to be constructed in order to mitigate the risk of over-investments.

In the case of rural housing, the beneficiaries will undertake the construction activities under the supervision of independent consultants, and purchase the materials. Construction training will be provided, through which the beneficiaries will gain qualification and experience in the construction of seismic resistant buildings. In addition, standard designs will be provided, that cannot be modified without the approval of the Project Implementation Unit (PIU). The supervision will be provided either through the consultants to be employed by the PIU or through the PIU staff, including staff of local offices, as appropriate. Under this activity, 4,000 household units will be reconstructed in the most affected areas including the provinces of Bolu and Sakarya. Only beneficiaries identified before the end of April 2000 will be eligible for investments in rural housing reconstruction.

Component G - Repair of the Existing Housing Stock and Healthcare Facilities (US$632.12 million). The principal aim of this component is to provide assistance to the GOT in repairing the existing housing stock and healthcare facilities damaged during the earthquake. This component will finance the structural repair of about 54,500 medium damaged housing units, which represents about 90% of the damaged units, including the design and the supervision of the repair works. The structural rehabilitation component covers the repair of buildings in rural and urban areas which are assessed as medium damaged by inspection teams of the Ministry of Public Works. Structures which can be repaired with costs that range between 30 and 50 percent of total replacement costs are classified as medium damage. Based on this definition 45 percent of the replacement cost is used as an average number for the estimated rehabilitation cost per housing unit. Consultant services are financed for the inspection and assessment of damages including visual and structural testing. In addition, the service is required for preparation of designs, technical specification, bidding documents, and supervision of structural rehabilitation works.

In addition, the component covers the repair of hospitals and health facilities. The social insurance program (SSK) operates several hospitals, polyclinics, and dispensaries in the earthquake zone, which come under the general supervision of the Ministry of Labor and Social Security (MLSS), not the Ministry of Health.

The MLSS estimates that 60 percent of the workers covered by SSK in the earthquake zone used exclusively the SSK hospitals. If reconstruction efforts ignored the SSK hospitals, a significant portion of earthquake zone residents would be bereft of their regular health services and emergency care. It is therefore imperative that the damaged SSK health facilities be included in the MEER reconstruction efforts.

Component H - Rebuilding and Repair of Roads, Water, Wastewater, Electricity Distribution Networks (US$139.73 million). The objective of the component is to restore essential infrastructure in the municipalities and provinces that have been devastated by the August 17, 1999 earthquake. The component includes technical assistance, design, supervision and investments to restore essential infrastructure at the municipal level. It finances repairs and reconstruction of water supply, sewerage and storm water systems, wastewater treatment plants, electric power distribution systems, and municipal roads and bridges in the areas most damaged by the earthquake. Minor damages to infrastructure as well as damages that have already been repaired by the related authorities are not covered under this operation.

Co-financing. The Government of Turkey is in the process of finalizing agreements to secure the total financing required for the above described Framework Program. The Framework Program and the co-financing have been organized in such a way that signing of the co-financing agreements will not affect the overall achievement of the MEER project's objectives.

Component	Sector	Indicative Costs (US$M)	% of Total	Bank-financing (US$M)	% of Bank-financing
Sub-component A1: National Emergency Management System	Institutional Development	110.17	14.9	95.01	18.8
Sub-component A2: Disaster Insurance Scheme	Institutional Development	273.00	37.0	123.00	24.4
Sub-component A3: Land Use Planning and Enforcement of Construction Codes	Institutional Development	11.78	1.6	10.61	2.1
Sub-component A4: Cadastre Renovation and Land Management	Institutional Development	24.21	3.3	20.58	4.1
Component B: Trauma Program for adults	Small Scale Enterprise	6.89	0.9	6.04	1.2
Component C: Construction of Permanent Housing in Bolu, Kocaeli and Yalova	Other Social Sector	293.32	39.8	234.36	46.4
Component D - Project Management	Urban Housing	12.69	1.7	10.35	2.0
Total Project Costs		732.06	99.3	499.95	99.0
Front-end fee		5.05	0.7	5.05	1.0
Total Financing Required		737.11	100.0	505.00	100.0
Component E: Business Rehabilitation	Small Scale Enterprise	109.72	6.11	0.00	0.00
Component F: Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa and Eskisehir	Urban Housing	177.07	9.86	0.00	0.00

Component G: Repair of Existing Housing Stock and Healthcare Facilities	Urban Housing	632.12	35.20	0.00	0.00
Component H: Rebuilding and Repair of Roads, Water supply Systems, Wastewater Systems, Power Distribution Networks	Other Water Supply & Sanitation	139.73	7.78	0.00	0.00
Total Costs of the Framework Program		1795.75	100.0	0.00	0.00

2. Key policy and institutional reforms supported by the project:

The MEER project will support the reform of the national emergency response system by helping the Government reform the current structure of the General Directorate of Disaster Affairs (GDDA) and General Directorate of Civil Defense (GDCD), and thereby creating a single agency responsible for coordinating preparedness, planning and response efforts. Currently, the responsibilities for these functions are divided principally between the GDDA and the GDCD, which are housed in the Ministry of Public Works and Settlement and the Ministry of the Interior respectively. To achieve the objective of comprehensive emergency management, the project is supporting a fusion of the activities of these two agencies as well as, potentially, activities in other ministries that are integral to the functions of comprehensive emergency management. After careful assessment, the Bank recommends that the functions of comprehensive emergency management be assigned to a new agency, the Emergency Management Agency of Turkey (EMAT), housed in the Ministry of the Interior.

The legal and organizational basis for the system of development control and disaster management in Turkey is defined by the Development Law, the Disaster Law, and the Tender Law. The Development Law (No. 3194) and its related regulations define the process of preparation of development plans and their applications, but makes no significant reference to natural disasters, while the Disaster Law deals primarily with the aftermath of natural disasters and makes limited reference to pre-disaster mitigation. The Tender Law sets the conditions for the implementation of public construction projects. The Development Law makes no reference to natural hazard mitigation or risk management, thus, it provides little authority to municipalities to protect public safety in buildings. Importantly, the Development Law has no effective interrelation with the Disaster Law (7269). As a result, the various central government authorities (ministries and other bodies) that have responsibilities for development, preparation of plans, and rectification of plans and buildings, are left with an ineffective legal framework for their tasks and without clear principles of coordination. The project will support the ongoing revisions of this set of legislation to include the following standards and obligations: (i) establish a program of professional licensing for building and development professionals, including structural engineers, architects, contractors, building inspectors and city planners; (ii) allow for a system of out-sourcing technical services for plan review and site inspection from Municipal Building Departments to private supervisory firms, and establish a process for the certification of such supervisory firms; (iii) establish requirements for professional liability insurance to be carried by licensed building professionals and supervisory firms;
(iv) establish specific municipal and professional responsibilities and penalties for failure to carry out those responsibilities; (v) establish a hierarchy and standardization of national, regional, and municipal plan documents; (vi) establish the principle of special project zones and the transfer of development rights.

Through the support provided to the Turkish Catastrophic Insurance Pool, the project will also facilitate a major reform of the Turkish Disaster Law and related legislation that will reduce government financial exposure and increase its financial preparedness as well as that of households for major earthquakes, support the development and implementation of the national risk management and

risk transfer strategy, improve the enforcement of the Building Code through insurance mechanisms, facilitate the development of local earthquake underwriting capacity, and foster the development of related lines of business, such as professional and liability insurance.

The project will also support a gradual policy change relating to the types and delivery mechanisms for mental health services in the community through the development of broad based community mental health delivery mechanisms in the affected area, including the introduction of modern treatments for trauma counseling and mental illness. Through the project, lessons learnt from the introduction of these services will be disemminated across the country. In addition, the project will establish the first non-profit center for the delivery of trauma counseling and stress related management in the workplace in Turkey.

3. Benefits and target population:

Immediate benefits are the restoration of municipal services, housing and infrastructure serving the millions of inhabitants in Marmara region. Project investments will enable basic or normal levels of operation of water supply, electric power supply, wastewater treatment, sewerage and buildings in the target region, and thereby improve health, safety and environmental conditions for the affected population. In addition, the Framework Program will support the restoration of SME activities, and therefore the economic recovery of the affected regions and the GOT budget through increased tax revenues. The recovery of the economy will be further supported by the increase in trauma counseling services specifically targeted at the earthquake victims to allow then to return to normal levels of functionality both at home and in the workplace. This will also help to break the dependency cycle encouraged by life in the tent camps.

The project will directly benefit the displaced persons forced to live in tents after the disaster by constructing buildings with improved standards and less vulnerability to future earthquakes, and by introducing techniques designed to restore their confidence in both authorities and quality of construction. Since the majority of the populations in the tent camps have been shown to be of the lowest socio-economic groups, these measures will have a direct impact on the poorest members of the community.

Major nation wide public benefits can also be expected from the project, including (i) the strengthening of the capacity of the government to respond rapidly to priority needs of its citizens in the face of natural disasters; (ii) the development of a national insurance plan to shift the financial burden of future reconstruction of housing and infrastructure from the individual families and the government to international re-insurers, capital markets and to the Turkish Catastrophic Insurance Pool; and (iii) increased responsibility on the part of the citizens empowered through heightened awareness of the issues which determine their safety and well being.

4. Institutional and implementation arrangements:

Project Implementation Unit. The Project Implementation Unit (PIU) is responsible for the overall implementation of the project. It is established within the Prime Minister's office, and managed by a Director who reports directly to the Undersecretary of the Prime Minister. The Director is responsible for hiring the staff of the PIU subject to pre-approval by the Bank. The PIU implements the project under the overall policy guidance of a Steering Committee (see below) and in close coordination with related Ministries and Agencies.

The PIU serves as a secretariat to the Steering Committee, prepares the working documents for the meetings of the Steering Committee, and submits quarterly progress reports to the Prime Minister, the Steering Committee and the Bank. The PIU will establish local offices in the Marmara region, prepare

bidding documents and contracts for construction works, goods and consultancy services, and monitor the compliance with Turkish and World Bank environmental regulations.

Steering Committee. The Steering Committee (SC) is chaired by the Minister of Public Works and Settlement (MPWS), and consist of the State Minister responsible for the Housing Development Agency, the State Minister responsible for Social Services, the Minister of Industry and Trade, the Minister of Interior, the Undersecretary of the Prime Minister, the Undersecretary of Treasury, the Undersecretary of the State Planning Organization (SPO), the Governors of Istanbul, Kocaeli, Adapazari, Yalova and Bolu, and Mayors of the relevant cities and towns.

The Committee will be responsible for providing advice and policy guidance to the Undersecretary of the Prime Minister overseeing the PIU. It will also review quarterly progress reports, approve proposals for reallocation of funds prepared by the PIU, and submit them to the Bank for "no-objection".

Local Offices. In order to streamline and effectively manage implementation of the Project, the PIU will establish at least three local offices in the areas most severely affected by the earthquake. The PIU local offices (PIU-LO) will be set up in Istanbul, Izmit, Yalova, and Adapazari. These local offices will closely monitor the implementation of the project in their respective areas.

Financial Management Arrangements. Except for the Disaster Insurance Scheme sub-component, which will be separately managed by Milli Reassurance, the implementing agencies for all other components will be coordinated by the PIU, currently under the Housing Development Agency (HDA), but to be moved under the Prime Minister's Office. This PIU has been implementing the Loan 4388-TU Emergency Flood and Earthquake Recovery (TEFER) since August 1998, and has substantial experience in implementing Bank projects and also has demonstrated its ability to establish and maintain a financial management system in compliance with the requirements of the Bank. At present, the PIU Accounting Department, where the disbursement process is also centralized, is composed of a Financial Director and two accountants. However, given the increased workload for the MEER project, additional staff is needed. Beside the technical staff needed for monitoring the various project activities (implemented by several Ministries/Agencies), additional financial management staff will include an accountant and a financial analyst position. This need is also confirmed by the results of an assessment recently conducted for the TEFER project by a private consultant, highlighting actions for strengthening the financial management procedures and the filing system currently in use.

Although the project will be disbursing according to the traditional procedures, the PIU has, over the last three quarters, prepared Project Management Reports (PMRs). However, the PMR preparation process is labor-intensive and time-consuming and offers, in turn, very little support to project management, as it is the result of semi-manual activities. A new integrated accounting software, equipped with budget and cost-accounting modules and a PMR reporting facility, will be purchased under the project and will allow timely and efficient report generation; this package will be eventually used also for the TEFER project. These activities will be entirely financed under the project (Component D). The steps and actions needed to implement the described activities are documented in a time-bound Action Plan agreed with the Borrower.

The implementation agency for the insurance component will be the Turkish Catastrophic Insurance Pool (TCIP), a semi-independent body to be established by the Government of Turkey. The TCIP will be formed as a new independent public sector institution by Government decree in response to a provision envisaged by the Government in the Disaster Law. While TCIP is being established, implementation will be initiated by TCIP Management Unit (TMU) set up within the GDI for monitoring the performance of the Pool Management Company and implementing the Bank-financed insurance component under the project.

During the preparation and implementation stages of the insurance component, the TMU will provide accounting and financial reporting services in support of disbursements from the Bank contingent insurance facility. The PIU will assist with the procurement of goods and services purchased under the Bank loan. Accounting and financial reporting services for all technical assistance related activities under the insurance component will be provided by the PIU. The national reinsurance company, Milli Re, has been appointed by the Government as the manager of Turkish Catastrophic Insurance Pool subject to the to approval by Milli Re's board. Milli Re was formed in 1929 based on compulsory cession by Turkish insurers. It has a successful track record as the manager of several pools, including FAIR (Federation of Afro-Asian Insurers and Re-Insurers). Regarding accounting, Milli Re is following the accrual basis of accounting, and following the chart of accounts developed by Treasury for the insurance and reinsurance companies. Milli Re's financial statements are audited by the Government auditors and private external audit firm annually. Milli Re holds the central position in the Turkish insurance industry and has strong management and good technical expertise. However, Milli Re will implement the Action Plan in Annex D of the Project Implementation Plan to strengthen its accounting, and internal controls.

Under the project, technical assistance will be provided to the TCIP Management Unit (TMU) within GDI and to Milli Re to set up the TCIP business and information systems, draft operational guidelines and a business plan.

D: Project Rationale

1. Project alternatives considered and reasons for rejection:

Project Timing. To process the project as a normal lending operation was rejected due to the need to make funds available for urgent repairs and infrastructure investments as soon as possible, to improve living conditions and mitigate, insofar as possible, damages from future catastrophic events.

Reconstruction Relief Program without Policy Changes. The possibility of designing a project that would not include any policy changes or the introduction of an insurance scheme was considered. This alternative was rejected because of the following limitations given the impact of the earthquake and the reasons for the level of devastation. Firstly, due to the country exposure limits, the Bank cannot provide all needed liquidity in cases of large catastrophic events, which frequently leave the Government short of billions of dollars in urgently needed financial resources. Secondly, due to the size of emergency loans, they tend to crowd out other important development lending programs which either have to be postponed or substantially reduced. Finally, excessive government reliance on the Bank retroactive lending and emergency donor relief can no longer be considered sustainable in light of the frequent and systemic nature of major catastrophic events in Turkey. It was therefore decided to include a sub-component dealing with the setting up of an insurance scheme to benefit from the momentum created by the tragic events in August.

Regarding policy change, all the damage assessment undertaken in the aftermath of the earthquake pointed to a series of institutional failures that contributed enormously to the heavy loss of life and destruction of infrastructure in the region. Hence, it was considered that it would not be responsible to provide financing for the reconstruction of the area without ensuring that at least some of the institutional issues from disaster response to the better enforcement of building codes at the local level, would be addressed.

Government Support Program to Small Businesses. In the case of the rehabilitation of small businesses, it was considered to use the existing program of government support executed through Halkbank. This

approach was rejected because, under the government program, the already existing interest rate subsidy on lending to the small business sector is further reduced and appropriate targeting of the assistance remains questionable. Under the Framework Program, it was therefore decided to target a combination of grants and credits to the small businesses members of TESK, the national association of guilds, that have documented evidence of loss and to extend the credit part of the assistance at positive real interest rates.

Institutional Support to the Turkish Psychologists Association (TPA). The team considered providing support to the TPA for the professionalisation of their services in trauma counseling in the affected area since they have arguably been the most effective organisation in delivering care in the immediate aftermath of the earthquake. This was rejected, however, on grounds of needing to build up the long term community based care delivery mechanisms. It was decided that the TPA is not best set up for that purpose, since it is an association of professionals which has the flexibility to provide short term volunteer services but it not designed for long term service delivery.

Institutional and Financial Arrangements. Direct project management and implementation by a national government ministry was rejected in favor of a PIU due to the multiple agencies involved in the implementation and to the benefits to be gained from an experienced PIU.

2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
		Implementation Progress (IP)	Development Objective (DO)
Bank-financed			
Emergency Earthquake Recovery Loan (EERL)	proposed		
Turkey Emergency Flood and Earthquake Recovery Project (TEFER)	Loan No. 4388-TU	S	S
Erzincan Emergency Earthquake and Reconstruction Project	Loan No. 3511-TU	S	S
Road Improvement and Safety Project	Loan No. 4048-TU	S	S
TEK Restructuring Project	Loan No. 3345-TU	S	S
National Transmission Grid Project	Loan No. 4344-TU	S	S
Employment and Training Project	Loan No. 3541-TU	S	S
Basic Education Project	Loan No. 4355-TU	U	U
Primary Health Care Services Project	Loan No. 4201-TU	U	U
Health II Project	Loan No. 3802-TU		
Other development agencies			
UNDP			
Small Business Rehabilitation	proposed		
Rubble/debris collection, storage and recycling	proposed		
Temporary Housing	proposed		
UNICEF			
Child care and trauma counseling	ongoing		

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

The Bank teams, UNDP, UNICEF and the European Union (which may provide some additional co-financing) have worked in close cooperation throughout the development of the related programs to maximize their effectiveness for the beneficiaries in all respects.

3. Lessons learned and reflected in the project design:

Bank-wide experience has shown that reconstruction of damaged infrastructure alone is imperative but insufficient, and that measures are needed to reduce the risk of similar future disasters and to safeguard people at risk. A second lesson is that, while quick response to disaster is important, it is equally important to identify underlying problems and determine how to resolve them in ways that result in long-term sustainable solutions. In several Bank projects sustainability of infrastructure investments was questioned because of the projects' failure to address long-term mitigation measures. It has been widely recognized that the benefits of long-term disaster management versus the costs of repeated short-term post-disaster reconstruction should be taken into account during any emergency operation.

The most immediate need following a disaster is likely to be shelter, first a tent and then a dwelling. Yet the housing components of most emergency loans have created an intensive debate in the Bank as to what extent the Bank should finance a private good and to what extent disaster recipients of a replacement dwelling should be required to contribute to their own relief in the form of upfront contributions followed by repayments over time, i.e. a loan. A review of past emergency loan projects (Columbia Popayan, Mexico Earthquake, Jamaican Hurricane Emergency Reconstruction, El Salvador Earthquake) does reveal the following:

1) A speedy response is imperative. This requirement for rapid response carries several implications. For instance, the investment that produces the most rapid response may not be the least expensive.

2) Cost recovery objectives will be difficult to achieve. It is natural for a government to wish for contributions from individuals benefiting from disaster assistance. Any form of contribution is however difficult to achieve. A requirement for upfront contributions would deny assistance to those who cannot contribute. The best solution seems to be to construct to an acceptable inhabitable standard and assume that additional costs will be under-written by the beneficiary. Under this operation, there are two elements of cost recovery in this component: (i) repayment of loans to disaster victims, and (ii) beneficiary contributions. The disaster legislation stipulates that disaster beneficiaries will repay loans in 20 years, including a 2-year grace period with 0.0% interest. Assuming an annual inflation at 20%, the cost recovery of the disaster loan is approximately 18.6%. The second cost recovery element is voluntary beneficiary participation in the cost of construction which is expected to average US$4,500 or 18.4% of the estimated unit cost of construction of housing in urban areas, and US$3,000 or 26% beneficiary participation in the rural housing. The composite cost recovery is calculated at 34.1%.

While preparing the disaster management system sub-component, examples from various nations that have a substantial earthquake risk have been reviewed, and the following common elements have been identified and recommended: (i) need for developing municipal and provincial capabilities; (ii) need for a single national agency in charge of the coordination of preparedness, planning, response and recovery activities, directly linked either to the Executive branch of the government or the Ministry of the Interior; (iii) need for developing a national risk reduction strategy that identifies risk and mitigation priorities; (iv) and need for developing an aggressive public education and hazard awareness program to inform residents regarding the nature of risk and appropriate actions to take at the time of an emergency.

The project will support the Government Earthquake Insurance Program drawing on international experience of successful efforts in raising the financial preparedness of nations for major catastrophic events. The New Zealand and California Earthquake Authorities are the prime examples. Responding to a market failure to provide adequate insurance coverage for residential properties in earthquake-prone areas, these institutions found ways to establish affordable and yet actuarially sound pricing of such insurance products. The success of these agencies in many respects is due to their ability to achieve high rates of enrollment either through a mandatory minimal property insurance coverage, as in New Zealand, or by maintaining a high level of public awareness in the case of California. These institutions have transfered away large portions of risk using reinsurance of different kinds, arranged for stand-by liquidity facilities, and both have considered the use of capital market instruments.

Experience from previous emergency projects also show that, while expediency is required in the rebuilding of the housing stock to ensure adequate shelter for large numbers of people in a short space of time, public consultation is an important part of the process and should be included, both to avoid long term social problems and also to increase confidence in the building process itself.

4. Indications of borrower commitment and ownership:

In August 1999, the GOT requested the Bank's assistance to develop a project to provide financing and technical assistance for earthquake recovery and protection on an urgent basis. Based on discussions with the Treasury and the General Directorate of Disasters Affairs, the Bank and the GOT have agreed the key points relating to the loan amount, GOT co-funding of the project, allocation of funds, disbursement arrangements, implementing arrangements and flow of funds, main project components and priority actions, and project preparation. In addition, the GOT has formed a Steering Committee to supervise and accelerate the pace of project preparation.

The GOT has demonstrated ownership of the project through sustained high level commitment of the many agencies and regional/municipal governments concerned, and by rapidly appointing the existing PIU, created under the TEFER project, to assist with preparation and implementation of the MEER project.

5. Value added of Bank support in this project:

With the experience gained under the TEFER project, the Bank brings to the process of reconstruction and recovery an organizational framework and clear process for identifying, selecting and implementing priority investments for municipal/rural infrastructure and emergency response management. The project will help to mobilize and target other resources for earthquake reconstruction. Through the emergency project, the Bank can provide critical funding when it is most needed. By supporting expanded use of liability and houseowner's insurance, the Bank is able to contribute to the development of a GOT strategy to raise construction standards and to provide long term sustainable financing for future housing reconstruction.

The Bank is also in a unique position among donors to retain an overall view of reconstruction/recovery requirements and has, again, a unique ability to focus on policy and institutional reform and the economic and social aspects of reconstruction as well as the physical.

E. Summary Project Analysis (Detailed assessments are in the project file, see Annex 8)

1. Economic (supported by Annex 4):

○ Cost benefit NPV=US$ million; ERR = %
○ Cost effectiveness
● Other (specify)
n/a

2. Financial (see Annex 5): NPV=US$ million; FRR = %

n/a

Fiscal Impact:

n/a

3. Technical:
The project's technical design is well suited to Turkey's requirements for rapid investment for repair of municipal infrastructure, and disaster hazard reduction. Specific investment identification and cost estimates have been calculated on the basis of data compiled and analyzed by the preparation and appraisal missions, and reflect the priorities and costs identified by local government and technical agencies, within an acceptable margin of error for costs. Allowances are made for physical and price contingencies consistent with rapid disbursement for infrastructure repair and emergency planning.

4. Institutional:

a. Executing agencies:
Prime Minister's Office. The organizational location of the PIU within the Prime Minister's Office will allow for better coordination with the Ministries and other governmental agencies involved in implementing the project, which is necessary due to the scale and multi-sectoral dimension of the project.

Ministry of Public Works and Settlements (MPWS). The Minister of Public Works will chair the Steering Committee of the project. In addition, the MPWS will constitute a key factor in the successful implementation of several components, i.e. the Land Use Planning and Enforcement of Construction Codes, the Construction of Permanent Housing, and Repair of Existing Housing Stock and Healthcare Facilities sub-components. The MPWS is the best suited for this role due to its general responsibility for land, and disaster management related issues.

Ministry of Interior (MOI). The MOI will be the leading implementing agency for the Emergency Management and Response System sub-component. The training function of the General Directorate of Civil Defense within the MOI will be enhanced, and can serve as a basis for intensive training efforts to be done at the local level. In addition, there are significant international precedents for housing the emergency management function within the Ministry of Interior.

General Directorate of Insurance (GDI). The GDI will play a leading role for the implementation of the Disaster Insurance Scheme sub-component. The selection of GDI for this role results from a thorough analysis of the insurance market in Turkey. Being a national level public agency responsible for insurance related issues, GDI seems to be the most suitable entity to create, with the support from the project, the Turkish Catastrophe Insurance Pool (TCIP) providing a compulsory earthquake cover for registered

dwellings throughout the country. The technical assistance and training will be provided from the loan proceeds to enhance effective introduction of the foreseen Catastrophic Insurance Program. The challenge for the GDI is to maintain its oversight over the TCIP, Milli Re. and the scheme, without interventions which would compromise the independence and financial viability of the TCIP.

Ministry of Health (MOH). The MOH will carry out the activities financed under the Adult Trauma sub-component. Since the sub-component will tackle the problem of trauma and other mental health related disaster effects, the Ministry of Health is a natural choice as the execution agency, that will coordinate the support for the mental health institutions. Moreover, the MOH is currently implementing the UNICEF financed trauma program for children, therefore may easily extend its oversight function to the implementation of this sub-component.

TEDAS (Turkish Electricity Distribution Company). TEDAS will execute the activities related to the repair and replacement of the Electricity Distribution Networks. Being the national level institution with established working relations with its subsidiaries, including the local distribution companies operating in the affected areas, TEDAS is well equipped to coordinate the activities envisaged under the C3 sub-component. The other analyzed option was to designate its subsidiaries as implementing agents. This alternative was rejected due to current organizational structure of electricity distribution and complexity of such an arrangement.

Directorate General of Land Registry and Cadastre (T.C. Basbakanlik Tapu ve Kadastro Genel Müdürlügü – TKGM). TKGM will be responsible for the implementation of the Cadastre Renovation and Land Management sub-component. The TKGM is a central government agency with regional and local offices, which closely cooperate with municipal planning departments and other relevant municipal offices. Since land registry and cadastre in Turkey are within the scope of the responsibility of the Directorate, it is the best suited organization to lead the implementation of this sub-component.

Municipalities. Selected municipalities will be the main implementing agents for the Municipal Infrastructure investments. Specific investments of high priority for municipal and provincial governments have been identified and reviewed by international and local experts. That programming and execution method was successful in case of the TEFER project and other Bank projects supporting the creation and restoration of municipal infrastructure.

Steering Committee. The Steering Committee will provide advise and policy guidance for the project. It mirrors the composition of the committee established for the TEFER project. The positive results of that project and its institutional and implementation arrangements have been used as a model to design the institutional arrangements for the MEER.

b. Project management:

Project Implementation Unit. This PIU is the same unit that successfully managed the implementation of the Erzincan Project under Loan 3511-TU and the TEFER Project under Loan 4388-TU. Under the TEFER project, the PIU has proved to be able to handle a considerable amount of activities with competence and in accordance to Bank rules. The competent handling of the procurement process has allowed for significant savings that have permitted the reallocation of funds approved by the Board for the reconstruction of the Marmara region. The existing PIU will establish local offices in the affected areas, and will be reinforced by additional staff, in particular a team responsible for monitoring procurement, an External Relations Officer, and staff responsible for managing the computerized financial monitoring and management system. In addition, the PIU will hire consultants to support the implementation of the business rehabilitation sub-component.

5. Social:

The social impacts of the earthquake have been particularly harsh, as witnessed by the results of the social survey (see annex 11) which showed that the majority of those living in the tent camps were from socio-economic groups least able to cope with loss of home, income and social support networks. Hence, it is anticipated that the project will have positive social impacts as a result of the restoration of basic infrastructure providing housing, wastewater treatment, and water supply.

In brief, the social survey made the following observations which have been addressed in the project design as follows: high level of uncertainty and anxiety amongst the displaced population as to what their futures will hold – this has been addressed by including public information campaigns for health services and disaster response and preparedness, and a participatory project evaluation for amendment to project design at mid and end points to empower the local population; low level of trust in authorities, both Government and construction industry resulting in people with undamaged homes living in camps (6%) and unwilling to return to repaired housing (19%), or low level of trust in damage assessments – this has been addressed by developing a project component specifically aimed at informing public about damage assessments, bringing in international experts to work alongside local assessors and providing training to assessors on how to communicate effectively with the public, public participation in design of new communities and supervision of building works, public information concerning building codes and requirements; unwillingness to move out of the region, even for a temporary period – this suggested to drop the idea of encouraging people to use option of hotels in other regions for temporary housing.

Resettlement. The project does not involve involuntary resettlement. Under Turkish law, only those affected by an earthquake who request new housing to be provided by the government in another location are eligible for housing. The families who will receive housing under the project are therefore moving voluntarily and at their own request, not being resettled involuntarily.

6. Environmental assessment: Environment Category ☐ A ☐ C ☒ B ☐ FI

The overall environmental impact of the MEER project is expected to be very positive, in that it supports the restoration of necessary municipal infrastructure, including water supply and wastewater treatment in the cities heavily damaged by the earthquake. Potentially negative environmental issues are primarily associated with component C (Physical Reconstruction). Under this component, environmental issues may arise in connection with the construction of new permanent housing. The types of environmental issues faced within component C include land clearing for site preparation, movement of workers, equipment and materials to and from project site, proper disposal of debris and damaged equipment (including power cables and transformers), proper design of reconstructed or repaired water supply systems, sewerage and storm water systems, wastewater treatment systems, and streets and bridges.

Compliance with environmental requirements of Turkey and the Bank will be achieved in the following way. In the PIU, an Environmental Specialist hired under the TEFER project will be responsible for screening the specific investments eligible for financing under this operation. The list of investments is included in Annex A of the PIP. Initial assessments carried out by the project team, including road and municipal infrastructure engineers, and the Bank environmental specialist's review during appraisal show that no major environmental impacts are foreseen. Moreover, the PIU Environmental Specialist will be responsible for reviewing the project list and assuring that environmental requirements as stipulated in Turkish environmental law and ordinances are followed. Funding for continuation of the services of the Environmental Specialist is included in the MEER budget for the PIU, together with resources for other

studies and additional assessments that might be identified by the Environmental Specialist as necessary.

It is the responsibility of the Environmental Specialist in the PIU to include environmental aspects in TORs for contracts. Under the supervision plan an environmental specialist from the Bank will be reviewing and providing environmental clearance for projects.

7. Participatory Approach (key stakeholders, how involved, and what they have influenced or may influence; if participatory approach not used, describe why not applicable):

a. Primary beneficiaries and other affected groups:
This project has been prepared in close collaboration with GOT ministries and technical agencies, and provincial and municipal officials were consulted in order to define the project, assess investments needs, prioritize actions, and develop an implementation plan. Project concept and priority investments have been further developed by local consultants in very close cooperation with local governments. Priorities were confirmed by local councils as well as technical agencies. For the business rehabilitiation part of the Framework Program, thorough consultation took place with owners of small businessess lost or damaged during the earthquake, many of whom were living in tent camps, and also with the guilds, chambers of commerce and other associations for the needs assessment and design of the component. For the trauma component of the MEER project, the population in the tent camps was consulted in terms of needs through the social survey and the professional community in terms of service delivery and requirements.

Primary beneficiaries are the local population physically or economically displaced by the earthquake. Their participation will be sought in the design of the communities which are being rebuilt for them during the planning process, and for some basic supervision of the construction to ensure that needs of the speicific populations are met and confidence in durability of their new dwellings assured. They will also be consulted mid-way through the process concerning the effectiveness of the project and for design modication. This will be done for several components through a combination of survey, client interview and focus groups.

b. Other key stakeholders:

All stakeholder groups affected by the project have had an opportunity to contribute to the project design through their local governments and representatives or through involvement of the relevant technical agencies.

F: Sustainability and Risks

1. Sustainability:

Factors critical to the sustainability of the project include strong motivation on the part of national, regional and local governments to implement quickly earthquake recovery and risk reduction measures to enhance public health and safety and to limit future economic losses. The improved enforcement of quality standards and the introduction of building codes will contribute to the sustainability of the project in an earthquake prone country. The introduction of liability and compulsory property insurance will shift the financial burden of natural disasters to the Turkish Catastrophic Insurance Pool, which in turn will arrange for risk transfer to the global reinsurance and capital markets, and will buid up national earthquake reserves. The emphasis on professionalizing the trauma counseling services within existing local organisations instead of either establishing new ones or focusing on strengthening the volunteer services is designed to ensure long term sustainability.

2. Critical Risks (reflecting assumptions in the fourth column of Annex 1):

Risk	Risk Rating	Risk Minimization Measure
From Outputs to Objective		
Sub-component A1: - the GOT will not issue a decree establishing the Emergency Management Agency of Turkey (EMAT), repeal Law No. 7269-1051 and the related statutes or regulations	M	- a dated covenant has been included in the loan agreement
Sub-component A2: - a major earthquake with impact in excess of the Marmara event occurs in early years of TCIP's existence	S	- reinsurance contracts will be placed with third parties and some risk will be transferred to capital markets
- TCIP fails to reach the level of market penetration agreed upon with the Bank or falls short of enforcing the timely collection of premiums	M	- intensive technical assistance and close monitoring of its market penetration will be provided to the TCIP in the first years of its operations
- the Government is unable to resist political pressures to turn TCIP into an indiscriminate liquidity conduit to victims of a major earthquake in the future, regardless of the terms of their coverage under the program	M	- the proposed financial design of the project provides strong financial disincentives for that type of a policy action
Sub-component A3: - the ongoing revision of the set of legislation regulating disaster management will not include recommended standards and obligations	M	- the project will finance the dissemination of the lessons learned from the Erzincan project to stimulate the debate among stakeholders
Sub-component B: - the program offered does not correspond to the needs of the population	M	- the program will be reviewed during implementation to ensure that it corresponds to the needs expressed by the targeted population
Component C: - availability of suitable sites	S	- the Government is in the process of providing sites, conducting studies and surveys, and coordinating its activities with local and regional authorities
From Components to Outputs - timely implementation, rapid procurement	M	- the existing TEFER PIU will be used to serve as the agency in charge of implementing the project. It has been expanded to cope with the additional work to be done under MEER
Overall Risk Rating	S	

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N(Negligible or Low Risk)

3. Possible Controversial Aspects

Significant legal, regulatory and institutional reform to be supported by the emergency operation: In addition to physical reconstruction and restoration of normal socio-economic conditions, the project recognizes the urgent need to support rapid reform of the legal and regulatory system underlying emergency management, housing and liability insurance, and land use and building code enforcement in order to minimize risk and damages, reduce the government's future financial liability, and begin to improve its ability to respond more effectively to natural disasters.

Selection of municipalities for housing and infrastructure investments: The communities benefiting from investments financed by this project and the types of investments identified have been selected on the basis of damage by the earthquake, assessments of needs by the Bank team, priorities expressed by local government representatives, and eligibility of beneficiaries for replacement housing according to Turkish law.

G: Main Loan Conditions

1. Effectiveness Condition

There are no effectiveness conditions.

2. Other [classify according to covenant types used in the Legal Agreements.]

Conditions of Disbursement of Sub-component A2:

- No withdrawal shall be made for the Reinsurance Premiums unless Reinsurance Transaction has been concluded by TCIP with terms and conditions satisfactory to the Bank
- No withdrawal shall be made under the National Catastrophic Insurance Program unless the following conditions are in place:

1. The Borrower has amended the Disaster Law to limit the Government's future liability to the reconstruction of residential property ineligible for coverage under the TCIP in form and substance satisfactory to the Bank.
2. The Borrower has adopted TCIP legal framework (the law(s), decrees and/or regulations for the establishment, administration and operation of TCIP) in form and substance satisfactory to the Bank and such framework has entered into effect.
3. TCIP has been established and the members of its Board of Directors have been appointed.
4. The subsidiary loan agreement has been executed on behalf of the Borrower and TCIP in form and substance satisfactory to the Bank.
5. TCIP has entered into a Reinsurance transaction.
6. TCIP has adopted the Operations Manual and the standard form of Agency Agreement in form and substance satisfactory to the Bank.
7. TCIP has executed a Pool Management Agreement with Milli Re.
8. TCIP has issued Earthquake Insurance Policies to Earthquake Insurance Holders, one of the Covered Risks has occurred and the Bank has been provided with satisfactory evidence that Eligible Claims have been filed.
9. A senior officer of TCIP has provided to the Bank a satisfactory certificate in support of the application for withdrawal.

Dated Covenants:

- The Borrower shall transfer the PIU to the Prime Minister's Office and provide all necessary resources to enable the PIU to be operational by November 30, 1999.
- The Borrower shall establish, not later than March 31, 2000, at least three local offices of the PIU in the cities as agreed with the Bank.
- The Borrower shall, not later than November 22, 1999, establish and thereafter maintain the Emergency Management Agency for Turkey (EMAT).
- The Borrower shall, not later than December 31, 2000, prepare and submit to the Parliament amendments to the Disaster Law, Development Law and Tender Law in form and substance satisfactory to the Bank.
- The Borrower shall, not later than December 15, 1999, establish the Marmara Earthquake Region Land Information System Committee.
- The Borrower shall, not later than November 30, 1999, select potential sites in size and location satisfactory to the Bank for the construction of urban household units in Golcuk, Izmit and Adapazari.
- The mid-term review of the Project will take place on May 31, 2001.

H. Readiness for Implementation

☐ 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
☒ 1. b) Not applicable.

☐ 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
☒ 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
☐ 4. The following items are lacking and are discussed under loan conditions (Section G):

I. Compliance with Bank Policies

☒ 1. This project complies with all applicable Bank policies.
☐ 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

Piotr M. Wilczynski **Team Leader**	Joseph R. Goldberg **Sector Manager/Director**	Ajay Chhibber **Country Manager/Director**

Annex 1: Project Design Summary

TURKEY: Marmara Earthquake Emergency Reconstruction Project

Hierarchy of Objectives	Key Performance Indicators	Monitoring & Evaluation	Critical Assumptions
Sector-related CAS Goal:	**Sector Indicators:**	**Sector/ country reports:**	**(from Goal to Bank Mission)**
•the project responds to an unanticipated emergency situation, it is not therefore included in the current CAS			
•support social development	•upgrading health services, and provision of effective social protection		
•sustain private sector growth	•removal of weaknesses in the legal, regulatory and institutional frameworks		
•protect the environment	•rehabilitation and upgrading of water supply and sanitation infrastructure		

Hierarchy of Objectives	Key Performance Indicators	Monitoring & Evaluation	Critical Assumptions
Project Development Objective: •help restore the living conditions in the region of Turkey that was affected by the August 17, 1999 Marmara earthquake, support economic recovery and resumption of growth, and develop an institutional framework for disaster risk management and mitigation	**Outcome / Impact Indicators:** •reduction of damages to physical infrastructure and housing in the event of future earthquakes, especially to the most recent constructions •prompt recovery of the social sector •timely replacement of housing units affected by the earthquake	**Project reports:** •PSR •monitoring and evaluation exercise	**(from Objective to Goal)** •project implementation will be sufficiently advanced when a future earthquake hits

Hierarchy of Objectives	Key Performance Indicators	Monitoring & Evaluation	Critical Assumptions
Output from each component: Component A - Disaster Response System and Risk Mitigation Sub-component A1: •create a comprehensive emergency management structure that focuses on the coordination and integration of risk reduction strategies, preparedness, response and recovery	**Output Indicators:** •creation of a comprehensive emergency management agency equipped with an operations center and communications and data networks, and with trained staff in emergency management •development of a national earthquake mitigation plan •strengthened search and rescue capacity •lessons learned from pilot activities developed at the municipal level, and their application on a regional scale •increased awareness among citizens of the measures to be taken before, during and after an earthquake	**Project reports:** •independent assessments prepared by consultants financed under the sub-component •PSR/supervision missions	**(from Outputs to Objective)** •the Government adopts the Council of Ministers' decree that establishes the Emergency Management Agency for Turkey

Sub-component A2: •create an insurance mechanism, which will make liquidity readily available to real estate tax paying owners of residential dwellings destroyed or damaged by an earthquake for the purpose of their repairing or replacement •reduce government fiscal exposure and the risk to the national economy due to major earthquakes •ensure the financial solvency of the Pool after all but the most catastrophic of events, such as those in excess of the Marmara earthquake •reduce government financial dependence on the Bank and other donors' financial assistance in the aftermath of major earthquakes	•facilitate a major reform of the Turkish Disaster Law and related legislation that will reduce government financial exposure and increase its financial preparedness as well as that of households for major earthquakes •support the development and implementation of the national risk management and risk transfer strategy by providing technical assistance for the start-up of TCIP •improve the enforcement of the Building Code through insurance mechanisms •facilitate the development of local earthquake underwriting capacity, and foster the development of related lines of business, such as professional and liability insurance	•supervision reports	•a major earthquake with impact in excess of the Marmara event does not occur in early years of TCIP's existence •TCIP reaches the level of market penetration agreed upon with the Bank or succeeds in enforcing the timely collection of premiums •the Government is able to resist political pressures to turn TCIP into an indiscriminate liquidity conduit to victims of a major earthquake in the future, regardless of the terms of their coverage under the program
Sub-component A3: •reduce the vulnerability of the Sea of Marmara/Kocaeli Region to potential future disasters •promote the reduction of losses from extreme events	•passing of the relevant legislation •holding of seminars of stakeholders •consultation among stakeholders	•supervision reports	•stakeholders participation
Sub-component A4: •establish a land information system as a tool for reconstruction and development of the Marmara Earthquake Region (Marmara Earthquake Region Land Information System – MERLIS)	•renovated land registration and cadastre in the Marmara region strengthened operational units of the General Directorate of State Land to speed up the land supply process		

Component B - Trauma Program for Adults •contribute to the immediate reduction of the negative effects on health and functional ability among adults affected by the earthquake, including the restoration of normalized living and working conditions in the affected area •support the strengthening of Community Mental health services, including trauma related work, in the affected region and later across the whole of Turkey • support the reconstruction of working life and the reinsertion of adults into the workforce in the earthquake zone.	•number of people treated •degree of satisfaction of the treatment received •community satisfaction with the program •establishment and operation of a non-profit center •delivery of training services to 300 healthcare professionals •raised awareness of the population in mental healthcare issues	•monitoring and evaluation exercise •supervision reports	•the program offered does not correspond to the needs of the population
Component C - Construction of Permanent Housing in Bolu, Yalova and Kocaeli •reconstruction of urban and rural housing unit	•35% for urban housing reconstruction work and 15% of rural housing reconstruction work is completed •reconstruction of 10,000 urban housing units completed after the second year •65% of rural housing reconstruction work is completed after the second year •2,000 rural housing units completed after third year	•quarterly reports	•availability of suitable sites •close cooperation between relevant local, regional and national authorities •list of beneficiaries provided to the PIU
Component D - Project Management	•timely implementation of the project, in accordance with procurement and disbursement guidelines	quarterly reports during the first year, and then half yearly	•implementation agreements signed

FRAMEWORK PROGRAM			
Component E - Business Rehabilitation •reestablish the small commerce sector that is an important part of civil society •create employment through the operation of small businesses	•physical reconstruction of at least 4,000 shops and 500 service establishments •rehabilitation and restart of at least 6,000 small businesses •reconstruction of at least one lost building for the provincial union of small business guilds, and rehabilitation of at least three damaged buildings •replacement of lost equipment for at least 3 provincial unions •establishment of a satisfactory technical assistance to rehabilitate human resources and strengthen disaster response capabilities of the organizations in all affected provinces	•PIU reports •quarterly reports sent to the Bank •reports from the special monitoring capability •PSR	•economy rehabilitates to pre-earthquake level •creation of satisfactory cooperatives •public awareness •establishment of a labor-intensive implementing organization in the PIU
Component F - Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa, and Eskisehir •reconstruction of urban and rural housing unit	•35% for urban housing reconstruction work and 15% of rural housing reconstruction work is completed •reconstruction of 6,300 urban housing units com pleted after the second year •65% of rural housing reconstruction work is completed after the second year •2,000 rural housing units completed after third year	•quarterly reports	•availability of suitable sites •close cooperation between relevant local, regional and national authorities •list of beneficiaries provided to the PIU
Component G - Rebuilding and Repair of Roads, Water, Wastewater, Electricity Distribution Networks •rehabilitation of housing units and health facilities	•20% of the repair work is completed after the first year •60% of the repair work is completed after the second year •repair of 54,600 housing units •repair of the nine selected hospitals and health facilities is completed	•quarterly reports	•no further major earthquake or aftershocks •confirmation from the MPWS that 51% of the users of each building has consented on the proposed works

Component H - Rebuilding and Repair of Roads, Water, Wastewater, Electricity Distribution Networks •repair and reconstruction of water supply and waste water networks, and municipals roads •repair and replacement of electricity distribution facilities	•30 % of damaged water supply and waste water networks, and roads is repaired and reconstructed after the first year; 80% after the second year; 100% after the third years •30 % of damaged electricity distribution facilities is repaired; 70% after the second year; 100% after the third year	•quarterly reports during the first year, and then half yearly	•no further major earthquake or aftershocks

Hierarchy of Objectives	Key Performance Indicators	Monitoring & Evaluation	Critical Assumptions
Project Components / Sub-components:	**Inputs: (budget for each component)**	**Project reports:**	**(from Components to Outputs)**
Component A – Disaster Response System and Risk Mitigation	US$419.16 million	•supervision reports •procurement reports •disbursement reports	•rapid procurement
Sub-component A1: National Emergency Management System	US$110.17 million		•establishment of an efficient implementing organization
Sub-component A2: Disaster Insurance Scheme	US$273.00 million		
Sub-component A3: Land Use Planning and Enforcement of Construction Codes	US$11.78 million		
Sub-component A4: Cadastre Renovation and Land Management	US$24.21 million		
Component B - Trauma Program for Adults	US$6.89 million		
Component C - Construction of Permanent Housing in Bolu, Yalova and Kocaeli	US$293.32 million		
Component D – Project Management	US$12.69 million		
FRAMEWORK PROGRAM			
Component E: Business Rehabilitation	US$109.72 million		
Component F: Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa, and Eskisehir	US$177.07 million		
Component G: Repair of existing housing stock	US$632.12 million		
Component H: Rebuilding and repair of roads, water, wastewater, electricity distribution network	US$139.73 million		

Annex 2: Project Description

TURKEY: Marmara Earthquake Emergency Reconstruction Project

By Component:

Project Component 1 - US$419.16 million

The primary purpose of the project is to restore living conditions in the region of Turkey that was affected by the August 17, 1999 Marmara earthquake, support economic recovery and growth, and develop an institutional framework for disaster risk management and mitigation. This annex describes the four components proposed to realize the project. Further project details and implementation arrangements are addressed in the Project Implementation Plan (PIP).

Component A: Disaster Response System and Risk Mitigation (US$419.16 million)

This component supports substantial legal, institutional and regulatory reforms and capacity building measures to upgrade the Republic of Turkey's ability to respond more effectively to natural disasters, to reduce future risk and financial liability, and to improve land use planning and building code enforcement practices. The main sub-components are:

- Sub-component A1: National Emergency Management System
- Sub-component A2: Disaster Insurance Scheme
- Sub-component A3: Land Use Planning and Construction Code Enforcement
- Sub-component A4: Cadastre and Land Management

Sub-component A1: Emergency Management and Response System (US$110.17 million)

Objectives. The objective of this sub-component is to create a comprehensive emergency management structure for Turkey that focuses on the coordination and integration of: (i) risk reduction strategies (activities that reduce or eliminate the risk to human life and property); (ii) preparedness (pre-disaster activities to develop and maintain capabilities to respond rapidly and effectively to emergencies, including, planning, training, public awareness); (iii) response (activities to rapidly assess and contain the effects of disasters, provide support to the victims, and deliver emergency services); and (iv) recovery (damage assessment, activities to restore damaged facilities and equipment, and support the economic and social revitalization of affected areas). This sub-component will finance the design and implementation of a restructured emergency management and response system at the national, provincial and municipal levels. This will be achieved through institutional strengthening activities at each level, including activities at the municipal level for disaster prevention, mitigation, planning and public awareness.

The Earthquake and Initial Response. On August 17, 1999, a severe earthquake produced extraordinary damage to the Marmara region of Turkey. Areas of peak damage include the cities and provinces of Izmit, Iznik (Nicea), Gebze, Sakarya (Adapazari), and Duzce. Damages resulted from surface fault, shaking, and subsidence and liquefaction leading to foundation and structural failures. Inadequate construction quality, building code enforcement and land use practices dramatically exacerbated the impacts of the earthquake.

The earthquake created one of the most difficult emergency management crises faced by any nation in recent history. The earthquake struck at 3:02am causing catastrophic damages over a heavily populated, wide geographic area. Communications systems linking the affected municipalities with outside agencies and organizations were destroyed. Thousands of residents were trapped in devastated buildings, including many of the officials who would be expected to provide the initial response efforts. Essential emergency

response resources were often destroyed or severely damaged. For example, in Adapazari, the damage was catastrophic. The fire brigade building collapsed and every piece of equipment was either destroyed or heavily damaged. Within the affected areas, survivors mobilized in an ad hoc way, looking for trapped friends and neighbors and providing street-side first aid. This rapid, spontaneous mobilization in affected communities was key in the immediate relief period.

The demands of this emergency would have initially overwhelmed virtually any emergency response system in the world. The Turkish disaster response system, which had performed credibly in previous events like the 1997 Adana earthquake and the 1997 floods, was unable to meet the demands created by the August 17 crisis. The scale of the crisis overwhelmed the Government's capacity to respond.

Immediately after the earthquake, three critical elements of the national infrastructure failed. The main fiber optic cable between Istanbul and Ankara was cut just east of Izmit where the cable crossed the fault. This 155 MHz SONET link formed the backbone of the telephone connections into the earthquake region. At the same time, two main substations on the electric power grid were damaged and dropped off line, causing a widespread power blackout across Turkey. Also an overpass on the motorway between Izmit and Ankara collapsed.

Confounding the situation was the widespread demand (bordering on panic) for information from the region. As the nation became aware of the quake, families outside the impacted region began to call the area to learn of the fate of loved ones. This massive demand, including widespread cellular use, caused the damaged telephone system to fail completely. When phones failed people got into their cars and drove to the region, further clogging the roads and hampering efforts to move rescue resources into the affected area.

Response efforts began immediately. In three provinces the damages were catastrophic, virtually incapacitating local response capabilities. The earthquake was felt in Ankara, Turkey's capital, leading to quick actions by the key ministries. General Directorate of Civil Defense (GDCD) officials arrived at their offices and dispatched rescue units to the affected area in trucks at 5:30am. But with jammed roads, a destroyed bridge, and the fact that the vehicles were not equipped with radios, rescuers arrived in the evening, were uncertain where to go, and, ultimately, had little effect. GDCD began to alert all the provinces and request information about roads, water supply, gas electricity, damaged buildings using three fax machines. With the degradation of the phone system, and the efforts to return messages to GDCD, this effort took three hours. The Health Ministry mobilized 139 ambulances and 110 doctors to the region by 6:30am but they were similarly hampered by clogged roads and uncertainty where to go.

By 4:30am the General Secretary's crisis center in the office of the Prime Minister (PMCC) was initially organized, with the crisis monitoring committee in place by 6:30am. Key ministries established crisis centers around Ankara and regionally. However, all communications to the affected area was down by this time. The only information came from media teams in the devastated areas. The PMCC directed Turkish Telecom to send satellite telephones to the affected area. These were sent by road and arrived 17 hours after the quake.

With the arrival of satellite telephones, repair of the severed fiber optic cable, restoration of electric power, communications began to return to the affected region within 48 to 63 hours after the quake. By this time critical rescue opportunities were lost and the response effort was in disarray.

Organizational Structure for Emergency Management in Turkey. Law No. 7269, Measures and Assistance to Be Put Into Effect Regarding Natural Disasters Affecting the Life of the General Public, sets forth the fundamental components of disaster management in Turkey. The law designates the Ministry of

Public Works and Settlement (MPWS) to be in charge of disaster response. The basic principle of the law is to enable the Government to cope with disasters at the provincial level through what is designated as the Provincial Committee.

Turkey is divided into 79 administrative units, or provinces, which are governed by administrators appointed by the central Government. A provincial disaster committee is composed of senior provincial officials from relevant ministries and departments like civil defense, health, education, and includes the mayor (an elected official) and the Red Crescent Society. In addition there are approximately 840 sub-districts in the provinces and some 2,700 municipalities.

Disaster management in Turkey is highly centralized. Local authorities administer directives from MPWS; governors do not have an operational role, but they are expected to coordinate and mobilize the resources of other agencies. Mayors have little direct authority and responsibility for disaster management. Small-scale disasters are to be handled at the district or sub-district level. If the disaster exceeds capabilities at that level, the provincial governor becomes involved. If it is a major event, representatives of the ministries of the central government become involved and establish crisis centers. If there is a national-scale natural disaster (like the Marmara earthquake), a crisis center is established in the office of the Prime Minister that includes senior representatives of at least 15 ministries, including the military.

There is no single national coordinating agency for disaster management in Turkey, though the aforementioned law sets forth a plan of action that is entrusted to MPWS. Each ministry is has a unit responsible for disaster management rather than there being one national coordinating agency with proper legal mandate and authority. Rescue and relief operations are the direct responsibility of the provinces or districts, with assistance provided by the central government; the central government is responsible for reconstruction and rehabilitation. The Red Crescent Society, the General Directorate of Civil Defense (GDCD in the Ministry of Interior), and the military also play a significant role in rescue and relief operations. Locally elected governments are responsible for mitigation, including building code enforcement and land use planning.

The MPWS is the most heavily involved in disaster management, including establishing policies, assisting in training of government personnel in disaster management. The enabling law sets forth a basic structure, and each ministry has a specific plan, but there is no explicit national emergency response plan that sets forth how all the elements of the Government's response system are to be coordinated at each level.

The GDDA, which was founded in 1964, is divided into seven major departments: Earthquake Research, Disaster Damage Assessment and Survey, Emergency Relief and Machine Support, Planning and Indemnification of Affected Populations, Disasters Fund Administration, Temporary Housing, and Prefabricated House Construction. The GDDA has approximately 1,200 personnel, including planners, architects, geoscientists, architects and engineers.

The GDCD has, on paper, some 3,000 personnel, with approximately 300 assigned in Ankara. The GDCD rescue and relief teams, which are assigned nationwide depending on population (there are approximately 750 in Istanbul), are expected to intervene at times of disaster to provide immediate assistance, though their level of training, organizational structure, and equipment is problematic. The GDCD administers the operations of the Civil Defense College in Ankara that trains civilian government employees in relevant fields.

An interesting feature of Law No. 7269 is the establishment of the "Disasters Fund," which is relatively free of the customary constraints associated with expenditures from the national budget processes. The

fund is intended to provide quick support for agencies involved in disaster relief. A second fund, called the "Earthquake Fund," was established in 1971 using revenues from taxes on tobacco and alcoholic beverages. These measures support research within GDDA; a similar fund called the Civil Defense Fund has also been established. General pressures on the national budget have, however, significantly impacted the allocation of these funds to the general directorates for their intended purposes.

International Models for Emergency Management. In reviewing the emergency management systems in various nations that have a substantial earthquake risk, the following common elements have been identified:

- There is a strong emphasis on developing municipal and provincial capabilities
- There is a single national agency charged with coordination of preparedness, planning, response and recovery activities that is directly linked either to the Executive branch of the government or the Ministry of the Interior
- There is a national risk reduction strategy that identifies risk and mitigation priorities; this strategy is developed through close cooperation between the technical communities in the earth sciences and engineering and emergency management
- The national emergency management coordinating agency has a dedicated facility for managing disasters and an aggressive national training program
- There is a national emergency plan that details key functions and responsibilities
- There are common management systems for every function and level responsible for the implementation of emergency tasks
- There is a strong emphasis on modern concepts of management of information, priority setting and resource allocation and tracking. Effective use of these management principles facilitates the efficient allocation of relief to areas impacted by disasters. Systems for informing rapidly and continuously informing the public regarding at time of disaster what has occurred, what actions the government is taking, and what actions the public should take, based on modern communications principles, reassure the public and enforce the role and responsibility of the Government at every level
- There is increasing use of management information systems, including geographic information systems, to support national, local and provincial efforts, including hazard and risk identification, methods to rapidly estimate the impacts of disasters, accumulate and aggregate field reports from affected jurisdictions and the public into a comprehensive portrait of what has occurred
- Each nation has an aggressive public education and hazard awareness program to inform residents regarding the nature of risk and appropriate actions to take at the time of an emergency.

Assessment of Alternative Strategies. The MEER project team has conducted a careful analysis of the alternatives available to achieve the objective of enhancing the capacity of the Government of Turkey to manage the challenges of large-scale disasters occurring in densely populated regions. The relative merits of several strategies have been considered, involving both current ministries and the potential for assigning the responsibility to, for example, the offices of the Deputy Prime Minister.

Currently, the responsibilities for the functions that comprise emergency management as practiced internationally in high-risk areas are divided principally between the GDDA and the GDCD, which are housed, respectively, in the Ministry of Public Works and Settlement and the Ministry of the Interior. To achieve the objective of comprehensive emergency management there should be a fusion of the activities of these two agencies as well as, potentially, activities in other ministries that are integral to the functions of comprehensive emergency management.

After careful assessment, including interviews with officials, analyses of documents, recent reports and

studies and consideration of recent disaster experiences, the Bank recommends that the functions of comprehensive emergency management be assigned to a new agency, the Emergency Management Agency of Turkey (EMAT), housed in the Ministry of the Interior.

There are several factors that informed this conclusion: there is a direct link between the central Government and the provincial level through this ministry, promising the potential for enhanced coordination between the levels of government; the training function of the GDCD, which must be enhanced, can serve as the basis for an intensive training efforts; there is an operational orientation to many of the functions contained within the ministry that could help inform aspects of the activities during a major disaster; there is significant international precedent for housing the emergency management function within a Ministry of the Interior.

As detailed in the subsequent sections of this document, significant challenges will be faced in accomplishing the objective of creating EMAT. The technical capabilities and resources of GDDA - and perhaps other ministries - need to be integrated into the new EMAT operation, including vulnerability assessments, reliable information on the consequences of past disasters and a comprehensive information base that outlines the potential impacts of future disasters and informs the planning, training and exercising to meet the potential demands. Current plans, which are highly general in nature, need to be tailored to specific risk assessments and these assessments need to inform the planning at the national, provincial and local levels.

Within the GDCD there are also important challenges to be faced. The GDCD is, on balance, narrowly focused on traditional preparation for armed hostilities, not natural disasters. Its facilities and equipment are outdated, and there is an urgent need to have its personnel become familiar with and trained in contemporary concepts of disaster management. Technical information in risk assessment and modern management information systems need to be utilized. Risk reduction strategies need to be understood, encouraged and monitored. Public awareness campaigns need to be conducted throughout the population. Cooperative relationships with municipal governments, the private sector and NGOs need to be fostered and maintained.

The activities defined in this project will enhance the GOT capacity to manage emergencies in a manner consistent with common international practices as outlined above.

Description. The sub-component will finance the development of: (i) a strategic plan to create and establish a comprehensive emergency management agency equipped with an operations center and communications and data networks; (ii) a national earthquake mitigation plan; (iii) a comprehensive emergency management training and exercise program; (iv) a search and rescue capacity building program; (v) pilot activities to enhance the municipal emergency management system; (v) replication of the pilot activities on a regional scale; and (vi) a public awareness campaign on appropriate measures to take before, during and after an earthquake.

The pilot activities will be implemented in five municipalities. In addition to specific criteria to be developed in cooperation with the GOT, the following considerations will apply in selecting the five pilot municipalities:

- Evidence of commitment by local officials, private sector representatives, educational institutions and NGOs to emergency management and risk reduction, including prior projects or proposed initiatives in areas related to emergency management and disaster resistance, and evidence of successful completion of prior projects related to community development

- Selected areas should be in the area of highest seismic risk, considering both the probability of occurrence of damaging earthquakes as well as population, property and special facilities at risk
- Municipalities of varying sizes should be selected so as to enhance the lessons learned from the pilot activities and the transferability of the initiatives to other municipalities in Turkey.

A detailed description of the activities follows.

Comprehensive Emergency Management Agency (US$78.85 million). As the initial step, the Government of Turkey shall, under the provisions of its authority during this emergency period, (i) issue a decree establishing the Emergency Management Agency of Turkey (EMAT), (ii) repeal Law No. 7269-1051 and the related statutes or regulations.

In cooperation with the Ministry of Interior, this sub-component will support the development of a strategic plan that details the steps to be taken to create and implement the functioning of the Emergency Management Agency of Turkey. This plan shall include, but not be limited to:

- An analysis of existing laws and regulations governing disaster affairs and civil defense, and any related functions, and drafts of proposed changes to laws and regulations required to create EMAT to be presented to the Ministry of the Interior for implementation by the GOT
- An analysis of current functions conducted by relevant Ministries that relate to the purposes and functions of EMAT and recommendations on which functions, personnel and resources should be transferred to EMAT, along with an implementation timetable
- Statement of the mission, goals, responsibilities, authorities and human resources requirements of EMAT necessary to achieve the vision of an effective, comprehensive emergency management agency devoted to mitigation, preparedness, response and recovery

In order to familiarize Turkish officials with current practices in comprehensive emergency management as practiced in other high-risk areas of the world, the sub-component will support the organization and conduct of a four-day emergency management symposium. This symposium will draw on international emergency management professionals to advise representatives from the national, provincial and municipal levels from the five selected municipalities on the features of contemporary, comprehensive emergency management systems. Following this symposium, a manual will be produced on the "Essential Principles of Comprehensive Emergency Management" summarizing lessons learned from the Symposium for use by officials in implementing EMAT.

For the implementation of the agency, the sub-component will finance technical assistance to be provided to EMAT officials in designing management, organizational, administrative, functional programs and processes. Consultants will identify problems and propose strategies to facilitate the creation and foster the effectiveness of a new organizational entity. A national emergency response plan will be designed to specify the operational procedures of EMAT during emergencies, including alerting, warning, activation, emergency declaration standards, the criteria to be used by EMAT to initiate national government involvement in an emergency, operational systems to be used in the EMAT emergency center, emergency public information strategies and procedures.

EMAT will be equipped with an operations center, that will provide a central location in the national government for data and information collection, analysis and dissemination. This facility will be used to promote prevention actions around Turkey and as well support national, provincial, and municipal response and recovery actions. The GOT will provide the site and bring the necessary infrastructure to the site, expected to be about 100,000 square meters, and the sub-component will finance operations and

maintenance (O&M) costs for one year after completion of construction. For planning purposes, it is anticipated that these costs would be about US$750,000 per year.

Communications and data networks for emergency management will be installed to support the full range of EMAT tasks. The communications and data systems will serve to exchange information among the levels of Government, with NGOs, commercial, and industrial groups that provide aid in the response to disasters. The systems will also aid in the dissemination of information to the general public of Turkey. The networks will be designed to support the whole country; however, it will be implemented only in the pilot municipalities. It is anticipated that other sources of funding will be sought to extend the network to the whole country. The estimated cost for the entire network for the whole country will be about US$150 million. The networks will be designed to be capable of withstanding the effects of earthquakes (or other disasters) without losing the ability to communicate. The emergency management data network (EMDN) will enable information to be provided to the general public of Turkey on the nature of emergency response and management, aid in the education of the public on there role in emergencies, and facilitate the status updates on going emergency response. The data network will use the existing Turkish Telecom network, strengthened by microwave, dedicated fiber optic links, radio links, and satellite links. These additional links will strengthen the network's ability to survive and respond to disasters. The emergency management communications network (EMCN) is a radio network that will provide communications between various operations centers and response forces in the field. It will use Very High Frequency (VHF), Ultra High Frequency (UHF), radio transceivers. Special attention will be paid to the areas that will be included in the pilot activities. Those municipalities and provinces will be surveyed to determine the nature of existing computer equipment, the requirements for additional equipment, training and support needs.

EMAT will have to collect and process other data that are critical to its operation, e.g. accurate maps. For these purposes, it will use the Geographic Information Systems (GIS). The operations and maintenance costs will be covered by the program for one year and then by the GOT after that. It is estimated that these costs are US$125,000 per year.

The most important information for emergency response is accurate timely seismic data. One major problem with the response to the Marmara earthquake was the initial prediction of a much weaker event. This report was due in part to the saturation of analogue seismometers that were set to observe lower magnitude events and went full scale for the Marmara earthquake. The current seismograph array in Turkey is very sparse and uses a number of older analogue instruments. The array needs to be upgraded to digital instruments and additional strong motion sensors should be added. Operations and maintenance costs will be covered by the program for one year and then by the GOT after that. It is estimated that these costs are US$650,000 per year.

EMAT will also be equipped with an off-the-shelf model for rapid loss estimation. This model should be able to use earthquake seismic data and building stock databases to predict accurate and timely earthquake losses. Operations and maintenance costs will be covered by the program for one year and then by the GOT after that. It is estimated that these costs are US$75,000 per year.

National Earthquake Mitigation Plan. The sub-component will support the development of a National Earthquake Mitigation Plan, to be jointly prepared by the Government in cooperation and coordination with the five pilot municipalities. The purpose of the national earthquake mitigation strategy is to ensure that there is a common understanding of the earthquake risk, and that institutional responsibilities and programs provide a coherent framework for comprehensive earthquake mitigation at the national, provincial and municipal levels and within the private sector, that comprehensive technical information is provided in support of earthquake mitigation activities, and that the roles of the public and private sectors are

coordinated.

A National Earthquake Mitigation Policy Coordinating Committee will be established and staffed by the Risk Reduction Directorate of EMAT. It will include representatives of the pilot provinces and municipalities, the General Diractorate of Technical Research and Development, the General Directorate of Insurance, the State Planning Organization, the General Directorate of Highways, the Turkish earth sciences community, the Turkish structural engineering community with expertise in earthquake engineering.

Comprehensive Emergency Management Training and Exercise Program and Search and Rescue Capacity Building (US$23.67 million). In coordination with the Ministry of Interior, the sub-component will develop and implement a comprehensive training and exercise program for EMAT, support ministries involved in the National Emergency Response Plan, provincial and municipal staff from all functions involved in emergency management, including first responders, operational, logistical, planning personnel and relevant NGOs, volunteer organizations and the public. The implementation of the training and exercise program will be a "train the trainers" initiative to be conducted at the national, provincial and municipal level.

Because of the importance of search and rescue operations in the immediate aftermath of major earthquakes, the sub-component will support a program to develop a search and rescue capacity in Turkey, through the use of international and national consultants to design the program, conduct the initial training of rescue teams, monitor the on-going training efforts, and the purchase of equipment to conduct search and rescue operations. The program will include comprehensive training for three levels of search and rescue capability: elite training and equipping for specialized teams that will conduct the most complex and dangerous operations (8 teams to be trained and equipped); training and equipping for light and medium rescue capabilities by the fire services (6 teams to be trained in the five pilot municipalities); community emergency response teams to be trained and equipped (20 teams in each pilot municipality). At every level, disbursement of the equipment to be used as part of the search and rescue programs will be contingent upon successful completion of the required training program and certification of competency according to the standards developed by the program.

Pilot Activities to Enhance the Municipal Emergency Management System (US$1.95 million). Emergencies occur in specific communities, and experience has demonstrated that the most fundamental effectiveness of any emergency management system depends upon the ability, organization, skills, and commitment of a community - its government officials, private industry, NGOs and residents - to prepare for emergency situations. These efforts must be community based and managed, but their efforts must be consistent with the national and provincial systems, standards and programs. In order to enhance the capacity of the municipal level in Turkey to prepare for, respond to, and recover from emergencies, and to understand and more effectively manage the risks that they are exposed to, the sub-component will support the creation of pilot activities in five selected municipalities for intensified measures designed to enhance the capacity of the community to deal with emergencies and manage risks.

The project will support consultants, working with municipal officials to establish an emergency management pilot program in the selected five municipalities. The oversight of the program in each municipality shall be guided by an Advisory Board comprised of representatives of the municipal government, the provincial government in the area, the emergency services (fire, police, medical), NGOs, officials involved in land use decisions and the enforcement of building codes, educational institutions, the media and volunteer organizations.

Specific risk profiles for each selected municipality will be developed, including geotechnical information, general assessments of the building inventory, lifelines, schools, hospitals and related medical facilities response resources available to provide support during emergencies, special hazards located in the community and other information that is considered important by the Advisory Board to understand the nature of the earthquake risk faced by the community. On the basis of this risk profile, the municipality will develop a mitigation strategy, consistent with the priorities set forth in the National Mitigation Strategy, for reducing the risks to the community over a five-year period, and a municipal emergency response plan, consistent with the principles and organizational systems established in the National Response Plan, so as to promote the ease of coordination between the national and provincial levels.

The sub-component will support the development of community awareness programs, including the development of risk awareness information for families, schools, small businesses and media.

Towards the end of the first two years of implementation of the project, the initiatives undertaken under these pilot activities will be evaluated to determine lessons learned and recommendations, so that the experiences from the pilot areas can be adopted on a broader scale in high risk regions of the country.

Replication of the Pilot Activities on a Regional Scale (US$4.09 million). Based upon the recommendations contained in the report summarizing the lessons learned from the pilot activities, the project will support the transferability of the preparedness program from the pilot municipalities to other ten high-risk municipalities in the country. These additional ten municipalities will be selected according to the eligibility criteria specified for the selection of the initial five municipalities.

Public Awareness Campaign (US$1.24 million). The awareness of the public regarding appropriate measures to take before, during and after an earthquake is an essential element of a comprehensive emergency management program. Evidence from other earthquake-prone regions suggests that a well-prepared citizenry can make a significant difference in moderating the impacts from earthquakes. Such campaigns should include information on understanding the nature of the earthquake risk, personal preparedness and protective measures, for family and individual preparedness, materials for children and special populations, and actions to take immediately following an earthquake. The sub-component will develop a national public awareness strategy, program and materials regarding the earthquake risk. The program should make information available through a variety of media (print, television, radio, internet) and targeted for specific populations (e.g. school children, worksites, community groups). The strategy to be prepared should be developed following an evaluation of the efforts in other earthquake risk areas of the world. The campaign will first be undertaken in the pilot municipalities and, following an evaluation of the effectiveness of the initial campaigns, any recommended changes made prior to dissemination on a nationwide basis.

Project Monitoring (US$0.37 million). The sub-component will support consultants to provide an independent review of project implementation and, in cooperation with PIU, its local offices and the General Director of EMAT, provide quarterly reports and recommendations for needed corrective actions to implement the vision of establishing a comprehensive emergency management agency in Turkey.

Expected Output. The expected output is the creation of a comprehensive emergency management agency equipped with an operations center and communications and data networks, and with trained staff in emergency management, the development of a national earthquake mitigation plan, strenghthened search and rescue capacity, the replication on a regional scale of lessons learned from the pilot activities on municipal emergency system, and increased awareness among citizens of the measures to be taken before, during and after an earthquake.

Costs. The costs of this sub-component are listed in table 1.

Table 1: Costs of the Emergency Management and Response System

	Bank Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Comprehensive Emergency Management Agency and National Earthquake Mitigation Plan	68.03	10.82	78.85
Comprehensive Emergency Management Training and Exercise Program	20.37	3.30	23.67
Pilot Activities to Enhance the Municipal Emergency Management System	1.67	0.28	1.95
Replication of the Pilot Activities on a Regional Scale	3.52	0.57	4.09
Public Awareness Campaign	1.05	0.19	1.24
Project Monitoring	0.37	0.00	0.37
TOTAL	**95.01**	**15.16**	**110.17**

Financing. The costs of the described activities will be 100% Bank financed except for taxes. In the case of the communications and data networks and the other data collection facilities used for equipping EMAT, it is expected that the GOT will finance the operations and maintenance costs for the last two years of implementation of the project.

Implementation. The Ministry of Interior will be the leading implementing agency. The PIU will be responsible for procuring the technical assistance, works and equipment for implementing the activities under this sub-component. The consultants hired for monitoring and evaluating progress implementation will coordinate with the PIU and its local offices.

Flow of Funds. The PIU will authorize disbursements of funds against submissions of invoices.

Sub-component A2: Disaster Insurance Scheme (US$273 million)

Executive Summary

The Risk. Turkey is exposed to severe seismic risk with the annual expected property loss estimated at around US$800 million. In the recent Marmara Earthquake, the death toll reached over 17,000, with physical damages being estimated between US$4-7 billion or around 3% of GNP. Istanbul is the worst risk area, with an intensity VIII event expected to cost over US$25bn. Only 15% of insurable domestic residences in the Istanbul metropolitan area are insured, and outside Istanbul, a much lower proportion. The current Disaster Law guarantees the replacement of damaged residences at a nominal cost thus providing no effective incentives for risk management at the individual level and inhibiting the development of a national risk management strategy. This means that the level of risk is increasing dramatically, largely due to uncontrolled building in the Istanbul conurbation with concomitant

increases in GOT contingent fiscal liabilities.

Existing Risk Transfer Capacity. The local insurance market is very fragmented, highly competitive and has a low capital base, partly reflecting high inflation protected returns available from lower risk activities. The prospects of the local industry expanding its coverage, if earthquake insurance were made compulsory, are limited due to its low financial capacity and the reluctance of leading international reinsurers to provide more capacity to the industry in its present state.

The Government Earthquake Insurance Program. The Government has proposed an Earthquake Insurance Program to transfer risk and limit its financial exposure to future natural disasters, as had been done in other countries such as California and New Zealand (amongst others). The key objectives as defined by the General Directorate of Insurance (GDI) as follows:

- Ensuring that all real estate tax paying domestic dwellings have earthquake insurance coverage
- Reducing government fiscal exposure to recurrent earthquakes
- Transferring catastrophic risk to the international capital markets (including reinsurance)
- Encouraging risk mitigation and safer construction practices through the insurance mechanism

Under the Program, compulsory earthquake cover will be introduced for all real estate tax paying dwellings. The cover will be provided by the Turkish Catastrophic Insurance Pool (TCIP, or Pool), which would offer coverage up to US$25,000 for each dwelling and US$3,000 for contents. For equity, claims settlements payments will be subject to "average". Coverage in excess of TCIP coverage could be obtained on a voluntary basis from private insurance providers.

Approved domestic insurance companies will act as distributors of TCIP policies, and private loss adjusters will be used in claim settlement. TCIP will be the sole-source provider of catastrophic insurance and will be set up by a Government Decree with its own Board of Directors and management. Enforcement will be the responsibility of local tax authorities. As reserves build up, they will be held in segregated trust or escrow accounts, and 50% will be held abroad. TCIP will initially charge a flat premium of US$50/dwelling, but in 2 years will move to premiums based upon its earthquake loss and pricing models.

The successful national reinsurance company, Mille Re has been appointed by GOT as TCIP Management Company. Milli Re's Board will be responsible for governance and major policy issues including investment management, premium structures and risk transfer (mainly a reinsurance decision). Milli Re will manage all TCIP insurance operations under procedures laid down in the Operational Guidelines (which are subject to prior approval by the World Bank) and policies of the TCIP Board. Outsourcing of major business functions to the private sector will be widely used.

Proposed Insurance Component in the MEER. While the Bank has made several emergency and rehabilitation loans to Turkey, this type of lending has severe limitations. Given Turkey's severe exposure to earthquakes, excessive government reliance on Bank retroactive lending and emergency donor relief can no longer be sustained. Efficient management of catastrophic risk can only be achieved through risk transfer to third parties outside the country, building up national reserves, and providing the incentives for reducing the level of earthquake vulnerability through risk-based pricing and TCIP supported risk management efforts.

The political momentum created by the Marmara disaster and sustained by concern for the plight of people still exposed in tents, together with the brief legislative chance for fast-track legislation until the

end of this year, provides an opportunity to create the institution and amend the Disaster Law, which is not likely to occur again until the next major earthquake. In this context, Bank support is essential for TCIP to be created. TCIP earthquake cover up to US$25,000 limit will allow and encourage private insurers to write earthquake policies in excess of TCIP coverage and there is general support for the concept from the local insurance sector.

The insurance component of the MEER Project will finance two major activities: (i) Technical assistance to the GDI in establishing TCIP with operational efficiency and financial soundness; and (ii) Initial capitalization of TCIP through a contingent loan facility.

A US$23 million technical assistance in insurance matters will result in quantifying risk, exposures and vulnerabilities, developing optimal financing structures and providing legal support to draft Operational Guidelines, and designing insurance Policies and IT systems, which will be installed for monitoring exposure and for handling premium and claims transactions. Modeling of earthquake losses and pricing will be undertaken, augmented by structural engineering research. The project will develop systems that are sufficiently robust to ensure that all premiums taken in on its behalf by insurance companies are promptly dispatched in full to TCIP, and both the premium collection and claims settlement systems will be subject to audit and spot checks. Training will be provided for TCIP and insurance company staff.

Reinsurance and/or capital markets risk transfer products will be purchased so as to transfer as much of the risk as is economical away from TCIP, using a reinsurance intermediary which will be chosen through an ICB procedure. When premiums build up within TCIP, they will be invested. At least 50% of these investments will be made in foreign assets, with the invested funds held in segregated trust or an escrow accounts. Assets will be managed by a professional asset management firm, selected through ICB. Considerable public education will be required and funding will be provided under both the TEFER and the current project.

TCIP will also contribute to the enforcement of building codes through a commercial arrangement with independent engineering firms that would be retained to certify the construction quality of new residential dwellings to be insured under the Program.

Uncommitted Contingent Loan Facility. A US$100 million sub-component provides contingent funding for repair and reconstruction through claims payments in case of an earthquake. It will be provided in the form of an uncommitted contingent loan facility. The balance of the risk capital requirements will be funded through reinsurance and the build-up over time of catastrophic insurance reserves from premiums net of expenses and risk transfer costs. The disbursement of the proposed Bank facility would be contingent upon: (i) progress in regulatory reform; (ii) satisfactory progress in the technical work on the launch of TCIP; (iii) the purchase of reinsurance that would ensure no gaps in the capital structure; and (iv) presented evidence of insurance claims.
The results of the preliminary estimates of the initial capitalization requirement for TCIP, show that if no major event takes place, the risk of its insolvency would diminish to single-digit probabilities over the next 10 years. While the scheme will be mandatory, it will take time to achieve deep market penetration. Current projections point to a 30% penetration after a year and up to 60% after 5 years of TCIP operation.

Major Risks and Benefits of Component. The component faces four main risks. The first is that a major earthquake with impact in excess of the Marmara event occurs in early years of TCIP's existence. The second relates to the enforcement of the compulsory insurance for private dwellings and

the collection and transmittal of premiums to TCIP. The third relates to the cost and availability of reinsurance and capital market support during the early build up phase. Finally, there is a danger of the Government being unable to resist political pressures to turn TCIP into an indiscriminate liquidity conduit to victims of a major earthquake.

The launch of TCIP would represent a major breakthrough in reducing the adverse financial and economic exposure of Turkey to catastrophic events, and would also increase the extent to which homeowners manage the risk to their own properties through a purchase of insurance from the private insurance sector (in excess of that provided by TCIP.)

Bank Financing. The total World Bank financing under the component is estimated at US$123 million, including a contingent loan facility amounting to US$100.0 million to finance insurance claims, premiums for reinsurance and excess of loss contracts and re-insurance intermediary services for the total of US$20.8, technical assistance in the establishment of TCIP, and incremental operating costs of US$2.2 million. The overall annual operating expenses of TCIP for the first year are estimated at around US$10 million net of reinsurance cost and will have to be exclusively financed by the Turkish Government. In addition, the Government would make a US$0.1 million in-kind contribution toward the operating costs of the TMU, and pay any taxes/duties on locally procured goods or services.

The Bank will finance 100% of eligible claims, up to US$17 million, to the extent that accumulated premiums are insufficient to fund them, up to the attachment point of reinsurance of any kind. After that the Bank financing of the retention will be reduced to 40%, with the remaining 60% to be either financed by GOT or from other sources, mainly through premium income generated by TCIP. If the losses during the initial years are greater than the funds built up in the pool, together with any reinsurance or excess of loss reinsurance cover, the Bank will finance 100% of claims, which cannot be met either by TCIP itself or its reinsurers.

The Implementation Agency for the Project will be TCIP; implementation will be commenced by TCIP Management Unit set up within the GDI; and Milli Re will carry out operational management of the Pool. The Government has also designated the TEFER PCU to provide all required procurement services.

Applications for withdrawal under TCIP component will need to be accompanied by certification that conditions have been met. At the end of five years, if the loan has not been completely drawn down, the balance may be drawn to develop TCIP capacity to insure against disasters of larger scale than the Marmara earthquake.

Country's Economic Exposure to Earthquakes. Much of Turkey is exposed to severe seismic risk with the annual expected property loss estimated at around US$800 million. In the century up to 1995, sixty-six earthquakes of intensity VIII or greater were recorded. Approximately 80,000 deaths resulted (including 30,000 in Erzincan in 1939). Since 1995, the main seismic shocks have been the Adana-Ceyhan earthquake in 1998, which is one of the events that led to the 1998 World Bank Turkey Emergency Flood and Earthquake Recovery Project (TEFER), and a recent even more devastating Marmara earthquake, which struck on August 17, 1999. The death toll from the Marmara earthquake alone is estimated at over 15,829 with over 43,953 wounded, while physical damages may be up to US$10 billion or around 3% of GNP. The two previous shocks (Dinar in 1995 and Erzincan in 1992) are estimated to have had direct fiscal costs to the Government of Turkey amounting to approximately US$1 billion. All three of these were intensity VII earthquakes or higher.

Recent modeling work indicates potential direct economic costs of over US$25 billion for the Istanbul area in the event of an intensity VIII event. While the return period for earthquakes for the Istanbul area is estimated at 1,000 years for intensity VII to VIII earthquakes, and 100 years for earthquakes of intensity V, recent work indicates that the probability of these events increases with duration since the last event. It is worth mentioning that it has been over 100 years since the last earthquake of intensity V occurred in Istanbul, with the dormant fault line being just miles away from the city in the Marmara Sea.

To compound the situation, the Turkish economy is known for its high geographical concentration, with the Istanbul metropolitan area accounting for over 50 percent of the national GDP. While there is some diversification of commerce and industry towards the Eastern regions, Istanbul's earthquake exposure will remain easily the peak risk in Turkey for the foreseeable future. Major infrastructure projects currently underway in these zones (earthquake zones 1, 2 and 3) include the Izmit Water Supply Project (US$635 million) and the Izmit Bay Bridge (US$1 billion). Over the last decade, the population of the city has increased from 7.3 million in 1990 to over 11 million, with many of the new arrivals occupying uncertified and uninsurable properties, sometimes built (often at night to avoid detection) in valleys and on unstable land. Most of these structures are likely to collapse under the first impact.

Current State of Property Catastrophic Insurance. Despite a great seismic and flood exposure, less than 15% of insurable domestic residences in the Istanbul metropolitan area are insured, with a higher percentage applying to commercial property. Outside Istanbul, the insured base is much lower, with estimates as low as 2% of domestic dwellings being quoted. Among the main reasons for the low penetration are: (1) strong disincentives to insure against catastrophic risks embedded in the provisions of the current Disaster Law, which guarantees the replacement of damaged residences at a nominal cost; (2) lack of knowledge of the benefits of insurance, compounded by cultural factors; and (3) poor claims performance of some insurers and the heavy retention (in the form of coinsurance and deductible) required of the policyholder for the earthquake risk (up to 20% of loss, plus 5% of sum insured).

While currently there are 41 companies underwriting property and engineering coverages (including earthquake), the market is very fragmented, with the top 6 companies writing just over 50% of earthquake policies. The market is highly competitive. The industry is characterized by (1) low capital base (insufficient reserves) for writing fire and earthquake coverage; (2) lack of detailed hazard maps at the local level and sophisticated risk assessment methods, which causes high uncertainty with regard to the probability of a specific loss and its magnitude; (3) insufficient technical expertise and shortage of qualified personnel; and (4) low retentions of earthquake risk, with up to 90% of the risk being ceded to reinsurers. Up to 32% of the quota share of premiums passed on to reinsurers is rebated back to the insurers in the form of the exchange (business) commissions. In the absence of this reinsurance based ' washing' of earthquake premiums, two thirds of all such premium income would have to be set aside in catastrophe reserves under the current law, and together with associated investment income held for 15 years before being released to accounting profit.

Underwriting standards have been deteriorating as companies fight for premium income. The results of this fierce competition are particularly obvious in the case of fire premiums, which are priced only nominally, due to the bundling of earthquake and fire covers together in one policy. As a result, the fire premiums are being subsidized from the proceeds of the exchange commissions for a regulated earthquake cover rather than being used to accumulate reserves against the eventuality of an earthquake. The low capital base forces most domestic insurers to cede up to 90% of risk to re-insurers. As it is, total accumulated industry earthquake reserves for residential properties of 12/31/98 amounted only to

approximately US$6 million (current conversion) against an annual earthquake premium income from homeowners of US$23 million. These low risk retentions effectively make local insurance companies act as distributors and claim settlers rather than risk carriers. The small capital base of the industry can also be illustrated by the size of its consolidated balance sheet, which is similar to that of a middle-size bank.

As the world reinsurance markets have passed through a cyclical low, intense competition for Turkish business has led to low prices for excess cover, and high commissions for quota share, a proportional reinsurance treaty which is generally arranged for the first layer of risk. In such a reinsurance treaty the insurers' obligation is proportional to the percentage retained and the remainder being paid for by the reinsurer. The Marmara event in itself does not seem to have made a large impact, but the attitude of international reinsurers is clearly hardening because of the perception of inadequate returns and poor underwriting standards by primary insurers. This is leading to pressure for reduced commissions and the reduction of cession limits. Unless companies are able to significantly improve their underwriting standards and price fire risk appropriately, they will come under increasing pressure.

The prospects of the local industry expanding its coverage, if earthquake insurance were made compulsory, are limited due to its low capital base and the reluctance of leading international reinsurers to provide more capacity to the industry in its present state. Well-founded concerns over Turkish building standards are an aggravating factor. A solution to the current lack of earthquake coverage through a rapid expansion of the private sector does not appear feasible, at least in the immediate future, due to the reasons described.

The Government Earthquake Insurance Program. In these circumstances, the Government has proposed an Earthquake Insurance Program. The Government proposal aims at establishing catastrophic risk transfer and risk financing mechanisms and institutions that can limit its financial exposure to natural disasters in the future. The Program draws on international experience of successful government efforts in raising the financial preparedness for major catastrophic events. As shown by the successful experience of state-sponsored (and in some cases state-administered) catastrophe insurance pools in Norway, France, Spain, New Zealand, California and Florida, catastrophe risks can only be funded through a certain degree of compulsion. A similar mechanism is proposed in Turkey, if sufficient earthquake reserves are to be accumulated on an *affordable* basis, while still reflecting risk levels (see Insurance Technical Paper X in PIP for detailed commentary on the program).

The New Zealand and California Earthquake Authorities are the prime examples. Responding to a market failure to provide adequate insurance coverage for residential properties in earthquake-prone areas, these institutions found ways to establish affordable, and yet actuarially sound, pricing of such insurance products. Both institutions have transferred away large portions of risk using reinsurance of different kinds, arranged for stand-by liquidity facilities, and both have considered the use of capital market instruments.

The key objectives for the proposed Program have been defined by the General Directorate of Insurance (GDI) as follows:

- Ensure that all real estate tax paying domestic dwellings have earthquake insurance coverage
- Reduce government fiscal exposure to recurrent earthquakes
- Transfer catastrophic risk to the international capital markets (including reinsurance)
- Encourage risk mitigation and safer construction practices an insurance mechanism

Under the Program, *compulsory* earthquake cover will be introduced for all real estate tax paying dwellings. The cover will be provided by the Turkish Catastrophe Insurance Pool (TCIP, or Pool), which would offer coverage up to US$25,000 for each dwelling and US$3,000 for contents. To ensure that

owners of expensive properties pay a fair premium and to enable the private insurance sector to expand, claims' payments will be subject to "average" (see Insurance Technical Paper VI in PIP). "Average" is a method through which claims are scaled down in such a proportion so as to avoid insureds moral hazard. The payouts to policy holders are calculated according to the following formula:

*Claims Paid = (Maximum Sum Insured/ Property Value at time of disaster) * Losses*

The result of this process ensures that owners of underinsured property have an incentive to purchase voluntarily a top-up cover from the private sector. Coverage in excess of TCIP coverage could be obtained on a voluntary basis from private insurance providers.

Approved domestic insurance companies will act as distributors of TCIP policies, and will be paid an appropriate fee. Claim settlement will be the responsibility of TCIP and will be based on assessments by independent private loss adjusters appointed by the TCIP to act on its behalf.

TCIP will be the sole-source provider of catastrophic insurance. The Pool will be set up by a Government Decree by December 1999 as a separate, state-owned and controlled legal entity, with its own Board of Directors and management. The Board will have representatives from the government, the private sector, and the academic community.

Enforcement will be the responsibility of local tax authorities. As reserves build up, they will be held in a segregated trust or escrow account and managed in accordance with international best practice.

TCIP will establish its premiums based upon its earthquake loss and pricing models, and will provide its retail distributors of its policies with a premium schedule agreed in advance. TCIP's pricing models would account, *inter alia*, for seismicity, local soil conditions, and construction type and quality.

The national reinsurance company, Mille Re, has been appointed by GOT as TCIP Management Company, subject to approval by Milli Re's Board. The company was formed in 1929 based on compulsory cession by Turkish insurers. It has a successful track record as the manager of several pools, including FAIR (Federation of Afro-Asian Insurers and Re-insurers) and ECO (Economic Cooperation Organization Reinsurance Pool). While Milli Re is 98% privately-owned, three out of six Directors on its Board are appointed by the Treasury. Milli Re occupies the central position in the Turkish insurance industry and has strong management and good technical expertise (see Insurance Technical Paper VII in PIP).

As the Pool Manager, Milli Re will: (i) implement the policies laid down by TCIP Board and as set out in its management contract; (ii) supervise the distribution of policies through insurance companies approved by TCIP; (iii) manage claims' payment; (iv) arrange for risk transfer to the global re-insurance and capital markets; and (v) manage the Pool's operations so as to ensure its financial viability (see Insurance Technical Paper V in PIP). Management of certain operational matters, such as policy processing, reinsurance, investments, etc. is likely to be outsourced.

World Bank Lending for Disaster Relief in Turkey and the Proposed Operation. Over the years, the Bank has made several emergency and rehabilitation loans to Turkey. The latest loan, the Emergency Flood and Earthquake Recovery Project (US$369 million), was granted at the end of 1998. Despite the on-going and quite effective Bank emergency projects in the aftermath of natural disasters in Turkey, this type of lending has limitations. Firstly, due to the country exposure limits, the Bank cannot provide all the liquidity needed in cases of larger catastrophic events, which frequently leave the Government short of billions of dollars of urgently needed financial resources. Secondly, due to their generally large size, emergency loans

tend to crowd out other important development lending programs, which have to be either postponed or substantially reduced. Finally, excessive government reliance on Bank retroactive lending and emergency donor relief can no longer be considered sustainable in light of the frequent major catastrophic events caused by Turkey's inherent seismicity.

In Turkey, the culture of risk management is almost non-existent the among property owners. Less than 10% of dwellings are insured in major cities despite their proximity to earthquake fault lines. Most dwellings which are currently insured have a value in the range of US$60,000-200,000. As a result, the risk of damage to less expensive dwellings, which account for most of the housing stock in Turkey, is primarily borne by the homeowners and the Government due to the current provisions of the Disaster Law. A more efficient management of this catastrophic risk can be achieved through risk transfer to third parties outside the country and by building up national reserves.

Due to a low level of reserves in the local insurance industry, it would take a long time to build up the private insurers' capital necessary to support a rapid increase in the retention of risk if earthquake insurance cover is made mandatory. In addition, a pure private sector approach is unlikely to succeed as some insurers will attempt to underwrite only those risks that are overpriced, leading to instability and possible bankruptcy for those, who may choose to underwrite the wrong part of the portfolio.

Under these circumstances, a joint public/private sector solution is necessary to reduce the risk borne by the Government and property owners. Given the above-mentioned considerations and the political momentum created by the Marmara disaster, as well as public and industry recognition of the need for action, Bank support of the Government Program is crucial.

Bank assistance for the creation of TCIP, which will represent the interests of the Government, private sector, and policy holders, will greatly contribute to a rapid and efficient implementation of the compulsory earthquake insurance program in Turkey that otherwise would have been severely constrained by the low level of reserves and insufficient earthquake underwriting capacity in the private insurance industry. In addition, the implementation of the proposed insurance component will ensure that less advantaged groups of the Turkish population have access to a reliable catastrophe insurance mechanism.

In addition, TCIP earthquake program, designed for the riskier lower end of the market (up to US$25,000 limit), will allow private insurers to free up a corresponding amount of risk capital. The availability of this additional capacity could be applied to write earthquake policies in excess of TCIP coverage, which would facilitate further penetration of the local property insurance market. The creation of TCIP will also bring about added benefits to the local insurance industry such as (i) establishment of best practices in underwriting property risks, and (ii) a better enforcement of building codes.

Objectives. The principal development objective of the sub-component is to support the Government Earthquake Insurance Program with the view of establishing and expanding national catastrophic risk management and risk transfer capabilities. To meet these objective, the sub-component will create an insurance mechanism, which will make liquidity readily available to real estate tax paying owners of residential dwellings destroyed or damaged by an earthquake for the purpose of their repair or replacement, reduce government fiscal exposure and the risk to the national economy due to major earthquakes, ensure the financial solvency of the Pool after all but the most catastrophic of events, such as those in excess of the Marmara earthquake, reduce government financial dependence on the Bank and other donors' financial assistance in the aftermath of major earthquakes.

Key regulatory and institutional reforms are also the focus of the sub-component. The sub-component will:

(i) facilitate a major reform of the Turkish Disaster Law and related legislation that will reduce government financial exposure and increase its financial preparedness as well as that of households for major earthquakes; (ii) support the development and implementation of a national risk management and risk transfer strategy by providing technical assistance for the start-up of TCIP; (iii) improve the enforcement of the Building Code through insurance mechanisms; and (iv) facilitate the development of local earthquake underwriting capacity, and foster the development of related lines of business, such as professional and liability insurance.

Description. The sub-component will finance two major activities: (i) technical assistance to the GDI in establishing TCIP and ensuring its operational efficiency and financial soundness for the first 5 years of its existence; and (ii) initial capital support of TCIP through a contingent loan facility.

Technical Assistance to GDI in the Establishment of TCIP (US$23.00 million). TCIP will be formed as a new independent public sector institution by Government decree. The Board of Directors will be appointed with public and private sector representatives (see Insurance Technical Paper II in PIP). The Board will appoint the TCIP's Chief Executive.

The sub-component will support the establishment of TCIP through technical assistance in insurance matters, both technical and legal. Part of this technical assistance work will also be funded under the TEFER loan. Under this sub-component, technical assistance will be provided to the TCIP Management Unit (TMU) and to Milli Re to set-up TCIP's business and information systems, draft operational guidelines and a business plan. Information technology systems will be installed, both for monitoring exposure and for handling premium transactions with insurance companies and claims transactions with loss adjusters. Every effort will be made to obtain systems already used by the insurance industry in Turkey or elsewhere, so as to avoid the costs and risks of development of new systems. Development of the following technical activities by TCIP will be financed (see Insurance Technical Paper IX in PIP for Procurement Arrangements):

- *Technical Assistance in Modeling and Pricing.* Modeling of earthquake losses and pricing will be undertaken. This will be augmented by structural engineering research, both to assist in estimating damage ratios, and also to verify or suggest modifications to the current earthquake-rating tariff. Part of the modeling work is also supported under the TEFER project and implementation should start shortly.

- *Insurance Policy Design.* Technical assistance will be provided to TCIP in finalizing its insurance policy product. This work will be based on Government proposals, current Turkish policy conditions, and, where appropriate, available international experience. The terms and conditions of the policy will be refined in light of the results of such technical work.

- *Technical Assistance in Developing TCIP Distribution Systems.* The distribution of TCIP earthquake policies will be undertaken by participating, approved domestic insurance companies. The settlement of claims will be carried out by TCIP, supported by Milli Re, using duly qualified, independent, private loss adjusters that are normally used by the industry. Major work will be carried out under the sub-component to develop systems that are sufficiently robust to ensure that all premiums taken in on its behalf by insurance companies are promptly dispatched in full to TCIP. Both the premium collection and claims settlement systems will be subject to audit and spot checks so as to discourage defalcation or delay in payment. This work will build on the results of technical assistance in systems design and in staff training provided under the TEFER project.

- *Training*. Training in using risk pricing software will be provided for TCIP staff and for insurance company staff and agents. Twinning with the California Earthquake Authority (CEA) and the New Zealand Earthquake Commission (EQC) will be sought so as to provide for experience and skills transfer to TCIP staff, which will be also funded under the TEFER project.

- *Reinsurance and Reinsurance Intermediary Services.* Reinsurance and/or capital markets risk transfer products will be purchased so as to transfer as much of the risk as is economical away from TCIP. A reinsurance intermediary will be chosen through an ICB procedure to design a risk financing program based on modeling to achieve the objectives of TCIP. It will negotiate with re-insurers and/or the capital markets, evaluate the quotations and products offered, and report on their cost effectiveness in terms of the cost of reducing risk. Throughout the process, TCIP will interact with Milli Re and the reinsurance intermediary, and at the end will decide which products to purchase. The reinsurance intermediary will then place the program in the market. The fee of the insurance intermediary during the set-up year will be funded under the sub-component.

- *Investment Policy and Fund Management.* As and when premiums build up within TCIP, they will be invested. The invested funds will be held in a segregated trust or an escrow account for the benefit of TCIP beneficiaries, so as to ensure that they are protected from any possible creditor action or other use. Investments will be subject to constraints and allocation criteria determined in the TCIP Operations Manual. The investment allocation criteria will take account of the underlying purpose of reducing the financial risk to TCIP and ultimately to its policy holders. For that reason, it is envisaged that at least 50 percent of funds will be invested in internationally liquid investment grade assets, such as foreign government bonds-linked notes to avoid a major loss in assets value due to an internal catastrophic event in Turkey.

- An investment adviser (a firm of world standing) will be selected through ICB to ensure that the best return is obtained from the investment portfolio, subject to risk and liquidity objectives of TCIP. The investment adviser will (i) advise on investment strategy; (ii) advise on investment mandate and constraints; (iii) advise on asset allocation; (iv) assist in competitive selection of asset managers by reference to its own database of performance; and (v) monitor the performance of the chosen asset managers against the performance of their peers. The fee of the investment manager will be funded under the sub-component.

- The assets will be managed by a professional asset management firm. A custodian will also be appointed in accordance with best commercial practice so as to safeguard the assets, and this custodian may be either a firm regularly used by the asset manager (if that firm is independent and reputable), or else a separate custodial firm.

- *Public Education.* Since the sub-component involves a major change in catastrophe insurance, considerable public education will be required and will be carried out by TCIP or its agent under the project. Funding for these activities will be provided under both the TEFER and the current project.

- *Improving Enforcement of Building Codes.* In addition to its core earthquake insurance functions, it is expected that TCIP would also contribute to the enforcement of building codes through a commercial arrangement with independent engineering firms that would be retained to certify the construction quality of new residential dwellings to be insured under the Program. This work will be jointly funded under the TEFER and the current project.

Initial Capital Support of TCIP through an Uncommitted Contingent Loan Facility (US$250 million). The sub-component will enable the launch of TCIP, which will act as a stand-alone provider of catastrophic insurance in Turkey. This objective will be achieved by providing US$100 million of Bank financing in the form of an uncommitted contingent loan facility for the initial capital support of this institution. Although the estimated initial risk capital requirements are much higher, it is envisaged that they will be funded through reinsurance and the build-up of catastrophic insurance premiums, which will happen over time. The disbursement of the proposed Bank facility will be contingent upon: (i) progress made by the Government in enacting a package of regulatory reforms (Insurance Technical Paper I in PIP); (ii) satisfactory progress achieved in the technical work on the launch of TCIP funded under the TEFER; (iii) the purchase of reinsurance from major international re-insurance providers; and (iv) presented evidence of insurance claims.

TCIP's Initial Capital Support Requirements. To estimate the initial capitalization requirement for TCIP, a cumulative loss curve for Turkey has been developed based on 106 years of earthquake experience and allowing for the fact that only real estate tax paying dwellings will be covered by TCIP (see Insurance Technical Paper II in PIP). In addition, certain assumptions have been made about premium structures, objectives of the Pool and the state of the reinsurance market. The results of this preliminary model (which will be upgraded by the study to be carried out under the TEFER loan) are shown in Insurance Technical Paper II (see PIP), which contains estimates of TCIP exposure in excess of premium build up requiring external support. According to these estimates, the probability of TCIP insolvency, with no reinsurance or other support and assuming full penetration of eligible households, is around 30% in the first year with an initial capital of US$250 million. However, if the initial capitalization is increased to US$1 billion, the probability of TCIP insolvency reduces to around 10%. While creating a sufficient safety margin for TCIP is an important precondition for ensuring the credibility of the proposed reform of earthquake insurance in Turkey, the financial considerations put certain limitations on the initially feasible Government contribution towards TCIP's capitalization. Even so, the 30% risk of TCIP's insolvency in the first year, given recent reinsurance market conditions, can be brought down to an acceptable level by placing reinsurance contracts with international re-insurers. A preliminary analysis suggests one feasible structure, which would cover losses in excess of US$100 million up to US$600 million. Under this preliminary model, the retained risk for TCIP would be around US$10-17 million in the first year of its operations, plus any accumulated unfunded set up costs, less accumulated net premiums, plus any claims in excess of the upper limit of the excess of loss cover (US$400 to US$600 million). The World Bank facility will be available to protect both the lower gap, which would close over time and the excess at the top in case of a very severe event in the top 20% probability range. Chart I in Insurance Technical Paper II illustrates this preliminary financing structure. The reinsurance to be finally placed would be designed on the basis of Dynamic Financial Analysis modeling so as to maximize the risk reduction, subject to budget constraints.

Over time, with the growth of TCIP's reserves, assuming mandatory catastrophic insurance coverage is introduced and no major event takes place, the risk of its insolvency would diminish to single-digit probabilities over the next 10 years.

Although with the accumulation of TCIP reserves, its ability to retain more catastrophic risk may increase, at the initial stage, TCIP risk management policy would be focused on transferring most of the catastrophic risk to third parties outside the country. To this effect, TCIP would enter into contracts with major reinsurers, and/or issue catastrophic bonds, to prevent an abrupt shortage of liquidity in case of major catastrophic events, and, where appropriate, arrange for stand-by emergency liquidity facilities with international lenders.

While TCIP premium pricing would be based on sound actuarial principles, it may provide subsidized

insurance coverage to low-income groups upon Government request. However, it is envisaged that TCIP would by law be entitled to an immediate reimbursement by the Government for the full amount of subsidy dispensed to these policyholders. TCIP would be entitled to discontinue the coverage of subsidized policyholders if the amount of compensation from the Government falls short of the subsidy costs incurred by the institution.

While the scheme will be mandatory, it will take time to achieve deep market penetration. Current projections point to a 30% penetration after a year and up to 60% after 5 years of TCIP operation.

Major Risks and Benefits of the Sub-component. The sub-component faces three main risks. The first is that a major earthquake with impact in excess of the Marmara event occurs in the early years of TCIP's existence. While this risk can be mitigated by placing reinsurance contracts with third parties, transferring some of the risk to capital markets and by prorating the claims, the base risk still remains. The second major risk relates to the enforcement of the compulsory insurance requirement for private dwellings and the collection and timely transmittal of premiums to TCIP. If TCIP fails to reach the level of market penetration agreed upon with the Bank or falls short of enforcing the timely collection and remittance of premiums, it would be unable to provide the agreed upon matching contribution to the Bank funds in case of a major earthquake. This risk can be addressed by intensive technical assistance to TCIP in the first years of its operations and close monitoring by the Bank of its market penetration and premium collection efforts. Finally, there is a danger of the Government being unable to resist political pressures to turn TCIP into an indiscriminate liquidity conduit to victims of a major earthquake in the future, regardless of the terms of their coverage under the program. Although this risk cannot be completely mitigated, the proposed financial design of the project, in addition to the legal covenants in the loan agreement, provides strong financial disincentives for that type of policy action.

If successful, however, the launch of TCIP would represent a major breakthrough in reducing the adverse financial and economic exposure of Turkey to catastrophic events. This development would have a large positive impact on the rate of the country's economic growth, and its ability to address the financial consequences of catastrophic events on its own without resorting to massive emergency aid from international financial institutions and donor countries. It would also increase the extent to which homeowners manage the risk to their own properties through a purchase of insurance provided both by TCIP and the private insurance sector in excess of that offered through TCIP.

Financing. The total Bank financing under the component is estimated at US$123 million, including a contingent loan facility amounting to US$100.0 million to finance insurance claims, premiums for reinsurance and excess of loss contracts and re-insurance intermediary services for the total of US$20.8, technical assistance in the establishment of TCIP, and incremental operating costs of US$2.2 million. The costs of this component are summarized in Table 2.

The overall annual operating expenses of TCIP for the first year are estimated at around US$10 million net of reinsurance cost (see Insurance Technical Paper III in PIP). This amount will have to be exclusively financed by the Turkish Government. In addition, the Government would make a US$0.1 million in-kind contribution toward the operating costs of the TMU. This contribution would include rent, travel, utilities and staff costs. The Government would also cover any taxes/duties on locally procured goods, as well as VAT on consultant services contracts.

The Bank will finance 100% of eligible claims, up to US$17 million, to the extent that accumulated premiums are insufficient to fund them. The other aspect of Bank financing will be when the losses during the initial years are greater than the funds built up in the pool, together with any reinsurance. In this

situation, the Bank will finance 100% of claims, which cannot be assumed either by TCIP itself or its reinsurers up to US$100 million. However, commencing the nineteenth month of TCIP operations, the Bank financing of eligible claims prior to any reinsurance will be reduced to 40%, with the remaining 60% to be either financed by GOT or from other sources, mainly through premium income generated by TCIP.

The Bank will finance some TCIP start-up business costs directly related to project implementation, such as technical assistance to TCIP and the TMU (both foreign and local), equipment, training, and incremental operating costs, mainly the costs of short-term consultants hired for the purposes of assisting the TMU during the implementation period. Additional financing of technical assistance and project incremental costs in the US$6 million will be provided under the TEFER project.

Table 2: Costs of the Disaster Insurance Scheme

	Bank Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Technical Assistance to GDI in the Establishment of the TCIP and reinsurance	23.00	0.00	23.00
Initial Capital Support of TCIP through an Uncommitted Contingent Loan Facility	100.00	150.00	250.00
TOTAL	**123.00**	**150.00**	**273.00**

Implementation. The implementing agency for the sub-component is the Turkey Catastrophic Insurance Pool, a semi-independent public sector body to be established by the Government of Turkey. This legal entity will carry responsibility for the sub-component. While TCIP is being established, the implementation of the project will be commenced by the TCIP Management Unit set up within the GDI. Once TCIP is formed and TCIP Board of Directors (which represent the Government and the interests of the private sector and academic community) is appointed, the Management Unit will provide technical support to the Board. The Management Unit will then be responsible for monitoring the performance of the Pool Management Company, and provide substantive leadership for the sub-component, serve as an interface for relations with the Government and the Bank on key issues of project implementation. Milli Re, has been appointed by the Government to act as TCIP Management Company and carry out operational management of the Pool. The Government has also designated the TEFER PIU to provide all required procurement services. The organizational chart of the envisaged implementation arrangements is shown in Insurance Technical Paper VIII (PIP). Discussion of the key elements of the project management structure follows.

General Directorate of Insurance. The GDI will play a leading role in implementation. In the early stages, a considerable number of detailed policy decisions will need to be made, and some of these will require Government action. On an on-going basis the responsibilities of GDI will require that oversight be maintained over TCIP, Milli Re, and the scheme as a whole.

TCIP Management Unit (TMU). A TCIP Management Unit will be set up within GDI to monitor the performance of the Pool Management Company and to implement the Bank catastrophic insurance sub-component. The TMU tasks and project-related activities will be directly linked to the GDI's Earthquake Insurance Program, which will be achieved by the initial placement of the TMU within GDI, and the on-going contribution of GDI's staff to the TMU.

The functions of the TMU will initially include:

- Procurement of the key service providers for TCIP, including the Investment Adviser, the Asset Manager, and the Reinsurance Intermediary. Terms of reference will be drawn up, Requests for Proposals developed and dispatched, evaluations conducted, and recommendations for appointment made to TCIP Board
- Preparation of the Pool Management Contract and Service Agreements with Milli Re and insurance companies, with the assistance of the Technical Advisers funded through the TEFER Project

And when TCIP is established and its Board appointed, the functions of the TMU will include:

- Preparation of annual budget estimates for project-related activities (tasks) and submission of them to TCIP Board for approval
- Financial reporting to TCIP Board
- Transmission of claims reimbursement details to the Bank, the Treasury, or reinsurers as appropriate, receiving disbursements relating to these, and making sure that payments on these are made promptly to insured
- Tracking activities within the project, and in particular the Project Management Company

The Head of the TMU (Project Director) would be the head of the Earthquake Insurance Program and of the Bank project and would be appointed by the GOT. The TMU staff would consist of the staff of the Treasury, and consultants hired through the project insurance component. The GDI will initially contribute 4 staff members to the TMU.

The staff of the TMU will report to the Project Director on all substantive issues of project implementation. Hiring of all consultants for the TMU will be subject to the Bank's procurement rules for the selection of individuals. The TMU will be located initially on the premises of GDI, but may move to those of Milli Re once the Pool is set up.

During the preparation and implementation stages of the project, the TMU will provide accounting and financial reporting services in support of disbursements out of the Bank contingent loan facility. Accounting and financial reporting services for all technical assistance related activities under the insurance component will be provided by the PIU.

Turkish Catastrophic Insurance Pool. TCIP will be the body charged with the success of the overall Government Earthquake Insurance Program and the body held accountable for any shortcomings. It will be established by Government decree to be signed by January 28, 2000. The objectives and the key principles of its operations will be outlined in the package of catastrophic insurance legislation, which is currently being prepared by the Treasury. TCIP is to be governed by a Board of seven members: three coming from the Government, three from the insurance industry, and one a senior technical person skilled in earthquake science or earthquake engineering. The main functions of the Board and key responsibilities of the Board Members are spelled out in Insurance Technical Paper IV (PIP).

TCIP Management Company. Milli Re, the Turkish national re-insurance company, was appointed by GOT as TCIP Management Company. The services to be performed by Milli Re will include management of the distribution of policies and the settlement of claims (see Insurance Technical Paper V in PIP for details). While Milli Re is already carrying out many of these functions locally, its expertise will be augmented to assist in the major changes to a compulsory public scheme with somewhat different cover and procedures. Twinning arrangements will be sought with CEA or EQC to share the experience of a compulsory public earthquake scheme, with exchange of staff in both directions.

The new scheme requires significant IT services, both to record in a database the properties that are insured, and also to track and account for transactions relating to premiums and claims. Of major importance is the monitoring of the exposure of TCIP, both for the sake of its own risk management, and also to assist in its dealings with reinsurers or capital markets. Provisions are made in the TEFER and the current project to assist TCIP in setting up such systems.

Some of the activities will be carried out by commercial organizations chosen and contracted to do so. These include the investment adviser, reinsurance intermediary, IT provider, and legal and PR advisers if these are outsourced. Funding is provided under the sub-component for the initial appointment of the investment adviser and the reinsurance intermediary, and for a substantial public education campaign.

Reinsurers. Since the exposure of TCIP commences as soon as its policies are issued, and since it will take some time for funds to build up from premiums, reinsurance purchases will be made at an early date to protect TCIP and the Government. The initial purchase, which is designed to provide for claims' payment in the event of another earthquake in the near future, will be funded under the project.

Insurance Companies. Premium collection will be undertaken by participating insurers and their widespread network of agents. IT system changes will be undertaken by the participating insurers, and staff and agents will be trained in TCIP policy conditions and procedures. Funds to assist in the training will be provided under the TEFER project. Audit and monitoring systems will also be established.

Project Implementation Unit. The PIU selected for the implementation of the MEER will assist with the procurement of goods and services purchased with IBRD funding.

Local Government. Local government will also be involved in two ways. The real estate tax records at local authorities will form the basis of insurance cover. Local government property tax inspectors will also assist in the enforcement of the compulsory requirement to insure with TCIP.

Flow of Funds and Disbursement. TCIP will act as sole provider of mandatory earthquake insurance. Policies will be issued by TCIP and distributed to the public through approved domestic insurers, who will not assume any risk of loss. The standard form earthquake insurance policies will be for replacement costs of property damaged or destroyed; however, policyholders may have the option of not replacing or repairing such damaged property, electing instead to receive only its depreciated value. Applications for withdrawal under TCIP component of the Bank Loan can only be made for claims by policyholders that have elected to receive the replacement value of property damaged or destroyed in an earthquake ("Eligible Claims"). As a result, both TCIP's and Milli Re's accounting systems will need to be able to distinguish between claims for replacement value and claims for depreciated value, with only the former being eligible for reimbursement under the Bank Loan.

Applications for withdrawal under the contingent facility loan could only be made after an earthquake and would need to be accompanied by a certificate from a senior officer of TMU to the effect that (a) the amount claimed is in respect of TCIP retention, or in respect of the excess of the reinsurance recoveries (including both quota share and excess of loss covers), or both, in any case as in effect as at such date, together with an indication of the relevant amount, (b) with respect to any amount claimed for purposes of payment of TCIP retention, TCIP either has paid, or has funds available to pay, at least 60% of such retention amount (with evidence satisfactory to the Bank) and the amount claimed does not exceed 40% of the retention amount, (c) with respect to any amount claimed for purposes of the excess of the reinsurance recoveries, the amount actually received by TCIP under reinsurance contracts then in effect (with evidence

satisfactory to the Bank), (d) the amount claimed has not been claimed previously, and (e) such amount requested has not been financed and will not be financed from any other source, and will be used exclusively for purposes of the payment of Eligible Claims. Notwithstanding (b) above, if requested by the Government, the Bank will fund up to US$17 million toward the payment of the then applicable retention amount. The maximum aggregate amount which the Bank will advance in respect of the payment of reinsurance retentions and amounts in excess of reinsurance recoveries is equal to the amount of the Loan allocated to such activity (US$100 million).

Based on the above, and assuming the absence of any event of suspension either under the MEER Loan, or under any other loan made by the Bank to or guaranteed by the Republic of Turkey, the Bank will advance the amount requested under the application for withdrawal to a segregated account opened in the name of TCIP with a commercial bank acceptable to the Bank and which has previously provided to the Bank a standard form comfort letter.

TCIP will be entitled to make multiple applications for withdrawal under TCIP contingent loan facility up to the amount of the Loan allocated to such activity.

If claims from any one event exceed the total capital, credit and reinsurance resources available to TCIP, then claims from that event will be paid pro rata.

The operation is being designed in the context of the Bank's overall disaster management strategy to cushion the impact of natural disasters on vulnerable groups through promotion of mitigation and catastrophic insurance.

Sub-component A3: Land Use Planning and Enforcement of Construction Codes (US$11.78 million)

Objectives. The sub-component objective is to reduce the vulnerability of the Marmara Earthquake Region to natural hazards and to reduce the potential for future disaster losses in Turkey. To achieve this general objective, the sub-component will support: (i) the review of ongoing proposals for modification in the current legal and regulatory system and additional modifications as required, and (ii) the strengthening of the municipal capability to plan, regulate and implement disaster resistant development.

The legislative review will comprise the (i) the Development Law, No. 3194, (ii) the Disaster Law, No. 7269, and (iii) the Tender Law, No. 2886. These three laws in combination are critical for effective disaster mitigation through appropriate land use management and building safety regulation. In addition a comprehensive review of the process for development of building codes and standards will be undertaken.

This sub-component will address as needed the strengthening of municipal capability to implement the rules and regulations related to building location, design and construction. The strengthening of municipal capability will entail an active program of training, technical assistance, key equipment upgrading, and targeted training for decision-makers in the development process. These municipal strengthening activities will be based on a series of pilot projects in selected municipalities. Although this program addresses the needs in the damaged area, it is intended as a demonstration project that may, in the future, be expanded to other risk-prone areas in Turkey.

Background. The earthquake of August 17, 1999 has demonstrated in a dramatic manner the deficiencies of the land use management and building regulatory practices in Turkey. Many of the failures are related to inappropriate siting and inadequate design and construction of buildings.

A significant portion of the loss of life and property has been associated with failure of buildings constructed on soft, unconsolidated soils. Coastal areas including Golcuk, Yalova and Avcilar experienced amplification of shaking and liquification related to local soil conditions. Adapazari also suffered the consequences of weak soil conditions and subsequent foundation failures. This experience exemplifies the first requirement of safe construction, i.e. identification of safe sites for construction.

The collapse and serious damages of over 100,000 structures demonstrated fundamental errors in design (ie. failure to provide adequate shear resistance) and errors in construction (ie. poor quality of concrete or misplaced reinforcing bars). These failures point out the need for more rigorous plan review and construction site inspection to ensure that promulgated construction standards are implemented in the field. It was noted by engineering assessment teams that few buildings which complied with published structural standards suffered collapse or significant structural damage.

The clear evidence of the August 1999 Kocaeli earthquake is that uncontrolled development led to the construction of non-code conforming structures on unsafe sites, in spite of the existence, in some cases, of municipal development plans and the nation-wide building standards. In addition, the technical expertise is available in Turkey to carry out detailed analysis of soil conditions (microzonation) and to maintain appropriate standards for construction. Although many of the tools for safe development and construction are known, the serious problem in Turkey is implementation. The current legal structure of public responsibilities, liability, and standards of professional practice perpetuate the conditions which allow continued unsafe development in hazardous areas. A combination of effective regulatory measures, market incentives, training and public information can change the character of reconstruction and future development to significantly reduce losses in future natural disasters. The Kocaeli earthquake also significantly demonstrated the effectiveness of code conforming design and construction in reducing disaster losses.

Overview of the Issues. The legal and organizational basis for the system of development control and disaster management in Turkey are defined by the Development Law, the Law of Disasters, and the Tender Law. The Development Law (No. 3194) and its related regulations define the process of preparation of development plans and their applications, but makes no significant reference to natural disasters, while the Law of Disasters deals primarily with the aftermath of natural disasters and makes very limited reference to pre-disaster mitigation. The Tender Law sets the conditions for the implementation of public construction projects. The Development Law provides little authority to municipalities to protect public safety in buildings. Importantly, the Development Law has no effective interrelation with the Law of Disasters (7269). Various central government authorities (ministries and other bodies) have authority for development, preparation of plans, and rectification of plans and buildings with no effective legal framework for their tasks and without clear principles of coordination.

While standards have been issued for seismic design of principal structural systems, there is no comprehensive, unified building code in Turkey. This implies that both building designers and regulatory officials work with an incomplete library of structural standards rather than a complete code addressing the health and safety of building occupants. Lack of such a document with established legal authority both complicates and weakens the design process and the regulatory function.

It is expected that the revised laws will embody, among others, the following standards and obligations:

1) Establish a program of professional licensing for building and development professionals, including structural engineers, architects, contractors, building inspectors and city planners

2) Allow for a system of out-sourcing technical services for plan review and site inspection from Municipal Building Departments to private supervisory firms, and establish a process for the certification of such supervisory firms

3) Establish requirements for professional liability insurance to be carried by building professionals licensed under (1) and for supervisory firms listed under (2)

4) Establish specific municipal and professional responsibilities and penalties for failure to carry out those responsibilities

5) Establish a hierarchy and standardization of national, regional, and municipal plan documents

6) Establish the principle of special project zones and the transfer of development rights

7) Establish a process for the development, review and promulgation of a comprehensive unified building code for Turkey.

Primary planning and building control lies with the municipalities and with the provincial local authorities in areas external to municipal boundaries. In fact, municipalities are poorly equipped to carry out these functions of development control because they lack technical manpower in sufficient numbers to deal with the scale of the task. Municipalities effectively bear no liability for failure to fulfill their responsibilities for development control. The process of plan review and building site inspection is currently intended to be carried out by a "professional with technical liability" who is hired by the building owner or the contractor. This practice clearly creates a serious conflict of interest in the building regulatory process. The public interest in safety is not well represented in this process.

Municipalities operate under the administrative oversight of the Ministry of Interior. The Ministry of Interior does not have the appropriate capability to manage or evaluate the technical development functions related to land use or building safety. At the same time municipalities are regulated by the Development Law (3194) for which implementation responsibilities lie with the Ministry of Public Works and Settlement. The Ministry of Public Works is the focus of responsibility for development of building codes and the repository of engineering and planning expertise. The separation of administration responsibility (in the Ministry of Interior) and the technical capability (in the Ministry of Public Works) for administration of development has led to a weakened municipal control.

It has not been the practice of municipalities to remove illegal structures but rather since the 1950s there have been approximately fifteen development exemption laws legalizing unlicensed construction. These amnesties for illegal construction have been politically popular and have seriously undermined the ability of the municipality to regulate development.

While formal procedures exist for development planning and building regulation at the municipal level, these processes have been largely ineffective at controlling development. Explosive illegal development has ignored municipal development plans and the building regulatory process. Lacking adequate resources or political support for enforcement, municipalities have on numerous occasions sanctioned and rewarded illegal development through amnesty programs.

Finally, individual responsibilities in the production of planning and building projects and their implementation are not clearly elaborated, and no effective penalties for failure to carry out responsibilities

are spelled out in the Development Law.

Description. Following the objectives of this sub-component, the activities proposed fall into two categories: those addressing the national adoption of new development, disaster and procurement related legislation, and those focusing on the enforcement responsibilities at the municipal level. Both categories can be summarized as follows:

Legislative Framework (US$1.17 million). It is anticipated that current, emergency, legislative work on the Development, Disaster, and Tender laws will result in a substantially improved legal framework for land development and construction. The activities under this sub-component will support the rapid promulgation and adoption of this new legislation.

Insupport of the modifications of the legal framework, this sub-component will finance the following activities:

- A comprehensive study of the Disaster Law with particular emphasis on provisions for pre-disaster mitigation planning and incentives for effective mitigation investment by government, the private sector and individuals. The study should provide concrete recommendations for modification of the law and related regulations.

- A comprehensive study of the Tender Law with particular emphasis on the implications of the current procurement process for public buildings for building quality and public safety. The study should provide specific recommendations for the reformulation of the law to ensure a process of procurement which provides effective control for building quality and code compliance.

- A comparative evaluation of operational procedures in the mortgage markets of selected countries, focusing on those requirements of financial institutions extending mortgages, that enhance the application of and adherence to local building codes.

- Support for consideration of the full text of proposed revisions to the Development Law provided in the report of the Erzincan Emergency Recovery Project "Revision of the Turkish Development Law No. 3194 and Its Attendant Regulations with the Objective of Establishing a New Building Construction Supervision System Inclusive of Incorporating Technical Disaster Resistance-Enhancing Measures", and land use management and related provisions.

- A comprehensive study of the process of development, review and promulgation of building codes and standards in Turkey. This study should evaluate the current process of building standards development and the feasibility of a comprehensive, unified building code addressing the full range of building safety issues. Specific recommendations should be developed for the institutionalization of the processes of development, promulgation, and dissemination of the code. The legal status of codes, reference standards and commentary should be addressed (See Terms of Reference in the PIP).

- Organize with the Ministry of Public Works, and selected municipalities a series of stakeholder seminars on the topic of "Implementation of Development Regulation for Disaster Reduction and Public Safety."

- Technical assistance to review and guide the on-going certification process for building inspectors.

Pilot Municipality Studies and Technical Assistance (US$4.79 million). The August 17, 1999 earthquake has provided ample evidence of the need for greater organized disaster mitigation capability at the level of municipalities. Municipal governments have primary responsibility for urban planning and urban service delivery. Municipalities require the tools and the technical capability to implement comprehensive disaster management including appropriate disaster mitigation measures associated with land use management and building regulation. These functions require detailed knowledge of urban infrastructure systems and critical facilities.

The strategy to bring about improved and effective development regulation at the local level will be based on a series of pilot projects in selected municipalities. The series of pilot projects will proceed incrementally. The first project will be initiated in the municipality of Eskisehir, and two other municipalities in the earthquake effected area, and it will then be extended to a total of six municipalities. The list of potential candidates includes Izmit, Adapazari, Bursa, Canakkale, Golcuk, Istanbul and Tekirdag. The list includes heavily damaged municipalities and municipalities subject to high risk of future disasters. In addition, direct technical assistance with municipal land use planning and the process of extending building permits will be provided to Golcuk and Adapazari.

The sub-component will assist municipal technical departments (planning and building regulation departments) in the following activities:

- Development of Risk-Based Municipal Master Plans. These plans will be based on detailed hazard and vulnerability assessments. They will designate hazard areas on which development is prohibited and zones in which special precaution must be exercised. In seismically active areas, these plans may require detailed microzonation studies to identify safe development sites

- Establishment of means for effective building code implementation in the municipality to ensure that plan review and site inspection functions are carried out properly by appropriately trained engineering professionals

- Technical assistance to the municipal planning and building departments of Golcuk and Adapazari with the day-to-day application of procedures mentioned in the two points above

- Development and publishing of municipal regulations to ensure that the appropriate professional licensing procedure is followed and that only qualified licensed engineers, architects, contractors and building inspectors practice in the municipality

- Development of programs for the evaluation of existing buildings to determine future damage potential, and appropriate requirements for upgrading or removal of hazardous buildings

- Creation of municipal ordinances that mandate immediate demolition of structures built in contravention of municipal master plans or building codes

- Creation of mechanisms to incorporate effective community participation in the planning process particularly regarding issues concerned with public safety and community well-being.

In order to effectively provide the assistance listed above, the sub-component will finance the following activities and, subsequently, four programs to bring this knowledge to the six municipal entities for whose use it is intended.

Hazard and Vulnerability Studies. A program of risk analysis and hazard mapping will be developed at the municipal level. Hazard mapping will provide the basis for risk-based urban development planning and vulnerability assessment will provide the basis for estimation of future losses and prioritization of mitigation investments.

Capability Assessment of Municipal Regulatory Functions. Evaluation staff resources, professional competencies, equipment resources and implementation authorities will be carried out by international and national consultants to determine specific needs in the areas of training and equipment for departments responsible for land use management and building regulation.

Training Needs Assessment. A detailed assessment of professional competency of regulatory staff will be carried out to determine specific function related training needs. Training needs assessment will include all elements of the land use and building regulatory functions.

Equipment Needs Assessment. Based on the detailed evaluation of current regulatory practice, the assessment of staff capability, and the assessment of necessary workload recommendations will be developed for appropriate equipment procurement. Such equipment needs are anticipated in the areas of data management and geographic information systems.

Equipment Upgrade for Land Use management. Based on the capability and equipment needs assessment recommendations limited equipment procurements will be carried out. Equipment and software procurements will be compatible with planned development in related data systems and compatible with realistic assessment of skill levels and useful applications. GIS applications for hazard management are of particular interest.

Equipment Upgrade for Building Code Enforcement. Based on the capability and equipment needs assessment for the building regulatory function in the six pilot municipalities limited equipment and software procurement will be carried out. Administrative and database management software for the building regulatory function and modeling software for loss estimation may be considered.

Training Design and Pilot Application (US$3.00 million). A training program for municipal planning and building regulatory staff will be developed and organized in the selected pilot municipalities. It will focus on ways and means of creating within municipal planning and building departments a professional capacity to implement effectively what the law requires (the terms of reference for the training program are in the Project Implementation Plan). This training will be based on the training assessment carried out under the pilot municipal studies.

Training Design for Land Use Management. Training addressed to the needs of practicing land use and urban development planners will be developed with special emphasis on the application of natural hazards data to the creation of hazard maps and their incorporation into master plan special project zone plan documents. Training will also focus on the methods of public information and public participation in planning as means to support public safety interest in limiting illegal land use. Changes in the Development Law will be addressed.

Training Design for Building Code Enforcement. Training will be developed for the range of building department functions including plan review, construction site inspection and evaluation of hazardous buildings. Special attention will be focused on the creation and maintenance of building inventory data bases. Instruction will be provided on recent and prospective changes in the Development Law and their implications for the regulatory function. Administrative functions associated with the management of

out-sourced technical functions will also be addressed.

Pilot Training Delivery. The training materials developed for the land use management staff and the building regulatory staff will be delivered in pilot sessions to the land use and building regulatory staff members of the six pilot study municipalities. These training sessions will be rigorously evaluated for effective learning, skill retention and job relevance.

Nation-wide Municipal Staff Training. Once the training programs for land use planners and building regulators are piloted, evaluated and refined it is intended that they will be delivered to all municipal staff responsible for aspects of land use management and building regulation. Initial priority will be placed on the training of personnel from municipalities located in high risk areas. These training sessions will be organized with the collaboration of appropriate professional and government organizations.

Targeted Training for Decision Makers in the Development Process (US$2.82 million). Once the training need of the municipal regulatory staffs have been addressed it is critical to address the information and training needs of the primary decision makers in the development and building processes. Compliance with the regulatory structure related to disaster mitigation will require broad professional and public support and understanding. Targeted programs of training will be developed for five categories of decision makers who play a key role in the implementation of development and building standards. These specialized audiences are: architects and engineers; building contractors and developers; mayors and municipal councils; governors and provincial administrators; and building owners and users. Each of these audiences will be introduced to the municipal development and building regulatory system and its particular relationship to their activities. In the case of building professionals the focus will be on training for code and regulatory compliance. For the political and administrative leaders the focus will be on administrative responsibilities and the exercise of police powers to enforce regulations. Building owners and users, the largest group will be trained in the importance of regulatory compliance for public safety and loss reduction and issues of liability.

Costs. The accompanying table shows a summary of costs for the activities proposed above. Cost estimates for the technical assistance are based on recent experience, international and local, for such studies and consultants. Assumptions on the costs of staff training and later extension are in the footnotes to the table 3.

Table 3: Costs of the Land Use Planning and Enforcement of Construction Codes

	Bank Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Legislative Framework	1.06	0.11	1.17
Pilot Municipality Studies and Technical Assistance	4.31	0.48	4.79
Training Design and Pilot Application	2.70	0.30	3.00
Targeted Training for Decision Makers in the Development Process	2.54	0.28	2.82
TOTAL	**10.61**	**1.17**	**11.78**

Expected Output. The expected output of this sub-component will be a dramatically improved land management and building regulatory system in Turkey which will effectively deal with the root cause of

natural disasters which have plagued this country throughout history. The modernized legal framework and enhanced enforcement capability at the municipal level will reverse the trend of constantly increasing disaster vulnerability. Training of key decision makers will provide both political and market support for disaster mitigation.

Implementation. The PIU will have overall responsibility for administrative and financial management tasks related to the implementation of this sub-component. Procurement will follow the overall procurement rules agreed for the project.

The activities related to the support of the legislative framework will be implemented by the MPWS under the supervision of the PIU.

The pilot municipal studies will be carried out according to agreements between the PIU and each selected municipality. These agreements will stipulate all rights and obligations of both parties and will define eligibility criteria for individual participants under the programs. The training programs will be designed and conducted by consulting entities contracted for the purpose under standard procurement rules for technical assistance.

Flow of Funds. The Special Account will contain a line item for this sub-component. The PIU will make periodic payments to contractors under the program, based on the contractual terms agreed upon, which will include agreed upon measures of performance.

Per diem for lodging and subsistence to be paid to participants of municipal training programs will be paid out in cash directly to participants on a weekly basis against individual receipts by the entity responsible for the training course. Resources for this payment will be handed to the senior representative of the contracted entity by the PIU, against simple receipt, but with a lien of equal value on future payments to the entity under its training program contract. Submission of all individual receipts for per diem by the contracting entity to the PIU, against a receipt for that submission, and acceptance of these receipts by the PIU, will automatically lift the lien on future payments to the contracting entity. The same procedure will apply for the per diem payments associated with the extension of the program to all Turkish municipalities.

Sub-component A4: Cadastre Renovation and Land Management (US$24.21 million).

Objectives. The primary objective is to establish a land information system as a tool for supporting the reconstruction and development of the Marmara Earthquake Region (Marmara Earthquake Region Land Information System – MERLIS). In particular, the sub-component will support activities to: (i) supply current and reliable land information to cope with the post-earthquake situation, update and improve the obsolete registers and maps; (ii) support land supply operations with emphasis on housing schemes and the overall improvement of the land market.

Brief Description. Turkey's rapid urbanization of the '50s increased demand for infrastructure and brought to the fore apparent deficiencies in zoning and city planning. Inappropriate siting of constructions and absence of zoning and its enforcement had serious repercussions on the quality and, indeed, availability of housing. Measures that were necessary to make appropriate infrastructure investments an integral part of housing developments, such as zoning ordinances and land use planning, were hindered by the lack of proper land information data. The delay in establishing a well-functioning cadastral system and, consequently, in completing proactive urban planning, as well as the delay in recording government owned

land, which covers even today around 55 percent of Turkey's territory, created conditions that encouraged illegal occupation of government owned land and disrespect of building regulations.

The building boom that started in the '50s and that mushroomed largely in a regulatory vacuum, encouraged speculative searches for economic rents through the violation of building regulations, often in residential complexes built on land whose ownership was uncertain, and probably governmental. Adding floors to existing buildings without proper engineering calculations, exceeding building heights beyond what is allowed under the building codes, building on unstable soils with high risks of liquefaction in case of earthquakes, etc. became normal practices. In addition, three nation wide amnesties, in 1983, 1984 and 1986, legalizing what had been built in contravention of the law, further aggravated the situation.

Four central government agencies are of importance in the context of appropriate land registration, use and zoning: the Directorate General of Land Registry and Cadastre, the Directorate General of State Land, the Directorate General of National Property and the Mass Housing Authority.

Land registry and cadastre is the responsibility of the Directorate General of Land Registry and Cadastre (T.C. Basbakanlik Tapu ve Kadastro Genel Müdürlügü - TKGM). TKGM is a central government agency with regional and local offices, which closely cooperate with municipal planning departments and other relevant municipal offices. According to TKGM, 99.5 percent of all urban areas and 83% of all rural areas are covered by cadastral records, covering a total of 417,000 km^2 of Turkey. Another 200,000 km^2 are classified as forest and is under the jurisdiction of the cadastre department of the Ministry of Forestry. Lakes and economically unimportant areas make up the remaining 170,000 km^2. The area affected by the recent earthquakes, here referred to as the Marmara Earthquake Region (MER) is approximately 36,000 km^2. TKGM employs around 12,500 individuals.

Although nearly the entire country is covered by cadastral records, the quality of existing maps is insufficient, and differences exist in map format and scale between different cadastral offices. It is difficult to create common documents with the same scale and coordinate systems. Moreover, maps are not updated regularly. As a result, the records of land ownership are ambivalent, notably with respect to state owned lands. In addition, cadastral records, and by extension land ownership, are considered confidential and are not open to public scrutiny.

TKGM is aware of the shortcomings of the country's cadastral system and of the implications this has for economically sound, and socially appropriate, development, and has elaborated plans to remedy the situation.

The Directorate General of State Land (T.C. Basbakanlik Arsa Ofisi Genel Müdürlügü) was founded in 1969 to supply state owned land suitable for construction. The SLO zones the land, prepares the city plans and creates parcels suitable for marketing. Its objective is to regulate the supply of land in order to curb speculation. However, the scale of its activity has not been sufficient and it has had limited impact on curbing land speculation and on the illegal occupation of state owned lands.

The main source of land for the developments supported by the Directorate General of State Land is the Directorate General of National Property (T.C. Maliye Bakanligi, Milli Emlak Genel Müdürlügü). This directorate general oversees the nearly 55 percent of Turkey's territory that belongs to government and, reportedly, also deals with all expropriated land.

A second venue to develop and market government land is via the Mass Housing Authority (Toplu Konut

Idaresi Baskanligi - TOKI). However, the Directorate General of National Property does not give land directly to TOKI, it has to pass through the Directorate General of State Land. TOKI is sponsoring legislation that would allow direct transfer of state owned lands from the Directorate General of National Property to it.

Damages. In addition to the cadastre and map related problems mentioned above, existing as-built maps became obsolete after the earthquake. Several offices and related equipment of the TKGM were damaged. Soil movements along the fault line have changed the topography and moved the borders of certain cadastral pieces by more than two meters.

Damages that can be attributed indirectly to the faults of the cadastre system are those that are the direct result of inappropriate siting and construction, itself an outcome of the regulatory vacuum mentioned earlier.

Activities to Be Undertaken. The earthquakes' damage created a large demand for new housing and industrial and business premises. In as much as victims do not reconstruct their homes themselves, the new housing will be partly furnished by government and partly by charities. Businesses will, by and large, depend on insurance and on own and borrowed resources for reconstruction. As a result of the expected building boom, properly zoned and planned land in the area of the earthquakes is urgently demanded. The activities proposed here will assist government in supplying this land and will create conditions for proper zoning and land use planning.

Cadastre Renovation (US$20.83 million). Following the earlier initiatives and plans of the General Directorate of Land Registration and Cadastre aiming at the improvement of the Turkish Land Registration and Cadastre System, and considering the urgent needs of municipalities and district cadastral offices in the region under consideration, two sets of activities are proposed:

(i) The sub-component will finance the production of digital orthophoto maps, referenced to the Turkish geodetic control framework at map scales 1:1000 for urban areas and areas of planned development, 1:5000 for the rural area of the Marmara Earthquake Region. These orthophoto products will be used as source of current information supporting inventory and immediate planning, and will serve as a valuable layer of base maps, including cadastral maps. The sub-component will also finance the production of digital vector base maps, meeting the Turkish 1:1000 map standards, for the areas of 1:1000 orthophoto mapping. At the same time cadastre registers and maps will be renovated to achieve the required consistency with the base map, land registration and cadastral information.

(ii) The sub-component will finance the design, implementation and operation of MERLIS (Marmara Earthquake Region Land Information System), a database that will include geoinformation mentioned above under (i), geographically distributed throughout the region in the network of local cadastre offices. Since the cadastral information made available by MERLIS must be supported by institutional, organizational and technical measures, the project will include pertinent training and otherwise strengthening of the cadastre's local offices. The primary users of the MERLIS will be land registration and cadastre offices, planning and other technical and managerial departments of municipalities, and citizens of the region. The system will maintain data vital to the reconstruction and future development of the Marmara Earthquake Region.

Land Management (US$3.38 million). This activity aims at speeding up the process of supplying land suitable for construction by strengthening the operations of the General Directorate of State Land in the Marmara Earthquake Region. Strengthening will be twofold, in the form of: (i) increased operational capacity of field offices, and (ii) institutional improvements that will lead to a rationalization of the use of state lands and will, therefore, contribute to the further development of Turkey's land market. These operational objectives are reflected in the terms of reference for the technical assistance contained in the PIP.

One of the key problems of the Marmara Earthquake Region is lack of land suitable for development and safe construction. Due to historical reasons more than 50% of land belongs to the Turkish Government. As briefly described earlier, it is the role of the General Directorate of State Land, functioning under the Prime Minister, to supply prospective land users with land within the required land use zones. Incompleteness of the land register and cadastre information, and long administrative and technical procedures hinder the process of land acquisition and distribution by the General Directorate of State Land.

Since the availability of suitable land is critical for reconstruction in the Marmara Earthquake Region, it is proposed to strengthen the General Directorate of State Land, in particular its regional departments. Through assistance to human resources and supply of material needs this general directorate will be able to establish selected new offices and organize new field teams in the area.

Costs and financing Conditions. A summary of the costs for this sub-component is shown in the table 4.

Table 4: Costs of the Cadastre Renovation and Land Management

	Bank Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Cadastre Renovation	17.71	3.12	20.83
Land Management	2.87	0.51	3.38
Total	**20.58**	**3.63**	**24.21**

Outputs. The expected outputs are: (i) renovated land registration and cadastre of the MER (some 36,000 Km2) with relevant spatial and descriptive geoinformation, transformed into a multi-purpose land information system (MERLIS); (ii) strengthened operational units of the General Directorate of State Land to speed up the land supply process with trained, well equipped working teams, supported by consultants. In a broader, national context, this component will serve as a pilot project to improve land related activities in Turkey, as planned by the General Directorate of Land Registry and Cadastre.

Implementation. Implementation will be guided by the "MERLIS Committee" established under the project. Chairman of this committee will be the General Director of Land Registration and Cadastre. Its membership will comprise: a representative of the General Directorate of State Land, representatives of key municipalities in the Marmara Earthquake Region, representatives of central government agencies involved with the reconstruction efforts, and others upon invitation by the chairman. The committee will act as a consultative body to formulate land policy improvements in the region, express opinions on project planning and implementation, ensure availability and transparency of information to users of cadastral data, particularly municipalities, evaluate and comment on operational results and assure that the MERLIS remains up-to-date and relevant.

In order to support the committee and to implement the proposed activities, the PIU will enter into implementation protocols with: (i) the General Directorate of Land Registry and Cadastre for the implementation of the activities related to cadastre renovation, and with the General Directorate of State Land to implement activities related to land management. These protocols will contain indicators of performance against which gradual disbursement of funds will be made. Terms of the proposed protocols, including proposed rights and obligations of the two governmental parties to the contracts, are in the PIP.

Beneficiaries. At central Government level the primary beneficiaries are the General Directorate of Land Registry and Cadastre and the General Directorate of State Land. At local level, the principal beneficiaries are the municipal planning and engineering departments and, generally, the development industry and its clientele.

Flow of Funds. Funds will be disbursed by the PIU to contractors, in the case of financing of equipment, specialized services and technical assistance. The PIU will ascertain that all contracts, insofar as this is pertinent, will follow applicable Bank procedures for procurement.

Project Component 2 - US$6.89 million
Component B – Trauma Program for Adults (US$6.89 million).

Objectives. The component will (i) contribute to the immediate reduction of the negative effects on health and functional ability among adults affected by the earthquake, including the restoration of normalized living and working conditions in the affected area; (ii) support the strengthening of Community Mental health services, including trauma related work, in the affected region and later across the whole of Turkey; and (iii) support the reconstruction of working life and the reinsertion of adults into the workforce in the earthquake zone.

Background: Mental Health Consequences of the earthquake. The August 17th earthquake and aftershocks have contributed not only to physical damage and death, but to high levels of apprehension, anxiety and despair among the local population, which reduces their ability to recover from the disaster. Many have witnessed violent deaths and lost family, friends and everything they had, home, job, community ties and network. Those with the least economic resources lost the most since their houses were the most vulnerable and they had least reserves to cope with the devastation.

A social survey conducted in the affected region a month after the disaster (see annex 10) indicates that more than 50% of the survivors suffer serious mental health problems including extreme fear, depression and sleeping troubles, and an even higher percentages of children suffer similar symptoms. Impressions from mental health personnel in the region support such numbers. In addition to ordinary people, the care givers, rescue workers, emergency personnel of all kinds and those providing medical, social and

psychological assistance also suffer heavy burdens of traumatic experiences, and will do so for a longer time. Experience from large-scale disasters suggests that even if the most severe symptoms diminish to some degree over time, the affected population and many disaster workers will continue to carry a high risk of suffering serious health and psychological problems for years to come.

Short term effects experienced during the first few weeks include: shock (disorientation, emotional numbness, intrusive images and recollections, irritability, sleeping troubles, reduced concentration and decision making abilities); stress effects/over-stimulation: (inability to switch off, overreaction – ie jumping out of windows - not recognizing needs for rest, sleep, food or social support, psychosomatic symptoms, headaches, tiredness, exhaustion and withdrawal); thinking disturbances (reduced ability to perceive accurately, analyze, understand evaluate, make judgements and plan, leading sometimes to phobias and avoidance of places/people); loss of personnel identity: (disorientation and confusion, sense of not belonging and losing touch with their lives). These require a variety of different responses including specific types of trauma counseling, public information and community support.

Medium term effects include: overwork, exhaustion and burnout; chronic stress effects, psychosomatic disturbances and post-traumatic stress disorder (PTSD); illnesses and accidents; depression; anxiety disorders, compulsive disorders and personality disturbances; isolation; family tension and troubles. Longer term effects which become evident predominantly in the second, third and fourth years do not always mean that the people concerned are in need of formal mental health services. Here the more awareness and knowledge there is in the community about human responses to disaster, the less these services are likely to be required. Support from community and social networks may be sufficient for reasonable coping, although mental health information and consultation should be an integral part of long term recovery services. Thus, community awareness and education, a full range community and primary care services, community network building, group work of different sorts, cultural activities and an active participation in planning and redevelopment are all important elements on a long term program level are required.

In the period since the earthquake, various organizations have been working in the tent camps on a voluntary basis to try to relieve some of the most overt symptoms within the camp population. Some of these volunteers have received training in the most modern techniques including cognitive behavioral therapy and rapid eye-movement. Locally, support has been received from the Ministry of Health (MOH), the Turkish Paychologist's Association and local Universities such as Kocaeli. However, the voluntary system is not sustainable in the long term and there is a desperate need for additional personnel, and increased training in techniques which are proven to reduce symptoms quickly following disasters, in addition to long term capacity building in modern mental health treatments. These would help to ensure that the local population can begin to function at its normal level as soon as possible contributing to the earlier normalization of society and the effective restoration of the economy

Project Description. To address some of these issues, the project has two main components: (i) Establishment of Community Mental Health Centers in Izmit Adapazari, Golcuk and Yalova; and (ii) Establishment of a program for psychological and organizational support to organizations and businesses affected by the earthquake.

Community Mental Health (CMH) Services (US$4.28 million). This activity has the following objectives: (i) to establish one major community mental health (CMH) center, possibly in Izmit with out-reach CMH centers in Adapazari, Golcuk and Yalova; (ii) to establish a cost-efficient treatment program for disaster victims in the area, through the treatment centers; and (iii) to plan and implement the development of a training program in mental health services for the whole of Turkey.

Activities will include a more comprehensive **assessment** to determine the exact needs and resources in the various existing service delivery locations. This will include a series of meetings with relevant partners at central and peripheral level to establish consensus among the partners with regard to management aspects, final project strategies and activities, and confirm reporting obligations. This assessment will form the basis for final development of training curricula, training program, and final plans for location and operation of the CMH centers. It will focus on training and support needs for public servants, health personnel, hospitals and technical support to Universities.

CMH centers will be built using prefabricated houses in locations identified by the MOH and municipality during the assessment. The centers will be equipped for project administration, training and treatment purposes. The main one will probably be located in Izmit and will comprise: a) 5-6 interview/ treatment rooms; b) a large multi-purpose day treatment room/training center; c) 2-3 group therapy rooms; d) an administration office; and e) a library/documentation center; f) a waiting room. Outreach Centers located in Adapazari, Golcuk and Yalova will comprise: a) 4 interview/ treatment rooms; b) a large multi-purpose day treatment room/training center; c) 1 group therapy room; d) an administration office; and e) a library/documentation center; f) waiting area.

Each center will include: a) a library of books, articles, videos and information materials; b) audio-visual and training equipment; and c) office equipment (incl. PCs with printers, photocopier, other equipment). They will be staffed by clinical professionals including psychologists, nurses and social workers supported by a secretary/administrator in each center. For transportation purposes, three minibuses will be procured for transportation of staff for training purposes and for out-reach services by the staff in the communities.

Training. The project will offer regular training and supervision of project partners by a team of national and international consultants. It will include training of trainers who will then train local staff, as well as direct training to clinicians themselves through a matrix of training services. International consultants will also provide debriefing direct to clinicians in the affected areas. The training will be held throughout the three year period of the project and, in the later stages, will be directed across the whole of Turkey. It will include: a) Early Detection and Screening of Post-traumatic Stress Disorder (PTSD) and complicated brief syndromes in adults and children; b) Stress Management and Coping Skills related to both Traumatic and Chronic Stress; c) Individual and Group Psychotherapy, with special emphasis on modern cognitive - behavioral methods and techniques and family therapy; and d) Strategies and methods of providing mental health related information to the public and to different organizations and agencies to stimulate awareness and support and guide mental health promotion in society at large.

The training will be targeted to different groups of intervention and prevention providers: a) Mental Health Clinicians for pre-school and school-aged children, families, and adults exhibiting service symptoms over time; b) Health Care Providers (local health directors, primary health physicians, internists, surgeons, pediatrics, nurses, midwifes, social workers); c) Para-Professional providers (graduate students in public health, psychology, social work and education) for the general adult and child population exhibiting less severe symptomatology; and d) Community Leaders (school principals and counselor, public safety workers local and provincial government officials, religious leaders, army and police commanders, employers and managers of business and organizations) for their constituents of subordinates, teachers, followers and employees.

In addition to clinical training, a three-year training program will be established for the project staff, focusing on methods for service delivery, project management and implementation and methods for project evaluation. The training program will be carried out by national and international experts. Training

manuals and materials will be developed/adapted for use by the project, and specific treatment protocols will be implemented and evaluated to ensure the development of the most cost-efficient methods for treatment of traumatized populations. Selected project partners will be able to attend international conferences and seminars to present their activities and exchange experiences with others involved in similar projects.

Counseling and Treatment. The CMH centers will provide counseling and treatment to adults, children and families who visit the centers, as well as through out-reach activities carried out by the center staff. The primary mental health rehabilitation services will be provided free of charge to the population. These services will be closely coordinated with parallel activities in the education and social services, and with the specialized services provided at the tertiary level (specialized mental health and psychiatric services). Treatment will be free of charge for the clients, and be covered by the regular health service system in Turkey. If necessary, patients in need of treatment which can not be provided by the centers will be referred to inpatient clinics including Bakirkoy Hospital or other inpatient centers in the region.

Disaster Preparedness. The project will have a strong preventive component that includes focus on disaster preparedness plans and strategies. In collaboration with relevant authorities, the project will contribute to improvement of existing disaster preparedness plans as well as developing local mental health disaster preparedness plans.

Public Information Campaigns. As part of the project, public information campaigns, including both printed and audio-visual materials, will be planned and executed through mass media and other information channels to disseminate knowledge about normal reactions to disasters, as well as for dissemination of information about available services. This will support the de-mystification of the role of mental health services to the general population, information about where to seek mental health services, and also decrease the negative after-effects of the disaster through its educational component.

Policy development. The project is expected to produce results that will impact on future development of community mental health services in Turkey, as well as on the further development of disaster preparedness plans.

Implementation. The project will be implemented by the Ministry of Health (MOH) which will set up an internal Task Force to ensure effective implementation. The Task Force will work closely with the PIU in Ankara and the local PIUs set up in the four main cities affected by the earthquake for the duration of the project. While the PIU will be responsible for all contracting in line with Bank procedures, the MOH Task Force will work to support the establishment and staffing of CMH Centers in selected locations in the disaster area. These centers will be under the overall coordination and management of the MOH with support from Bakirkoy Mental Health hospital in Istanbul, local University Mental Health units and provincial health care services. An international project partner will provide ongoing project support including technical assistance, training and materials to help develop and support the specialized skills required for both the management and clinical implementation of the service delivery in the affected area.

A coordination committee for the project will be formed by representatives from Ministry Health, Universities, hospitals and associations, Social Services and the Child Protection Foundation, Ministries of Education, Labour and Social Security and other related ministries, provinces and municipalities, staff from the CMH centers and representatives of the involved donor organizations and their partners. The Committee will meet every three months in order to make proposals for the development of the mental health services in the area. Links will also be made with other related projects in the social sector such as the Bank financed social sector and employment project of the Ministry of Labour.

CMH centers will be established under the guidance of this committee and equipped by this project. The centers will be staffed by employees of the health services, and supplemented by additional support and professional staff in the initial project period. Visiting professionals, volunteers and others involved in services in the disaster region will be invited to supplement the staff and assist in project implementation.

Training and technical assistance will be provided by specialists with the most up to date and tested methods of trauma counseling, and stress relief in disaster situations, with a strong track record of delivering programs of this type including both the clinical and organizational aspects of health care delivery.

Expected Outcomes. The expected outcomes are: (i) four community mental health centers in the disaster area, with a main center in Izmit; (ii) immediate increase in service delivery to local population through group and individual counseling by personnel trained in specialist techniques and working as professionals in the region; (iii) development of new strategies and methodologies for therapeutic support to populations affected by large-scale disaster in Turkey; (iv) decreased negative after-effects among the affected populations; (v) documented effects of intervention strategies at several levels; (vi) contributions towards reforms of the community mental health services; (vi) improved psychosocial/mental health disaster preparedness plans.

Time schedule. The project is planned for three years: (i) establishment of the centers, initial training and development of project methodologies, including rapid delivery of services for immediate trauma relief of earthquake victims; (ii) training activities will be more limited, and there will be strong emphasis on evaluation of the results, and increased concentration on the longer term effects of trauma; (iii) project results will be documented and utilized for development of policies, for preparation of plans for extension of the project to other parts of Turkey, and publication of results.

Flow of Funds. All funds will be disbursed by the PIU. Payment of salaries for all local consultants (clinical staff) will be done directly by the PIU through.

Psychological support to organizations and businesses affected by the earthquake (US$2.61 million). This activity has the following objectives: (i) to provide psychological debriefing, trauma counseling and related management consultation and organizational development to organizations and businesses affected by the earthquake in the short term; (ii) to develop long-term programs for improved psychosocial environment in the work place; (iii) to create a flexible non-profit organization (attached to an existing NGO) with specialist skills and the capability to respond to future disasters

With the example of the Turkish Psychologists Association and Kocaeli University in mind, a project office and team will be established and staffed by a manager, administrative staff and by clinical staff to offer its services to organizations, businesses and industry in the disaster-affected areas. These services will focus both on the psychological impact of the disaster on individuals, and on the impact of the organizations themselves. This will include aspects like management consultation, organizational development as organizations have to change anyway to adapt to the new reality, and the overall psychosocial environment of the work places in addition to basic trauma relief and counseling.

The organization will be set up within an NGO or similar existing non-profit organization with the intention that, within 2 years, it will become an entirely self-financing non-profit arm of an existing organization or a separate entity. The project staff will be recruited and salaried covered ubder the project, initially at 100% a year and reduced to 50% in the second year. In the third year the project staff will be self-financing on a fee for service basis, while the project will continue to receive support for training and documentation of

project achievements.

Establish project team and office. Staff will be recruited and project office established with one of the project partners. In parallel, the organizational framework within which the unit will function will be established. The project teams will start to provide services in the disaster region as soon as the teams is established. A team of 10 psychologists and other professionals will be hired to work specifically for this project for the entire project period. The project office will comprise: a) administration office including meeting room; b) a training room; and c) a library. It will be equipped with the required office and training equipment. In support of the activities, three cars will be procured for the project.

The project will be housed within an existing resource institution in the region. Most activities are, however, expected to take place inside the organizations and businesses in which the project will be implemented.

Training. Once recruited, the project staff will undergo a training program in crisis psychology and organizational psychology. This will not only develop these skills in project staff, but also ensure that a coherent project philosophy and methodology is established within the project. Project manuals and materials will be produced in support of this training, which will be delivered by national and international experts.

The training and project materials will focus on: a) Psychological debriefing of personnel; b) Management consultation following a disaster; c) Organizational development following a disaster; d) Social support systems in organizations; and e) Disaster preparedness.

This component would be designed, managed and delivered by international specialists in the area of trauma counseling and crisis psychology, especially in the workplace.

Information campaign. An information campaign will be carried out in the disaster area to inform about the availability of the services and how businesses can organize themselves to respond to disasters and deal with cases or trauma amongst their staff.

Services to organizations. The main activities of the project teams will be related to continuous support and services to involved organizations and businesses. The teams will operate in organizations inviting them to provide support, and the services will range from psychological debriefing of groups of employees and crisis interventions to individuals to support to management and involvement in organizational processes to improve the work environment. The teams will not provide regular therapeutic services to individuals, but will refer all such requests to the community mental health centers with which they will cooperate closely.

Implementation. The program will be delivered through an existing NGO or non-profit organization with related skills/services and operating in the disaster zone. The host organization will be chosen through normal Bank tendering procedures, by the PIU. The program will be delivered through and at the request of Chambers of Commerce and Industry, Chambers of Guilds and individual organizations, both public and private, and in cooperation with relevant authorities. It will be delivered on the premises of the organization requesting the services.

Expected Outcomes. (i) Establishment of an organization and trained project teams to provide crisis psychology and organization psychology support to enterprises in the disaster area; (ii) Reduced negative

psychosocial after-effects of the disaster among the work force; (iii) Improved productivity and overall health among staff in the involved organizations; (iv) Documented effects of intervention strategies at several levels; (v) Existence of a professional team with specific post-disaster related expertise which can be used in other locations for short periods.

Time schedule. The project is planned for three years. The first year will be for rapid crisis interventions in organizations with focus on the psychological impact of the disaster on personnel, establishment of project office, initial training and development of project methodologies. In the second year the project will shift its focus towards organizational psychology. In the third year the project results will be documented and utilized for development of policies, for preparation of plans for extension of the project to other parts of Turkey, and for publication of the results.

Flow of Funds. All funds will be disbursed by the PIU. Payments of salaries for all local consultants (clinical staff) will be done directly by the PIU, based on contracts signed between the MOH and the consultants.

Monitoring and evaluation. Monitoring of the project will be accomplished through quarterly narrative summary of progress and counts of all types of activities and services provided, and through regular visits by the responsible national and international project partners.

To evaluate the effects of the training programs, the treatment programs and the project in general, systematic documentation and evaluation studies will be carried out. The project has an in-built evaluation component, data will be routinely collected and analyzed to document the efficacy of the program. This will include studies to summarize all results reported by project participants, assessments of short and long-range mental health outcomes, client satisfaction survey results, written and verbal input from all professional providers and trainee participants. For the second component which is a pioneering project, there will be a strong focus on ongoing documentation of its achievements. Systematic evaluation studies will be carried out in selected organizations to document the impact of the project on the organizations. In addition, the MEER project evaluation team will look closely at the results of the project both at the mid- and end points to determine project effectiveness.

An independent evaluation study will be carried out at the end of the program to evaluate final results.

Reporting. Project managers will produce quarterly project progress reports, and six months reviews will include input from all project partners and consultants. Quarterly reports will be supplied, in English as well as Turkish, to the MOH, PIU and other international project partners. Annual reports will contain comprehensive documentation of all activities, for dissemination to supporting organizations, all participants, the larger professional community, and the general public. The project is expected to produce a series of publications with regard to project strategies, methodologies, activities and results.

Table 5: Trauma Program Targeted for Adults in the Affected Region

	Bank Financing (US$ million)	Government Financing (US$ million)	TOTAL (US$ million)
Community Mental Health (CMH) Services	3.73	0.55	4.28
Psychological support to organizations and businesses affected by the earthquake	2.31	0.30	2.61
TOTAL	**6.04**	**0.85**	**6.89**

Financing. Some grant financing for this component will be sought from other co-financiers.

Project Component 3 - US$ 293.32 million

Component C: Construction of Permanent Housing in Bolu, Yalova and Kocaeli (US$293.32 million)

Objective. The principle objective of this component is to assist the Government of Turkey in reconstructing permanent housing in the urban and rural areas affected by the earthquake.

Damage Overview and Current Situation. The earthquake of August 17 affected the provinces of Istanbul, Kocaeli, Sakarya, Bolu, Yalova, Bursa and Eskisehir. The population that suffered from direct damages corresponds to 6 percent of the national population. The earthquake left behind thousands of homeless, and damaged housing. The number of damaged houses is currently estimated by the official authorities at 213,843 units.

Damaged Housing Units Provided by the Crises Center as of 10/06/1999

Province / Municipality	Damaged Housing Units			
	Heavily	Medium	Lightly	Total
Bolu	3095	4,180	3,303	10,578
Bursa	63	434	940	1,437
Eskisehir	80	96	314	490
Istanbul	3,073	13,339	12,455	28,867
Kocaeli	19,315	21,287	22,452	63,054
Golcuk	12,310	7,789	9,299	29,398
Sakarya	19,043	12,200	18,712	49,955
Yalova	9,462	7,917	12,685	30,064
Total	66,441	67,242	80,160	213,843

As presented in the table above, the most affected provinces are Kocaeli (including the municipalities of Izmit and Golcuk), Yalova, and Sakarya (including the municipality of Adapazari). The numbers presented are subject to change due to the objections of inhabitants to the official assessment, and the additional damages caused by ongoing aftershocks.

While the majority of the structural damage and destruction of buildings was the result of poor construction, a significant amount of damage was caused by ignoring and/or by lack of awareness of geological, geotechnical and micro-zoning conditions. The following is a brief description of the areas that suffered the highest damages.

Izmit city is located on the Eastern end of the Bay of Izmit in the Sea of Marmara. Taking into account the development along the E-5 highway, the city has become a rapidly growing urban conglomerate that extends beyond its administrative boundaries. The effects of the earthquake have been felt mostly on the coastline to the West in district of Cumhuriyet, in the central district of Bekirpasa, and in the Saraybahce district. Local soil conditions in combination with improper building designs and construction have been the major cause of damages in this region. Due to the lack of soil strength and the high water table, reconstruction of these sites would be extremely costly, even if they are found to be suitable from a technical point of view. Therefore the city authorities as well as independent experts are focusing the reconstruction efforts on more suitable sites close to the city center.

Golcuk is an urban area located between a narrow strip of hills to the South and the shoreline to the North, on the South-East coast of the Bay of Izmit. The city has shown a rapid growth of the population in the recent decades due to increased commercial and industrial activities in the region. The location of the navy shipbuilding yards and headquarters have been another factor of this development. Approximately 45 percent of North Golcuk has been destroyed during the earthquake. The infrastructure network was heavily damaged, and part of the coastal areas were sunken into the sea. Only minor damages are reported in the South of the city. The destroyed sites between the highway and the shoreline cannot be used for re-construction. This area is either located on top or very close to the main fault line. Based on the information provided by the local authorities, the city plans to use the earthquake-prone sites for recreational activities in combination with low-density, low-rise commercial structures. The residential areas may be developed in the Southern part towards hilly zones where the ground conditions allow earthquake resistant settlements.

Adapazari is the most affected city in the whole region. Whole districts in the center have totally collapsed including a once lively commercial zone. The city is built on mainly alluvial deposits subject to liquification formed by the Sakarya and Mudurnu rivers. The water saturation level of the soil is very high. This kind of soil has no effective strength to strong earthquakes. Soil conditions were not taken into account during planning studies with the result that urban growth took place along the North-South axis on the alluvial plains. It is obvious that further development must be directed towards Northern areas on higher altitudes.

Yalova is a partly commercial and partly recreational resettlement. The industrial zone located on the coast to the East of the settlement and its strategic location to Istanbul and Bursa have been the major factor behind a booming commercial activity. The close distance to Istanbul and Bursa has attracted medium and higher income groups to buy or rent holiday houses which are used mainly during the summer months. The fault line extends East-West on the coast and towards the city's North-western coast. Haci Mehmet district on the Western part of the existing settlement has suffered the most damage. This area is being designated as "construction prohibited zone." Preliminary assessments confirmed that this zone cannot be utilized for further construction.

Institutional and Legal Framework. Institutional arrangements for disaster response are defined in the Disaster Law No. 7269. At the apex of the Government's mechanism for responding immediately after a disaster occurs is the Central Coordination Committee for Disaster (Crisis Center), located in the Office of the Prime Minister and chaired by the Undersecretary for the Ministry of Public Works and Settlement (MPWS). The General Directorate of Disaster Affairs (GDDA) of MPWS is the Secretariat of the Crisis Center. Members of the Crisis Center include representatives of the concerned Directorates within the Ministries with development responsibilities at the local level (Interior, Health, Transportation, Agriculture and Rural Affairs), other Ministries that may have a post-disaster role (Foreign Affairs, Finance, Education, Defense, Labor and Social Welfare, Environment) and the Red Crescent Society.

GDDA provides the operational hub for the Crisis Center, gathering information from provincial and local authorities, interpreting situations and conditions, and identifying specific needs for personnel, equipment, supplies, material, services and funds to be mobilized through the Crisis Center. These data and recommendations are reported to the Crisis Center.

The General Directorate of Civil Defense (GDCD) of the Minister of Interior plays an especially important role in the Government's response to disasters. GDCD has the task of mobilizing personnel and equipment to the scene to rescue and assist people trapped, threatened, or injured by the disaster. The GDCD has trained personnel and limited equipment for this purpose, particularly for the case of flood and landslide disasters, and in many cases mobilizes equipment from other agencies through the Crisis Center to carryout its tasks. GDCD mobilizes civil rescue troops from areas outside the disaster affected provinces, joins these teams with provincial civil defense troops, and local urgent aid and rescue teams, according to the conditions and needs it finds in the disaster area.

The Disaster Law 7269 also defines the assistance that the Government provides to the victims of natural disasters. Since 1959 and under the provisions of Disaster Law, the Government assumed full responsibility for natural disasters. The budget allocation for disaster assistance is not sufficient to cover the operating costs of the GDDA. Allocations for disaster assistance are made on an as needed basis. Clearly, under the current environment the government will continue to be responsible to provide coverage for disaster victims, which poses a major threat to the Government budget. Under the Disaster Law 7269, MPWS is responsible for reconstruction of housing damaged by natural disasters. MPWS can request the Housing Development Agency (HDA) to assist in the reconstruction process.

Damage Assessment Requirements. Government assessors determine damage for each structure for which assistance is requested. Units which have collapsed or cannot be repaired are classified as heavily damaged. Structures which can be repaired for 30%-50% and 5% of their total replacement cost are classified as medium or lightly damaged, respectively.

Beneficiary Selection Criteria. Parallel to damage assessment and based on the following criteria those families eligible for assistance according to the Disaster Law 7269 and related regulations are determined by a committee. The committee consists of one representative each from the city council, MPWS, title registration office, provincial government and the district official (muhtar). The current Disaster Law has strict provisions targeting assistance only on the needy families affected by the disaster. To qualify families must apply for assistance and satisfy the following criteria:

- Families and married children of families, who are residing in units owned by their parents, are eligible for disaster assistance
- Assistance is provided only to the least damaged unit, in case the family within the municipal boundaries of principal residence owns more then one unit
- No assistance shall be provided to families who own an undamaged unit within the municipal boundaries of principal residence
- Beneficiaries must have full title to the damaged property

In addition to the above, the following criteria are adopted for this project:

- Assistance under this project is limited to collapsed and heavily damaged rural housing and urban multi family units
- Investments must be implemented under controlled and sound construction practices, and utilize

appropriate cost effective design standards which protect against future seismic risks
- Investments must comply with environmental standards
- Investments likely to be implemented in a timely manner

The resettlement of families in urban areas is voluntary, no resettlement will be required in rural areas. The beneficiary records have to be filed at the PIU, and presented for Bank's review upon request.

Cost Recovery. There are two elements of cost recovery in this component: (i) repayment of loans to disaster victims, and (ii) beneficiary contributions. The disaster legislation stipulates that disaster beneficiaries will repay loans in 20 years, including a 2-year grace period with 0.0% interest. Assuming an annual inflation at 20%, the cost recovery of the disaster loan is approximately 18.6%. The second cost recovery element is voluntary beneficiary participation in the cost of construction which is expected to average US$4,500 or 18.4% of the estimated unit cost of construction of housing in urban areas, and US$3,000 or 26% beneficiary participation in the rural housing. The composite cost recovery is calculated at 34.1%. More details of this calculation broken down into rural and urban sub-components are provided in the Project Implementation Plan.

Progress since Erzincan and TEFER Projects. Although sector reform has been slow, some progress has been made in this regard, as listed below:

- The earthquake building construction code related to the construction standards under Law 3195 has been revised. The quality of enforcement needs further attention
- Licensing of contractors and building professions in Turkey must be based on explicit evaluation of qualifications and experience
- A campaign to increase public awareness about disaster preparation and safety measures has started. A substantially increased effort is required with targeted emphasis on development decision-makers
- Initial training materials for contractors and workers have been prepared and limited training is ongoing. A substantially expanded effort is necessary to reach contractors throughout the country
- Amendments to the Disaster Law 3194 and its by-laws for inclusion of a new construction control system and measures of resistance against disasters are under study
- Insurance against natural disasters is available and utilized on a voluntary basis throughout the country at rates that vary between 0.25 to 5.0 per 1,000, depending on the location and type of construction
- HDA now requires that beneficiaries carry such insurance for housing constructed by the agency

Policy reforms to be supported. The Government will introduce the following amendments to the Disaster Law including:

- the introduction of mandatory catastrophe insurance for all registered residential dwellings
- the establishment of the Turkish Catastrophic Insurance Pool (TCIP)
- limit to the benefits payable for repair or replacement of uninsured dwellings to an amount not to exceed 40% of what would have been payable for the first dwelling owned had the property been insured under the TCIP scheme
- requirement of professional liability insurance and corporate liability insurance for contractors

Additional revisions are required to the Development Law and to the Tender Law.

Urban Housing Re-construction (US$250.82 million). The sub-component will finance technical assistance, design, supervision, training and investments to replace collapsed or heavily damaged household units in the urban areas of the provinces of Bolu and Kocaeli. Approximately 10,000 are estimated to be

eligible for reconstruction. The Bank will finance these units on sites to be identified by the Borrower following the requirements presented below. Construction of these units is planned to start in the next construction season, as early as March 2000. This will allow adequate time for the necessary detailed site investigation, client consultations, and design.

About 2,600 units are expected to be provided for the city of Adapazari on an accelerated schedule under a reallocation of unused funds committed through the TEFER project. This activity should proceed immediately, independently of the MEER project, through the extension of existing TEFER contracts, thus enabling the starting of foundation work before the end of the 1999 construction season. Designs will be based on the TEFER prototypes, with modifications to suit the different climate found in the Mamara region. Based on the information provided by the Ministry of Public Works the potential sites are currently identified in the Adapazari province.

Costs will vary depending on topography and location. However, the cost per unit is estimated around US$20,000 including on-site infrastructure. The cost for off-site infrastructure is expected to be paid by the municipalities or could be covered under the municipal infrastructure component of the Framework Program. Total cost of construction of buildings and infrastructure is estimated at US$326.0 million.

Estimated Replacement Cost for Urban Housing Units

Province	**Household Units Number**	**Cost per Unit**	**Cost (excluding taxes and beneficiaries contribution)**
		Basic Housing in US$	Total in million US$
Bolu	1,000	20,000	20.0
Kocaeli	9,000	20,000	180.0
Total	**10,000**		**200.0**

Damage assessment data have been changing throughout project preparation and appraisal. A consequence of the need to act quickly is an increased risk that the ultimate demand from citizens eligible for a replacement unit will not match estimates at appraisal. Based on the TEFER experience and the recommendation of two assessment teams consisting of international and national specialists, the Bank is proposing to finance about 30 percent of the raw number of collapsed, heavily damaged and medium damaged units in urban areas defined as uninhabitable units and therefore eligible units under the Disaster Law. This discounting is expected to allow for second homes included in damage assessments, migration away from the area, and other distortions and social factors. The Borrower is responsible for providing an update of the damage assessment and eligibility estimates two weeks prior to the signing of the contracts. Based on this update, the Bank will review the total number of housing units to be constructed in order to mitigate the risk of over-investments.

Site Selection. It is the responsibility of the Borrower to designate state or municipal owned land with all necessary legal requirements in place for residential housing development as potential sites for new permanent housing construction. Detailed Terms of Reference for the final selection of sites will be developed by the Borrower and approved by the Bank. The Terms of Reference will address the following considerations in full:

A. Urban/Regional Planning Considerations

- New sites are needed for the replacement housing because the previous sites are for the most part inappropriate for geo-technical reasons (except at higher structural costs), land ownership patterns are complex, and because of resistance by current populations to return to what are perceived as dangerous areas. Rebuilding *in situ* would require scattered construction processes that would significantly increase the complexity of the construction process and therefore cause delay and raise costs.

- Construction of permanent housing on the scale of this project constitutes a significant impact on land use as well as shifts of population and economic activity. To minimize social and economic dislocation and to improve cost effectiveness, the new sites must meet planning criteria that are suitable for long-term community building and go beyond the more limited criteria that would apply to strictly " emergency" housing. These criteria include: (i) proximity to existing infrastructure, social facilities, transportation and employment opportunies; (ii) appropriateness for the housing standard proposed: the type of housing to be built is appropriate for lower middle-class families; its future value will be limited by this typology, and it should therefore be located where potential urbanized land values match this economic potential in order to avoid future real estate market distortions; (iii) consideration of existing nearby housing capacity: the Borrower will do the inventory of existing and planned increases in the housing supply, such as cooperatives that are planned or under construction; site selection will be made taking this context into consideration; (iv) consideration of existing structural and land-use plans: selection will address the context of pre-existing land use and environmental planning.

B. Social/Environmental Considerations. Based on the Bank environmental and social requirements, the Borrower will research local laws and regulations, identify those that apply, and certify that they are taken fully into account for the proposed sites:

- Existing population and settlement patterns
- Existing land use, *de facto* and regulated, such as protected heritage or natural resource sites (designated forest lands, etc.)
- Watershed or conservation areas
- Client consultation

The project will finance a public consultation specialist in order to assist the relevant authorities and implementing agency to tailor the components design to the social needs of the target population. The approach of the assistance will incorporate the experiences and lessons learned from the client consultation process applied under the low-income housing project in Southeastern Turkey. The cost of the consultant service is estimated at US$150,000.

C. Geo-Technical Investigation. Detailed geo-technical investigations will be carried out for each proposed site to identify seismic weaknesses and other conditions that would either eliminate the site as a candidate or require special structural design. Terms of Reference will be drafted by a geo-technical expert familiar with Turkish conditions. Investigations will be a prior condition for final site selection approval and for the procurement of design services for particular sites. The investigations will further:

- identify sites where sub-soil conditions would significantly increase costs due to special structural requirements
- recommend suitable structural systems for the specific sites
- provide preliminary cost estimates for foundation and structural works required by specific geo-technical conditions and building types (i.e. low rise versus high rise buildings)

D. Infrastructure. The new sites will require full urban infrastructure to local standards as currently defined by the PIU. In this respect, the following will be considered in site selection:

- Some off-site infrastructure investment is likely to be inevitable; it should be avoided where possible. The costs of bringing services to new sites will be calculated as part of the development cost of each site, and the site suitability will be judged accordingly. The municipalities are expected to finance off-site infrastructure
- Off-site infrastructure can be minimized through appropriate site selection, locating new settlements where possible near existing functioning networks

The desire on the part of some of the earthquake victims to move to higher ground — the slopes adjacent to Marmara cities are considered to be safer — implies higher infrastructure costs, including water pumping and reservoirs, as well as more expensive access roads. This preference will therefore be weighed against costs considerations.

Physical Planning and Building Design. The 10,000 new units that are expected to be required (excluding the need met by the TEFER reallocation) will be centered in seven urban areas, but will serve the needs of the broader region where damage occurred. Distribution between the various local jurisdictions will be defined in consultation with local authorities. At densities of approximately 40-50 units per hectare, roughly 200 to 250 hectare of new land is required in three to five sites This depends on local and national governments preferences, availability and site characteristics.

Site Planning

- Site planning standards will follow HDA practice, but with an eye to improving efficiency through somewhat higher densities wherever feasible. HDA standards provide for adequate circulation, open space and spatial organization
- Social and commercial facilities will be provided where location requires such facilities, following HDA practice
- Borrower will propose a method to incorporate beneficiary consultations in site design and the planning for community facilities
- Bank will have the right of prior review of site layouts, planning criteria and methods for ensuring beneficiary consultation in the process
- Operational framework and cost recovery mechanisms for social/commercial facilities will be proposed by the Borrower for Bank review

Building Design. As with site design and the planning for community facilities, the Borrower will propose a method to incorporate beneficiary consultations into the building design process.

For cost as well as anticipated user preferences, building heights will not exceed five stories. This obviates the need for elevators, simplifies structural requirements, and makes for better social organization within the settlement. The construction method is expected to be tunnel-forming, which is commonly used in Turkey, is fast, economical and provides a system of shear walls that ensures excellent resistance to seismic forces, but limits possibilities for floor plan diversity. Unit size will average 75-80m.[2]

Similar designs were used in Adana and Ceyhan in response to the June, 1998, earthquake (TEFER project). Under the MEER project, building designs will take into account the cool-damp climate of the Marmara region by introducing pitched roofs to enable more effective waterproofing and insulation,

enclosed stairways, wall insulation, and double-glazed windows.

As in TEFER, interior finishes will be modest but durable. Beneficiaries will be expected to provide certain basic equipment such as appliances, kitchen wall cabinets, doors for wall and lower cabinets, water meter, natural gas meter, electrical meter, hot water boiler and floor finishing. Piping and radiators for space heating will be provided. These beneficiary purchases will represent contributions that are estimated at about US$4,500.

The designs will endeavor to introduce a degree of variety in apartment size and in urban design massing in order to provide for market diversity and esthetic variety that is essential for future economic and social sustainability. This variety in design will be achieved at a slight increase in cost.

Rural Housing Re-construction (US$22.92 million). The beneficiaries under the supervision of independent consultants will undertake the construction activities. Construction training will be provided, through which the beneficiaries will gain qualification and experience in the construction of seismic resistant buildings. In addition, standard designs will be provided. No modification will be made to the standard designs without the approval of the PIU. The supervision will be provided either through the consultants to be employed by the PIU or through the PIU staff, as appropriate.

The beneficiaries will purchase materials according to the technical specifications provided by the consultants. No materials are allowed to be used without prior approval by the PIU.

Payments to beneficiaries will be made in increments. The first advance payment will be made to the beneficiaries only after evidence of clear title to the land is provided by the beneficiaries. The remaining payments will be made in stages as approved by the PIU. Similar methods were successfully utilized under the Bank financed Erzincan Earthquake and TEFER projects.

Under this activity, 2,000 household units will be reconstructed in the most affected rural areas in the provinces of Kocaeli and Yalova. The total cost is estimated at US$22.92 million.

Estimated Construction Costs for Rural Housing Units

Location	**Household Units Number**	**Cost per Unit**	**Cost (excluding taxes and beneficiaries contribution)**
		Basic Housing in US$	Total in million US$
Kocaeli	900	8,500	7.7
Yalova	1,100	8,500	9.4
Total	**2,000**		**17.10**

Consultant Services for Design, Site Investigation, Soil Investigations and Supervision (US$20.21 million). Consultant services are required to prepare site plans, soil surveys and site investigations, architectural and structural design for apartment blocks and supervision of construction during implementation of the urban housing reconstruction. For the rural housing reconstruction, consultants will prepare standard designs and provide training, construction management and supervision. This includes services to affected villages in the provinces of Bolu, Sakarya, Kocaeli, and Yalova. In addition, the consultants will be responsible for design of standard units, supervise and assure compliance that specified materials are purchased and used, supervise construction, and approve payments according to progress in construction. The total cost for consultant services is estimated at US$17.1 million. This includes the cost

of US$150,000 for consultant services in context with the public consultation process.

Costs and Financing. The following table presents the financing scheme for this sub-component.

Table 6: Costs of the Construction of Permanent Housing Sub-component.

	Bank Financing (US$ million)	Government Financing (US$ million)	Beneficiaries Financing (US$ million)	TOTAL (US$ million)
Urban Housing Reconstruction	200.18		50.64	250.82
Rural Housing Reconstruction	17.00		5.29	22.29
Design, Site Investigation and Supervision	17.18	3.03		20.21
TOTAL	**234.36**	**3.03**	**55.93**	**293.32**

Implementation. For this sub-component, the PIU is the implementing agency, and has the overall responsibility for all relevant coordination activities. These tasks include preparation of a detailed work program subject to Bank review and the procurement of civil works, goods and consultant services. The project implementation has to be done in close co-operation with the relevant local, regional and national authorities following the requirements defined in the PIP. The PIU will be assisted by consultants in carrying out technical investigations, studies, and in preparing bidding documents for civil works, goods, and services (including design, drawings and calculations in accordance with seismic resistant standards, etc.).

Project Component 4 - US$12.69 million

Component D: Project Management (US$12.69 million)

Project Implementation Unit. The Project Implementation Unit (PIU), established within the Prime Minister's Office, will have the overall responsibility for the coordination and implementation of the project. The PIU Director will report to the Undersecretary of the Prime Minister, who will oversee its activities. This location of the PIU will facilitate a close coordination among the Ministries and Agencies involved in implementing all project components.

The PIU will be responsible for preparing and reviewing the bidding documents and procuring works, goods and services for the activities implemented under the project. For this purpose, the PIU will contract a monitoring team consisting of qualified international consultants who will be responsible for providing support to the procurement actions of the PIU. When a sub-component will be implemented directly by the PIU, the PIU will have the authority to sign the contracts with the service providers.

The PIU will monitor the financial flows resulting from the realization of contracts, and the implementation progress of individual activities. To effectively perform this function, the PIU will immediately set up and maintain a computerized financial monitoring and management system which will comply with Bank standards. A new integrated accounting software, equipped with budget and cost accounting modules and a PMR reporting facility, will be purchased under the project. The monitoring and management system will enable the PIU to timely prepare quarterly progress reports and other necessary documents. The upgraded financial management system will be evaluated by the independent consultant financed under the project.

In addition to the above, the PIU will undertake all essential activities to provide public information about the project and reach out to potential beneficiaries in the earthquake zones. For this purpose, the PIU will hire an External Affairs Officer who will be responsible for providing public information about the MEER and the currently implemented TEFER projects, and handling all other related external relations tasks. In addition to enhancing the project outreach,improved external relations management will draw attention to the GOT's programs and the public perception of its efforts towards the prompt reconstruction and economic recovery of the affected regions.

To ensure an adequate social assessment and monitoring of the project implementation, and its impacts, the PIU will hire a social scientist to track the progress of the project's activities from the social autreach perspective. The PIU social scientist will work closely with the PIU local offices and the NGOs contracted to provide social monitoring of the project.

The institutional capacity of the PIU will be strengthened with additional over sixty more members (on the basis of long-term consulting contracts), and training in Bank procedures, with an emphasis on procurement and financial management procedures. The Bank will review the qualifications of the new staff and the recruitment will be subject to the Bank's approval.

The PIU will work closely with the government agencies involved in the implementation of the respective components, pursuant to implementation protocols that will be signed between the Undersecretary of State and each of the relevant agencies.

Overall, the implementing agencies will (i) provide the TORs, technical specifications, bills of quantities, etc. for the PIU review; (ii) sign the contracts; (iii) supervise the contractors; (iv) accept final products; (v) and submit to the PIU confirmation of completion of contractes activities.

The other tasks to be carried out by the PIU include:

- Prepare or review detailed TORs based on inputs provided by the agencies responsible for given components
- Prepare or review bidding documents and contracts for construction of works, goods, and consultancy services following the procurement guidelines
- Make direct inquiries and receive proposals for the purposes of the engagement of consultants' services, construction of works and procurement of goods
- Evaluate the bids ensuring the involvement in the process of relevant agencies and/or if necessary consultants
- Monitor compliance with Turkish and Bank environmental regulations
- Authorize payments to the contractors
- Assemble and document all available information concerning the implementation of the various components of the project
- Establish the work programs and the implementation schedules for each component, define precisely responsibilities of each party involved in the project implementation, and produce a project operational manual

The PIU Director will have the authority of hiring or dismissing the staff of the PIU, subject to the Bank's approval.

The Steering Committee. The PIU will implement the project under the overall policy guidance of the Steering Committee. The Steering Committee (SC) will be chaired by the Minister of Public Works and

Settlement (MPWS), and consist of the following government institutions: the State Minister responsible for the Housing Development Agency, the State Minister responsible for Social Services, the Minister of Industry and Trade, the Minister of Interior, the Undersecretary of the Prime Minister, the Undersecretary of Treasury, the Undersecretary of the State Planning Organization (SPO), the Governors of Istanbul, Kocaeli, Adapazari, Yalova, Bolu and Mayors of the relevant cities or towns.

The Steering Committee will be responsible for providing advice and policy guidance to the Undersecretary of the Prime Minister overseeing the PIU. The SC will also review quarterly progress reports prepared by the PIU and will review and approve possible reallocation proposals prepared by the PIU before submitting them to the Bank for "no-objection".

Local Offices. In order to streamline and effectively manage implementation of the project, the PIU will establish at least three Local Offices in the areas most severely affected by the earthquake. The PIU Local Offices (PIU-LOs) will be set up in Istanbul, Izmit, Yalova, and Adapazari. The exact geographical coverage of each PIU-LO will be determined by the Undersecretary of State and the PIU, which will take into consideration the proportion of damage on a given territory.

The main responsibility of the Local Offices will be to close monitor the implementation of the project in their respective areas and to assist the PIU in the process of procurement. More specifically, the PIU-LOs will perform the following functions:

- Assist in the identification of project beneficiaries in their respective areas
- Provide public information on the project to the local target population
- Assist the potential eligible beneficiaries in obtaining support from the project
- Monitor progress in project implementation in the respective areas
- Facilitate cooperation between consultants, contractors, and local authorities
- Collect available information and data pertaining to project implementation like: investment programs, detailed studies, including designs, drawings, cost estimates, contracts, environmental permits and clearances
- Analyze the available documents for sufficiency, and identify possible data gaps and needs for additional documentation or studies
- Prepare plans for investment activities in the their respective areas, and submit them to the PIU
- Review and provide timely feedback and comments on reports prepared by the consultants
- Provide all necessary guidance to the consultants
- Ensure that the contracts issued by the PIU are fully implemented
- Coordinate the project activities being implemented under various components
- Review all progress reports and invoices prior to submission to the PIU
- Provide the PIU with monthly reports which will also include recommendations concerning improvements in the project implementation.

Implementation Modalities. While the above institutional arrangement reflects the general framework of the project management, there are specific modalities for the implementation of individual components. The specific obligations of the parties involved will be incorporated in the implementation protocols signed with the individual implementing agencies. The main highlights of the implementation modalities are summarized below:

A-1. National Emergency Management System. The sub-component will be implemented by the Ministry of Interior (MOI), based on the implementation agreement signed with the Undersecretary of State. The main role of the PIU will be to assist the MOI in the procurement procedures. All the contracts will be

signed between the contractor and the MOI.

A-2. Disaster Insurance Scheme. The key project implementation functions and responsibilities will be carried out by the Turkish Catastrophic Insurance Pool (TCIP) Board of Directors, and the TCIP Management Unit established with Milli Re. Besides managing the Catastrophic Insurance Pool, and acting as a secretariat for the TCIP Board, the TCIP Management Unit will also have the overall responsibility for implementing this sub-co mponent, and for maintaing relations between the GOT and the Bank. The PIU will provide all required management and implementation services, including accounting and financial reporting services for all technical assistance related activities. Moreover, the PIU will assist the TCIP Management Unit with the procurement of goods and services purchased with Bank funds.

A-3. Land Use Planning and Construction Code Enforcement. The PIU will have overall responsibility for administrative and financial management of the activities of the sub-component. The municipal studies will be carried out according to contracts between the PIU and each selected pilot municipality. The training programs will be designed and conducted by consulting entities contracted for the purpose under standard World Bank procurement rules. A managerial position will be created within the PIU in order to allow for better oversight of the implementation of the component. The stakeholders' seminars will be organized in cooperation and under the leadreship of the MPWS.

A-4. Cadastre Renovation and Land Management. Implementation will be guided by the "MERLIS Committee" established under the project sub-component. Chairman of this Committee will be the General Director of Land Registration and Cadastre. Its membership will comprise: representatives of key municipalities in the Marmara Earthquake Region, representatives of central government agencies involved in the reconstruction efforts and others upon invitation by the chairman. To implement the activities proposed under this sub-component, the PIU will enter into implementation protocols with: (i) the General Directorate of Land Registry and Cadastre for the implementation of the activities related to cadastre renovation and with the General Directorate of State Land to implement activities related to land management. The PIU will be disbursing funds in accordance with the contracts, and will ascertain that all transactions follow the Bank procedures for procurement under the MEER.

B-1. Business Rehabilitation. The PIU will enter into individual development contracts with entities eligible for assistance. The PIU will ascertain adherence to Bank and project specific requirements. The PIU will hire a team of consultants, two in each PIU local office, and one team leader in the PIU to manage the sub-component. The resources for any additional technical assistance have been allocated under the budget of the business rehabilitation sub-component.

B-2. Trauma Program for Adults. The Ministry of Health will be the implementing agency for the sub-component. To enhance the sub-component participatory implementation process, a coordination committee will be formed by representatives of the Ministry, involved Universities, hospitals and associations, staff from the Community Mental Health Centers, and representatives of the involved donor organizations and their partners. In case of the psychological support to organizations and businesses, the services will be delivered by an NGO selected through normal Bank tendering procedures.

C-1. Construction of Permanent Housing and C-2. Repair of Existing Housing Stock and Healthcare Facilities. In case of sub-components C-1 and C-2, the PIU will be the implementing agency, and have the overall responsibility for coordination of the relevant activities. The tasks to be undertaken include preparation of detailed work programs subject to Bank review and the procurement of civil works, goods, and consultant services. The project implementation will be done in close cooperation with local, regional, and national authorities.

C-3. Municipal Infrastructure. Each municipality supported under this sub-component will procure works and goods according to programs reviewed and agreed with the PIU. The PIU will be making the disbursements from the project account based on the complete documentation submitted by the municipalities. The documentation will be reviewed and the works performed inspected by the PIU before payments are authorized. In the case that a municipality does not have the capacity to implement the sub-component, then the PIU will be responsible for its implementation.

Power Distribution Systems. TEDAS will be the leading implementing agency for the activities related to power distribution systems rehabilitation and, together with the local distribution companies, will be preparing all necessary bidding documents assisted by the PIU and local offices of the PIU. The contracts will be signed by TEDAS. All disbursements will have to obtain the PIU's authorization. Detailed modes of cooperation will be specified in the implementation protocol to be signed between the PIU and TEDAS.

The organizational chart for the described project implementation structure is in the project implementation plan.

Costs. The following table shows the breakdown of the project management costs. The figures do not show the expenses covered under the TEFER loan proceeds (the part of staff salary is covered from the TEFER project therefore, is not included in the MEER management cost estimations for 1999-2001). Costs of some of the key staff financed under the TEFER will be carried over into 2002 and covered under the MEER.

Table 7: Costs of the Project Management Sub-component.

	Bank Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Time Staff	5.72	1.43	7.15
Equipment	0.75	0.14	0.89
Operations	1.66	0.41	2.07
Procurement Monitoring	0.47	0.05	0.52
Training	0.58	0.11	0.69
Technical Assistance	0.59	0.10	0.69
Publicity Campaigns	0.58	0.10	0.68
TOTAL	**10.35**	**2.34**	**12.69**

Customs and Duties. The Bank funds cannot be used to finance local taxes (such as customs duties, sales tax, income tax, etc.). The import tax due on any Bank-financed goods will be paid by the Government or the beneficiary.

Accounts, Audit and Reporting. The PIU will be responsible for the design and implementation of the financial management system for the project as described in the Project Implementation Plan (PIP). The Bank will provide a support for design and establishment of the system.

The Project and Special account will be audited annually by independent auditors, acceptable to the Bank.

Monitoring and Evaluation Arrangements. Supervision will be carried out by the Bank team, which will

review implementation of the project approximately on a quarterly basis during the first year. Supervision missions in the next two years will be conducted two or three times a year as needed, with continuous advise and support from the Bank Office in Ankara.

The review of the procurement procedures agreed between the Bank and the GOT will be undertaken by an external monitoring team consisting of international consultants. The monitoring will be conducted periodically, both ex-ante and ex-post. The Bank will provide the Government with the technical assistance necessary for setting up this system.

In addition to the work of the social scientist hired by the PIU, a monitoring and evaluation exercise will be undertaken at mid-term and towards the end of project implementation to identify social aspects of implementation, as for example the identification of groups that might have been left out from the program and would need specific outreach.

Additional monitoring activities have been budgeted under components that need periodic reviews. The PIU will procure those activities in accordance with Bank procurement guidelines.

Monitoring and evaluation reports will be also shared with other co-financiers.

Remaining Framework Program Components

Project Component 5 - US$109.72 million
Component E: Business Rehabilitation (US$109.72 million)

Component Objectives. The primary objective is to rehabilitate businesses damaged by the earthquake, with emphasis on small shops and service establishments. In particular, the sub-component aims at (i) reestablishing the small commerce sector that is an important part of civil society, (ii) creating employment through the operation of small businesses, (iii) alleviating the conditions of those former shop keepers, who are now homeless, increasingly dependent on charity and housed in tent cities, and (iv) providing business opportunities to the most vulnerable, notably women and children who lost the breadwinner in the family.

For the purposes of this project, the business sector has been subdivided into three categories: (i) retail businesses, i.e. shops and other small business establishments such as bakers, grocers, barbers etc.; (ii) manufacturing and service enterprises, i.e. businesses with fewer than 10 employees but larger than the family run shop; and (iii) small and medium size enterprises (SME), businesses with between 10 and 200 employees. The proposed project only deals with the first two categories.

Description of Sector. In Turkey, the category of shops is represented by a multitude of sectoral arts and craft associations, reminiscent of the Western system of guilds, with local umbrella organizations, called Birlik, and a national confederation of the Turkish tradesmen and handicrafts (TESK, Türkiye Esnaf ve Sanatkarlari Konfederasyonu). Four million small businesses are members of TESK, representing a total of about 20 million people nationwide, which makes TESK one of the most significant professional organizations in Turkey. By way of illustration of the magnitude and coverage of the sector of small businesses, Birlik in Adapazari, the capital of Sakarya and one of the cities hardest hit by the earthquake, has approximately 52,000 registered members in 70 different guilds of whom about 21,000 are active. Both guilds and their umbrella organizations are governed by a body of law that enables a democratic, self-governing structure, with compulsory elections of a governing board every three years and the equally compulsory creation of overseeing committees, including an audit committee.

Retail Business Sector. Concessionary credit to the retail business sector is distributed by Halkbank, a government owned bank, through credit cooperatives. The government subsidized interest rates effectively eliminate commercial financing to the retail business sector, as private banks can not compete with a product that is offered below cost. Total financing made available in 1998 for the credit cooperative system through Halkbank was TL220 trillion (US$700 million equivalent), corresponding to a fifth of the bank's credit portfolio. This amount is distributed in more or less equal amounts over the 79 provinces. For instance, in 1998, the province of Sakarya received a total of TL4 trillion (US$13 million equivalent).

Shops are usually located on the ground floor of residential buildings, and therefore have been seriously affected by the earthquake.

Service and Manufacturing Enterprises. Service enterprises are in part organized under Birlik, and in part under the Chambers of Commerce. The difference is in the volume of trade. When a small business reaches TL9 billion annual turnover (US$20,000 equivalent), the enterprise has to register with the Chamber of Commerce, whereas all manufacturing enterprises with more than 10 employees are required by law to become members of the Chamber of Industry. Hence, Chambers of Commerce will have members whose annual turnover exceeds US$20,000 equivalent, but mostly employ fewer than 10 persons. Many of these enterprises are service establishments, but there are also small manufacturing enterprises, e.g. those supplying parts to the automobile industry. The Izmit Chamber of Commerce, covering the entire Kocaeli Province, has a membership of about 70,000 such businesses.

Construction Cooperatives of Service Enterprises. The small service establishments are mostly located in small scale industrial sites (SSIS), or are clustered in certain city quarters; few are located on the ground floor of residential buildings. Service establishments organize themselves into cooperatives with the purpose of constructing SSISs. Public sector support tends to be limited to granting the site and, in some instances, to construction credit at concessionary rates. Construction of premises, typically rows of simple single-story structures with floor areas between 60 and 130 m^2 are undertaken either with funds from periodic member contributions or with credit obtained by the cooperative and paid off through periodic payments from members. Upon completion of construction, any member who has paid up her/his share in full obtains title to the individual shop, including a proportionate share in the land. Upon expiration of its term which is specified in the cooperative statute, and which may be as much as 30 years, and full repayment of the construction credit, the cooperative is converted from a construction cooperative into a condominium that manages the site, with responsibilities for street cleaning, security and similar common services. Creation and operation of these cooperatives, and subsequent condominiums, is governed by a well established body of laws that enables a legally recognized form of self-government and that imposes operational conditions. The SSISs can range from as few as 50 to well over 1,000 members. The Körfez SSIS located on the outskirts of Izmit has 1,100 units housing manufacturing and service related enterprises. Due to financial limitations, obtaining a site and creating the infrastructure and premises apparently involves a lengthy process often lasting ten years or more. This is in part because construction progress depends on periodic member contributions, and because site acquisition and obtaining building and other permits can be very time consuming. Because of the problems inherent in developing a SSIS, successful ones create capital gains for their members through appreciation of the equity invested. Shares in the earlier mentioned Körfez SSIS representing the location for a service establishment, had risen, prior to the earthquake, to about 3 times the actual construction cost of the premises, and were quoted by SSIS management at DM 52,000 equivalent.

Damages. Damage assessments of businesses are being undertaken by the Chambers of Industry and Commerce, as well as by municipalities, banks and insurance companies. The Chambers are vested with

the responsibility for official damage assessments as laid down in the Disaster Law. Damage assessment commissions have been established under the authority of that law and with compositions cleared by the provincial governors. It is expected that only the damages assessed and recorded by these commissions, and verified by the local tax office, will be eligible for governmental assistance.

As of September 24, all of these commissions were still in the process of completing their portfolios, none had been finished. Damage assessments briefly discussed below are those made as part of project preparation for the damage to residential complexes and hence to shops, and in addition are based on extrapolations of what was contained in the portfolios of the pertinent assessment commissions in the core provinces of the earthquake zone, Kocaeli, Sakarya and Yalova for all businesses larger than shops. Details of all these assessments are in the project files.

The numerically most important damage to businesses has been inflicted on what here is called the retail business sector, since most of its establishments are located on the ground floor of apartment blocks in residential areas. Thus, the scale of damage to these small enterprises is mirrored in the scale of damage to the housing stock. The combined damage in Bolu, Yalova, Kocaeli, Bursa and Sakarya is estimated at a total of almost 11,000 shops completely destroyed, another 9,700 that have suffered medium damage, and a further 9,300 shops slightly damaged. Overall, the number of shops destroyed is about 16% of the number of housing units destroyed. The number of damaged shops is about 13% of the number of damaged housing units, both figures confirming the density of shops in urban residential areas.

In addition, account should be taken of businesses that do not have a fixed business location and premises, such as taxis and street vendors. In Gölcük, the epicenter of the earthquake, Birlik had about 12,000 members prior to the earthquake, among those there were about 2,500 taxi and small transport operators and some 2,000 street vendors.

A high proportion of the damaged businesses is within the food sector including bakers, butchers, fresh fruit and vegetable sellers and general grocery stores. Most carried inventories ranging from between a few hundred dollars US equivalent to US$15,000. Where small businesses have been totally destroyed indications are that average total loss of assets is around US$6,000 equivalent, when businesses with small or negligible trading inventories, such as taxis and street vendors are taken into account. About 80% of this total was trading inventory, part of which was under suppliers' credit. Few businesses register the loss of premises since most premises were rented.

In summary, 11,000 shops are estimated to have been destroyed completely, representing a replacement cost of US$66 million equivalent, of which about US$50 million equivalent is trading inventory. Further substantial losses incurred by medium and lightly damaged shops will have to be added. Since inventories in even slightly damaged shops may have been lost completely, and inventories are estimated at 80% of the total loss of destroyed shops, it is likely that the total business loss of the small shop sector exceeds substantially the US$66 million equivalent estimated here for destroyed shops alone, and indeed could well exceed US$100 million equivalent.

By September 20, the Izmit Chamber of Commerce, the main interest association for the service type establishment, had received about 2,200 requests for damage assessments from its approximately 70,000 members, and had already conducted 630 assessments. By the same date, the Yalova chamber of Commerce and Industry had received 218 requests for damage assessment of similar sized businesses. These and other data indicate that the damage sustained by the service sector of businesses is, absolutely and relative to the sector, much smaller than the damage sustained by shops. Service establishments that were located on SSISs have survived the quake largely unscathed, since their single-story premises have

withstood the damaging shocks of the tremors. Most of the damaged service businesses were among the minority that was located in rented premises on the ground floor of residential buildings.

From the sample of 630 assessments made by the Izmit Chamber for the Kocaeli region, it appears that over 40% of damages sustained, in monetary terms, were suffered by enterprises in the hotel, restaurant and café businesses, about 10% by each of the subsectors of household goods and building materials and about 13% by true service establishments in the traditional sense. The average total loss of individual businesses was about US$30,000 equivalent, of which about 80% represented lost inventory. There is at present insufficient information to make an estimate of total losses suffered by this segment of business. However, early indications are that it is unlikely to be less, in absolute terms than the damage suffered by the shop sector, although in terms of sheer numbers the damage is much more modest than that of the shop sector.

Activities to be Undertaken. A total of three activities will be financed under the project, all but one following established patterns of credit flows and using existing entities and structures in the Turkish business community. These activities are:

Support to construction cooperatives of small shop-keepers and owners of service establishments (US$48.24 million). Although most shops are located on the ground floor of residential buildings, there are certain cities, notably Adapazari where "pasajes," i.e. groups of shops in the style of contemporary malls mostly located on the ground floor of larger office complexes, are popular. Mayors of several of the stricken cities and townships have asked for assistance for reestablishing the commercial heart of their cities by building malls of individual small shops. The project will provide credit financing to construction cooperatives of small shop owners to realize such ventures. Once built and the credit paid off, individual shop-keepers would become owners of the premises. The owners will then create a condominium that will manage common interests, such as maintenance, cleaning and security.

The majority of the so-called service establishments are located in SSISs, on the outskirts of cities. It is proposed to extend credit support to new or existing construction cooperatives of owners of service establishments similar to the support provided to shop owners.

Financing to construction cooperatives will be extended as credits to the associations, that in turn will finance their members' share in the construction with long term credit. Ten percent of the repayment will be retained by the cooperative to cover its operating costs, the remainder will be transfer to Treasury once a year.

Support to credit cooperatives for asset replacement (US$55.94 million). Together with premises, funding for working capital is a crucial factor towards rehabilitating lost shops. Funding would go towards (i) paying off outstanding debt to suppliers for goods delivered before the earthquake and lost together with the premises, (ii) financing a new starting inventory, part of which will be obtained with new suppliers' credit, and (iii) the first month rental of new premises. It is expected that part of these fundings, not exceeding 20%, will be spent on re-equipping shops with such durable goods as a cash register, refrigerator, display cabinets and the like.

The credit cooperatives will be established in a legally valid form, acceptable to the Bank. Membership will be limited to former and current shop owners who have documentary evidence of losses as a result of the earthquake. Members of the credit cooperatives will be eligible for assistance from the project's resources in the form of grants of up to 50% of the total amount requested, and the rest in the form of one year credits with three months grace, and equal monthly repayments thereafter at an interest rate on outstanding

balances equal to the rate on one year Treasury Bonds at the date of credit initiation. Credits will be available only for twelve months after effectiveness of the project, in recognition of the emergency nature of the operation. Repayments will flow into a "small business asset financing fund" established by the credit cooperative. The credit cooperative will retain 20% of repayments, i.e. 10% of the total original financing to cover its operational costs and to constitute a revolving fund for its members. The remainder will be tranferred to Treasury once a year. This revolving fund will be used for subsequent credits at terms equal to those of the original funding, and for one year after effectiveness of the project. Thereafter, this fund will extend credits to the members of the cooperative at terms that include an interest rate equal to the earlier mentioned benchmark rate of one year Treasury Bonds.

Integration with Other Public Support. The Government has announced a grant support program for small businesses damaged by the earthquakes, through the Social Solidarity Fund. Under this reported program, graduated assistance will be extended from the equivalent of approximately US$400 for moderately damaged businesses to about US$1,000 for fully destroyed businesses. In addition, government has announced a support program for small enterprises in the form of concessionary credits through the Halkbank system of lending to the small business sector. Eligibility criteria under the here proposed program will explicitly take account of these other support programs, both pertaining to the "asset replacement sub-component". Support received from the Social Solidarity Fund will be subtracted from the grant element under the proposed "asset replacement" funding, while credits received under the Halkbank supported program will be subtracted from the credit part of the program. These provisions will be part of the eligibility criteria for individual beneficiaries under the program.

Support to provincial unions of guilds (US$5.54 million). Institutional support is proposed for the civil structures that represent the interest groups of small businesses, guilds and unions, that have suffered extensively through the loss of premises, equipment and, unfortunately, staff. It is proposed to extend long-term credits for the reconstruction and rehabilitation of premises, and grant financing for the development of a system of disaster preparedness, and for a public relations campaign connected with the entire program herein proposed.

Financing for reconstruction and rehabilitation of premises of provincial unions of guilds will be extended to these entities under the same terms and conditions as the proposed financing for construction cooperatives. Repayments of the credits will flow into the "small business construction fund."

Costs and Financing Conditions. A summary of the costs for the proposed activities is shown in the table 4 below. The expected costs of financing construction cooperatives for shops is based on average construction costs of US$200 equivalent per m^2, a unit size of 30 m^2, and an expected demand from 20 cooperatives for an average of 200 shops. The expected demand for financing construction cooperatives among service establishments is for a combined total of 500 individual units, each with 130 m^2 and with an average construction cost of US$100 per m^2. It is expected that a total of 6,000 shop owners will avail themselves of an average of US$6,000 of financing for asset replacement, both inventory and equipment. Damage assessments have shown that, on average, 80% of asset loss is in inventory, the remainder in equipment. The cost of support for reconstructing and rehabilitating the premises of the organizational infrastructure of the guilds' system is based on the reported construction cost of the fully destroyed Birlik building in Adapazari.

Table 8: Costs of the Business Rehabilitation Component.

	European Investment Bank Financing (US$ million)	Beneficiaries Financing (US$ million)	TOTAL (US$ *million*)
Support to construction cooperatives of small shop-keepers and owners of service establishments	38.60	9.64	48.24
Support to credit cooperatives for asset replacement	44.75	11.19	55.94
Support to provincial unions of guilds	4.43	1.11	5.54
TOTAL	**87.78**	**21.94**	**109.72**

Expected Output. The expected output is the physical reconstruction of at least 4,000 shops and 500 service establishments, and the rehabilitation and restart of at least 6,000 small businesses. In addition, a contribution will be made to rehabilitating the organizational infrastructure of small businesses through (i) the reconstruction of at least one lost building for the provincial union of small business guilds, and the rehabilitation of at least three damaged buildings, (ii) replacement of lost equipment for at least 3 provincial unions, and (iii) technical assistance to rehabilitate human resources and strengthen disaster response capabilities of the organizations in all affected provinces.

Implementation. The PIU will enter into individual contracts with entities eligible for assistance under the project. Eligible entities will be construction and credit cooperatives of business owners struck by the earthquake, and the provincial unions of small business guilds. Details of membership of the cooperatives, legal structure and starting equity, that will assure eligibility under the project, are in the Project Implementation Plan. In essence, only those cooperatives that have affected business owners among their members are eligible. The individual contracts signed between the PIU and these entities will contain measurable performance characteristics against which gradual disbursement of funds will be made. Failure to honor the terms of the contract, including such aspects as cooperative membership, construction details and contracting procedures, transparency of operations and accounting for funds spent, will be ground for immediate cancellation of the contract.

The PIU will be equipped with sufficient and pertinent technical capability to exercise the substantial, labor intensive, oversight role entailed in the proposed implementation methodology. It is expected that competitively selected NGOs will undertake much of the executory responsibilities of implementation and supervision of the execution of the contracts between the PIU and individual entities. In essence, the PIU will ascertain adherence to Bank requirements, while it will delegate most, if not all, of day-to-day operational matters to the NGOs.

Identification Methodology of Sub-projects. All proposed activities under the business rehabilitation component are demand driven. Requests for support, i.e. requests for contracts with the PIU, will have to follow the guidelines as contained in the PIP. These guidelines assure that the project will deal only with bonafide entities of substance, that eligibility criteria are adhered to and that sub-projects for whom these matters are pertinent, follow design and construction criteria acceptable to the Bank in general and under the MEER project in particular. The latter is with special reference to earthquake resistance and survivability of structures and inhabitants. The project contains a sub-component, budgeted at US$500,000, to assure widespread knowledge of the availability of the support described and of the conditions for eligibility. This is expected to assure quickly and effectively the grassroots demand upon which the entire component is based.

Beneficiary Eligibility. Potentially eligible construction cooperatives will have to be legally valid and will

have to be registered with the pertinent authorities. Membership of these cooperatives is limited to current and former business owners who have documentary evidence of earthquake induced losses and who belong to an organization under the "TESK" umbrella. Moreover, the cooperative must own the land upon which it intends to build, or must have a documented agreement with the owner of the land with whom it wishes to establish a joint venture. The latter is specifically relevant to those construction cooperatives who would like to occupy part of a larger new development, for instance the ground floor of a commercial office building to be erected as part of the earthquake reconstruction. Finally, all members of the cooperative will have to make an initial, irrevocable, "good will" cash contribution of at least the equivalent of US$100 in the case of small shop construction cooperatives and of at least the equivalent of US$500 in the case of service establishments.

Potentially eligible credit cooperatives will have to be legally valid and will have to be registered as such with the pertinent authorities. Membership of these cooperatives is limited to former and current business owners who have documentary evidence of earthquake induced losses, and who belong to an organization under the "TESK" umbrella. All members of the cooperative will have to make an initial, irrevocable, "good will" cash contribution of at least the equivalent of US$100.

Finally, all entities to be supported, as well as 90% of their membership, will have to be domiciled in the earthquake zone as defined by government.

Financing. This component will be financed by other co-financiers.

Project Component 6 - US$177.07 million
Component F: Construction of Permanent Housing in Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa, and Eskisehir (US$177.07 million)

Objective. The principle objective of this component is to assist the Government of Turkey in reconstructing permanent housing in the urban and rural areas affected by the earthquake.

Damage Assessment Requirements. Government assessors determine damage for each structure for which assistance is requested. Units which have collapsed or cannot be repaired are classified as heavily damaged. Structures which can be repaired for 30%-50% and 5% of their total replacement cost are classified as medium or lightly damaged, respectively.

Beneficiary Selection Criteria. Parallel to damage assessment and based on the following criteria those families eligible for assistance according to the Disaster Law 7269 and related regulations are determined by a committee. The committee consists of one representative each from the city council, MPWS, title registration office, provincial government and the district official (muhtar). The current Disaster Law has strict provisions targeting assistance only on the needy families affected by the disaster. To qualify families must apply for assistance and satisfy the following criteria:

- Families and married children of families, who are residing in units owned by their parents, are eligible for disaster assistance
- Assistance is provided only to the least damaged unit, in case the family within the municipal boundaries of principal residence owns more then one unit
- No assistance shall be provided to families who own an undamaged unit within the municipal boundaries of principal residence
- Beneficiaries must have full title to the damaged property

In addition to the above, the following criteria are adopted for this project:

- Assistance under this project is limited to collapsed and heavily damaged rural housing and urban multi family units
- Investments must be implemented under controlled and sound construction practices, and utilize appropriate cost effective design standards which protect against future seismic risks
- Investments must comply with environmental standards
- Investments likely to be implemented in a timely manner

The resettlement of families in urban areas is voluntary, no resettlement will be required in rural areas. The beneficiary records have to be filed at the PIU, and presented for Bank's review upon request.

Cost Recovery. There are two elements of cost recovery in this component: (i) repayment of loans to disaster victims, and (ii) beneficiary contributions. The disaster legislation stipulates that disaster beneficiaries will repay loans in 20 years, including a 2-year grace period with 0.0% interest. Assuming an annual inflation at 20%, the cost recovery of the disaster loan is approximately 18.6%. The second cost recovery element is voluntary beneficiary participation in the cost of construction which is expected to average US$4,500 or 18.4% of the estimated unit cost of construction of housing in urban areas, and US$3,000 or 26% beneficiary participation in the rural housing. The composite cost recovery is calculated at 34.1%. More details of this calculation broken down into rural and urban sub-components are provided in the Project Implementation Plan.

Progress since Erzincan and TEFER Projects. Although sector reform has been slow, some progress has been made in this regard, as listed below:

- The earthquake building construction code related to the construction standards under Law 3195 has been revised. The quality of enforcement needs further attention
- Licensing of contractors and building professions in Turkey must be based on explicit evaluation of qualifications and experience
- A campaign to increase public awareness about disaster preparation and safety measures has started. A substantially increased effort is required with targeted emphasis on development decision-makers
- Initial training materials for contractors and workers have been prepared and limited training is ongoing. A substantially expanded effort is necessary to reach contractors throughout the country
- Amendments to the Disaster Law 3194 and its by-laws for inclusion of a new construction control system and measures of resistance against disasters are under study
- Insurance against natural disasters is available and utilized on a voluntary basis throughout the country at rates that vary between 0.25 to 5.0 per 1,000, depending on the location and type of construction
- HDA now requires that beneficiaries carry such insurance for housing constructed by the agency

Policy reforms to be supported. The Government will introduce the following amendments to the Disaster Law including:

- the introduction of mandatory catastrophe insurance for all registered residential dwellings
- the establishment of the Turkish Catastrophic Insurance Pool (TCIP)
- limit to the benefits payable for repair or replacement of uninsured dwellings to an amount not to exceed 40% of what would have been payable for the first dwelling owned had the property been insured under the TCIP scheme
- requirement of professional liability insurance and corporate liability insurance for contractors

Additional revisions are required to the Development Law and to the Tender Law.

Urban Housing Re-construction (US$156.85 million). The component will finance technical assistance, design, supervision, training and investments to replace collapsed or heavily damaged household units in the urban areas of the provinces of Bolu, Sakarya, Kocaeli, Yalova, Istanbul, Bursa, and Eskisehir. Approximately 60,900 units were destroyed or heavily damaged in these provinces, of which about 16,300 are estimated to be eligible for reconstruction. The Bank and other co-financiers will finance these units on sites to be identified by the Borrower following the requirements presented below. Construction of these units is planned to start in the next construction season, as early as March 2000. This will allow adequate time for the necessary detailed site investigation, client consultations, and design.

Costs will vary depending on topography and location. However, the cost per unit is estimated around US$20,000 including on-site infrastructure. The cost for off-site infrastructure is expected to be paid by the municipalities, or could be covered under the municipal infrastructure component of the Framework Program. Total cost of construction of buildings and infrastructure is estimated at US$326.0 million.

Estimated Replacement Cost for Urban Housing Units

Province	**Household Units Number**	**Cost per Unit**	**Cost (excluding taxes and beneficiaries contribution)**
		Basic Housing in US$	Total in million US$
Sakarya	4,400	20,000	88.0
Yalova	1,200	20,000	24.0
Istanbul	650	20,000	13.0
Bursa	20	20,000	0.4
Eskisehir	30	20,000	0.6
Total	**6,300**		**126.0**

Damage assessment data have been changing throughout project preparation and appraisal. A consequence of the need to act quickly is an increased risk that the ultimate demand from citizens eligible for a replacement unit will not match estimates at appraisal. Based on the TEFER experience and the recommendation of two assessment teams consisting of international and national specialists, the Bank is proposing to finance about 30 percent of the raw number of collapsed, heavily damaged and medium damaged units in urban areas — defined as uninhabitable units and therefore eligible units under the Disaster Law. This discounting is expected to allow for second homes included in damage assessments, migration away from the area, and other distortions and social factors. The Borrower is responsible for providing an update of the damage assessment and eligibility estimates two weeks prior to the signing of the contracts. Based on this update, the Bank will review the total number of housing units to be constructed in order to mitigate the risk of over-investments.

Site Selection. It is the responsibility of the Borrower to designate state or municipal owned land with all necessary legal requirements in place for residential housing development as potential sites for new permanent housing construction. Detailed Terms of Reference for the final selection of sites will be developed by the Borrower and approved by the Bank. The Terms of Reference will address the following considerations in full:

A. Urban/Regional Planning Considerations

- New sites are needed for the replacement housing because the previous sites are for the most part inappropriate for geo-technical reasons (except at higher structural costs), land ownership patterns are complex, and because of resistance by current populations to return to what are perceived as dangerous areas. Rebuilding *in situ* would require scattered construction processes that would significantly increase the complexity of the construction process and therefore cause delay and raise costs.

- Construction of permanent housing on the scale of this project constitutes a significant impact on land use as well as shifts of population and economic activity. To minimize social and economic dislocation and to improve cost effectiveness, the new sites must meet planning criteria that are suitable for long-term community building and go beyond the more limited criteria that would apply to strictly " emergency" housing. These criteria include: (i) proximity to existing infrastructure, social facilities, transportation and employment opportunies; (ii) appropriateness for the housing standard proposed: the type of housing to be built is appropriate for lower middle-class families; its future value will be limited by this typology, and it should therefore be located where potential urbanized land values match this economic potential in order to avoid future real estate market distortions; (iii) consideration of existing nearby housing capacity: the Borrower will do the inventory of existing and planned increases in the housing supply, such as cooperatives that are planned or under construction; site selection will be made taking this context into consideration; (iv) consideration of existing structural and land-use plans: selection will address the context of pre-existing land use and environmental planning.

B. Social/Environmental Considerations. Based on the Bank environmental and social requirements, the Borrower will research local laws and regulations, identify those that apply, and certify that they are taken fully into account for the proposed sites:

- Existing population and settlement patterns
- Existing land use, *de facto* and regulated, such as protected heritage or natural resource sites (designated forest lands, etc.)
- Watershed or conservation areas
- Client consultation

The project will finance a public consultation specialist in order to assist the relevant authorities and implementing agency to tailor the components design to the social needs of the target population. The approach of the assistance will incorporate the experiences and lessons learned from the client consultation process applied under the low-income housing project in Southeastern Turkey. The cost of the consultant service is estimated at US$150,000.

C. Geo-Technical Investigation. Detailed geo-technical investigations will be carried out for each proposed site to identify seismic weaknesses and other conditions that would either eliminate the site as a candidate or require special structural design. Terms of Reference will be drafted by a geo-technical expert familiar with Turkish conditions. Investigations will be a prior condition for final site selection approval and for the procurement of design services for particular sites. The investigations will further:

- identify sites where sub-soil conditions would significantly increase costs due to special structural requirements
- recommend suitable structural systems for the specific sites
- provide preliminary cost estimates for foundation and structural works required by specific

geo-technical conditions and building types (i.e. low rise versus high rise buildings)

D. Infrastructure. The new sites will require full urban infrastructure to local standards as currently defined by the PIU. In this respect, the following will be considered in site selection:

- Some off-site infrastructure investment is likely to be inevitable; it should be avoided where possible. The costs of bringing services to new sites will be calculated as part of the development cost of each site, and the site suitability will be judged accordingly. The municipalities are expected to finance off-site infrastructure
- Off-site infrastructure can be minimized through appropriate site selection, locating new settlements where possible near existing functioning networks

The desire on the part of some of the earthquake victims to move to higher ground — the slopes adjacent to Marmara cities are considered to be safer — implies higher infrastructure costs, including water pumping and reservoirs, as well as more expensive access roads. This preference will therefore be weighed against costs considerations.

Physical Planning and Building Design. The 6,300 new units financed under this component (excluding the need met by the TEFER reallocation) will be centered in five urban areas, but will serve the needs of the broader region where damage occurred. Distribution between the various local jurisdictions will be defined in consultation with local authorities. At densities of 40-50 units per hectare, roughly 130 to 150 hectare of new land is required in approximately five to six sites. This depends on local and national governments preferences, availability and site characteristics.

Site Planning

- Site planning standards will follow HDA practice, but with an eye to improving efficiency through somewhat higher densities wherever feasible. HDA standards provide for adequate circulation, open space and spatial organization
- Social and commercial facilities will be provided where location requires such facilities, following HDA practice
- Borrower will propose a method to incorporate beneficiary consultations in site design and the planning for community facilities
- Bank will have the right of prior review of site layouts, planning criteria and methods for ensuring beneficiary consultation in the process
- Operational framework and cost recovery mechanisms for social/commercial facilities will be proposed by the Borrower for Bank review

Building Design. As with site design and the planning for community facilities, the Borrower will propose a method to incorporate beneficiary consultations into the building design process.

For cost as well as anticipated user preferences, building heights will not exceed five stories. This obviates the need for elevators, simplifies structural requirements, and makes for better social organization within the settlement. The construction method is expected to be tunnel-forming, which is commonly used in Turkey, is fast, economical and provides a system of shear walls that ensures excellent resistance to seismic forces, but limits possibilities for floor plan diversity. Unit size will average 75-80m.[2]

Similar designs were used in Adana and Ceyhan in response to the June, 1998, earthquake (TEFER

project). Under the MEER project, building designs will take into account the cool-damp climate of the Marmara region by introducing pitched roofs to enable more effective waterproofing and insulation, enclosed stairways, wall insulation, and double-glazed windows.

As in TEFER, interior finishes will be modest but durable. Beneficiaries will be expected to provide certain basic equipment such as appliances, kitchen wall cabinets, doors for wall and lower cabinets, water meter, natural gas meter, electrical meter, hot water boiler and floor finishing. Piping and radiators for space heating will be provided. These beneficiary purchases will represent contributions that are estimated at about US$4,500.

The designs will endeavor to introduce a degree of variety in apartment size and in urban design massing in order to provide for market diversity and esthetic variety that is essential for future economic and social sustainability. This variety in design will be achieved at a slight increase in cost.

Rural Housing Re-construction (US$20.22 million). The beneficiaries under the supervision of independent consultants will undertake the construction activities. Construction training will be provided, through which the beneficiaries will gain qualification and experience in the construction of seismic resistant buildings. In addition, standard designs will be provided. No modification will be made to the standard designs without the approval of the PIU. The supervision will be provided either through the consultants to be employed by the PIU or through the PIU staff, as appropriate.

The beneficiaries will purchase materials according to the technical specifications provided by the consultants. No materials are allowed to be used without prior approval by the PIU.

Payments to beneficiaries will be made in increments. The first advance payment will be made to the beneficiaries only after evidence of clear title to the land is provided by the beneficiaries. The remaining payments will be made in stages as approved by the PIU. Similar methods were successfully utilized under the Bank financed Erzincan Earthquake and TEFER projects.

Under this activity, 2,000 household units will be reconstructed in the most affected rural areas in the provinces of Bolu, and Sakarya. The total cost is estimated at US$20.22 million including beneficiary contribution.

Estimated Construction Costs for Rural Housing Units

Location	**Household Units Number**	**Cost per Unit**	**Cost (excluding taxes and beneficiaries contribution)**
		Basic Housing in US$	Total in million US$
Bolu	900	8,500	7.7
Sakarya	1,100	8,500	9.4
Total	**2,000**		**17.10**

Costs and Financing. The following table presents the financing scheme for this component.

Table 9: Costs of the Construction of Permanent Housing component.

	Other Co-finaciers Financing (US$ million)	**Beneficiaries Financing (US$ million)**	**TOTAL (US$ million)**
Urban Housing Reconstruction	125.96	30.89	156.85

Rural Housing Reconstruction	17.00	3.22	20.22
Design, Site Investigation and Supervision			
TOTAL	**142.96**	**34.11**	**177.07**

Implementation. For this component, the PIU is the implementing agency, and has the overall responsibility for all relevant coordination activities. These tasks include preparation of a detailed work program subject to Bank review and the procurement of civil works, goods and consultant services. The project implementation has to be done in close co-operation with the relevant local, regional and national authorities following the requirements defined in the PIP. The PIU will be assisted by consultants in carrying out technical investigations, studies, and in preparing bidding documents for civil works, goods, and services (including design, drawings and calculations in accordance with seismic resistant standards, etc.).

Project Component 7 - US$632.12 million

Component G: Repair of the Existing Housing Stock and Health Facilities (US$632.12 million)

Objective. The principal aim of this component is to provide assistance to the GOT in repairing existing housing stock and healthcare facilities damaged during the earthquake.

Repair of Medium Damaged Housing Units (US$610.50 million). Damage to the housing stock was particularly devastating. Over 67,00 housing units were heavily damaged, forcing an estimated 200,000 people to find emergency shelter. It can be anticipated that the numbers of damages will rise if the series of aftershocks does not stop. Due to the high risk of building collapse, it is extremely risky for the families to move back to these buildings. This component will finance the structural repair of about 54,500 medium damaged housing units, which represents about 90% of the damaged units, including the design and the supervision of the repair works. In this case the eligibility approach cannot be applied. It is not possible to repair only one unit in multistory building, hence the number of units that will be covered under the component. Due to the characteristics of structural damages the repair work has to cover the whole building. Under the Bank financed Erzincan Earthquake Rehabilitation project, a similarly designed component was successfully implemented.

The estimated cost of this component is expected to be financed by international donors and the Government. Because of the uncertainty of the financial arrangements, the costs are currently presented as Government contribution.

Estimated Repair Cost for Urban Housing Units

Province	**Household Units Number**	**Estimated Cost per Unit**	**Cost (excluding taxes)**
		Structural Repair in US$	Total in million of US$
Bolu	3,972	9,000	35.7
Sakarya	10,980	9,000	98.8
Kocaeli	25,875	9,000	232.9
Yalova	3,563	9,000	32.1

Sub-total	**44,390**		**399.5**
Zonguldak	86	9,000	0.8
Istanbul	9,667	9,000	87.0
Bursa	416	9,000	3.7
Eskisehir	42	9,000	0.4
Sub-total	**10,211**		**91.9**
Total	**54,602**		**491.4**

The structural rehabilitation component covers the repair of buildings in rural and urban areas which are assessed as medium damaged by inspection teams of the Ministry of Public Works. Only structures which can be repaired to earthquake-resistant standards with costs up to 50 percent of its total replacement costs are eligible under this component. Based on this definition 45 percent of the replacement cost is used as an average number for the estimated rehabilitation cost per housing unit.

The classification undertaken by the inspection teams has to be re-assessed for each unit. The rehabilitation work financed under this project is limited to buildings which are re-assessed by the consultants as medium damage and approved by the PIU technical experts. Only structural rehabilitation work and outside painting are eligible for finance. Lightly damaged buildings are excluded.

Consultant Services are required for the inspection and assessment of damages including visual and structural testing. In addition, the service is required for preparation of designs, technical specification, bidding documents, and supervision of structural rehabilitation works. The cost for consultant service which is financed by the Bank is estimated at US$70.0 million. This amount corresponds to 14 percent of the total rehabilitation cost.

Repair of Hospitals and Healthcare Facilities (US$21.62 million). The social insurance program (SSK) operates several hospitals, polyclinics, and dispensaries in the earthquake zone, which come under the general supervision of the Ministry of Labor and Social Security (MLSS), not the Ministry of Health. The MLSS estimates that 60 percent of the workers covered by SSK in the earthquake zone used exclusively the SSK hospitals. If reconstruction efforts ignored the SSK hospitals, a significant portion of earthquake zone residents would be bereft of their regular health services and emergency care. It is therefore imperative that the damaged SSK health facilities be included in the MEER reconstruction efforts.

Technical personnel of the Social Security Institution General Directorate initially carried out structural damage assessment of the buildings. The cost estimate and reports were reviewed by experts from the Technical University of Istanbul. The request for including the rehabilitation work in the MEER project was addressed to the Bank's team on short notice. Therefore the team was not in position to review the investments in details and inspect the damage. However, based on brief desk review of the material provided, the estimated cost at US$18.9 million appears reasonable. Consultants services of US$1.8 million are included in the cost estimate. During project implementation each investment has to be carefully assessed by the PIU and its consultants against the eligibility criteria presented below (after the implementation section). Only structural and mechanical repair of hospitals and healthcare facility damaged by the earthquake are eligible for financing. The damage to the following hospitals and healthcare facilities will be considered under this component.

Estimated rehabilitation costs of the health care facilities (excluding taxes)

Repair of hospitals and healthcare facilities	Estmated cost US$Mn
Adapazari Hospital	3.00
Adapazari Regional Directorate	0.78
Adapazari Employee Housing	0.44
Izmit Merkez clinic and dispensary	0.56
Izmit Hospital	2.78
Izmit Sopali Hospital	3.44
Izmit Social Security Directorate	1.44
Karamursel Hospital	1.89
Istanbul, Duzce, Bolu, Bozoyuk Hospitals	2.78
Consultant fees	1.80
Total	**18.91**

Costs and Financing. The following table presents the financing scheme for this component.

Table 10: Costs of the Repair of the Existing Housing Stock and Health Facilities component.

	Government Financing (US$ million)*	**Beneficiaries Financing (US$ million)****	**TOTAL (US$ million)**
Repair of Medium Damaged Housing Units (including consultants' services for design)	557.65	52.85	**610.50**
Repair of Hospitals and Healthcare Facilities	21.62		**21.62**
TOTAL	**579.27**	**52.85**	**632.12**

* The Government is in the process of finalizing an agreement with other international financial institutions and foreign governments for financing of this component.
**Assuming about 10% beneficiaries' contribution.

Implementation. For this component, the PIU is the foreseen as implementing agency, and has the overall responsibility for all relevant coordination activities. These tasks include preparation of a detailed work program subject to Bank review and the procurement of civil works, goods and consultant services. The project implementation has to be done in close co-operation with the relevant local, regional and national authorities following the requirements defined in the PIP. The PIU will be assisted by consultants in carrying out technical investigations, studies, and in preparing bidding documents for civil works, goods, and services (including design, drawings and calculations in accordance with seismic resistant standards, etc.).

Project Component 8 - US$139.73 million
Component H: Municipal Infrastructure (US$139.73 million equivalent)

Objectives. The objective of the component is to restore essential infrastructure in the municipalities that

have been devastated by the August 17, 1999 earthquake.

Activities to be Undertaken. The component includes technical assistance, design, supervision and investments to restore essential infrastructure at the municipal level. It finances repairs and reconstruction to water supply systems, sewerage and storm water systems, wastewater treatment plants, and municipal roads and bridges in Izmit, Golcuk, Adapazari, Golyaka, and Cilimli, the most damaged municipalities affected by the August 17, 1999 earthquake. Minor damages to infrastructure as well as damages that have already been repaired by the related authorities are not covered under this operation.

The distribution of electricity in the municipalities affected by the earthquake is conducted by four power distribution companies: BEDAS (Bogazici Elektrik Dagitim A.S., which covers the European part of Istanbul province), KEDAS (Korfez Elektrik Dagitim A.S., which covers Kocaeli province), SEDAS (Sakarya Elektrik Dagitim A.S., which covers Sakarya and Bolu provinces), and YEDM (Yalova Elektrik Dagitim Muessesesi, which covers the Yalova area).

Specific investments were identified by representatives of municipal and provincial governments in the project provinces as having the highest priority based on regional and local needs. Technical and cost data for each investment have been reviewed and analyzed by international and national experts working with municipal, provincial and national officials, the PIU, and the Bank team. In addition, the consultants determined the assistance needed by the municipalities for procurement, design, construction, supervision, geological surveys and related services.

Municipal Wastewater and Water Supply Systems. The major need for repair and reconstruction was identified in the provinces of Kocaeli, Sakarya and Bolu. These are the most affected areas by the earthquake.

There is an uncertainty regarding the damage assessment of the water and sewerage system. The reason is that the water consumption decreased considerably, since the inhabitants were forced to leave their permanent housing, and the water supply was turned down in some areas due to damaged water network. Thus, not all damages and leakages in the water and sewerage systems could be detected in the short period after the earthquake.

Kocaeli Province. In the municipality of Izmit all damages to the water supply system and sewerage system are currently repaired. Funding is needed for the repair of the wastewater treatment plant. Due to mechanical and structural damages the plant is currently not in operation and sewage is directly discharged into the sea without further treatment. The estimated investment is US$0.5Million. Consultant services of US$100,000 for the design and supervision of the repair work are included in this component.

The earthquake heavily damaged the water and wastewater system in Golcuk. In the Northern part of the city, the damage was caused by landslides. This area of the city is used for recreation purposes. Therefore, no major investment is identified for this location. In the Southern part of the city below highway E-130, 20 km of water supply network and 20 km of wastewater system need to be reconstructed. In addition, about 5 km of sewerage is heavily damaged in Ihsaniye and Degirmendere which are very close to Golcuk. In total the reconstruction costs is estimated at US$4.15 million.

Sakarya Province. The reconstruction program for Adapazari will include repair and reconstruction of water and sewerage systems covering an area of about 900 ha. The total cost is estimated at US$33.5Million. The investments includes the rehabilitation of 200 km of water network including pipe installation, construction of pumping stations, construction of reservoirs, construction of valve chamber,

fire hydrants, construction of discharge chamber, etc. In addition, 150 km of wastewater network will be repaired and reconstructed.

Bolu Province. In Golyaka, the repair and reconstruction of 10 km of water supply and 10 km of wastewater network including consultant services for design and supervision are required. The estimated investment in water supply is US$0.4Million and US$1.0Million for wastewater.

Municipal Roads and Bridges. In Adapazari, a total of 50 km of roads and about 150,000 m^2 of sidewalks need to be repaired or reconstructed. Mainly the roads in the plain areas were heavily damaged. It is reported that the ground water table at the plain is so high that it rises to the road level. Damage is caused to the roads and pavement because the underlying soil collapsed. The resulting settlement in the ground caused several cracks. The municipal roads are dominated by asphalt pavement, and the width varies between 7 and 10 meters. The investment cost for repair and reconstruction is estimated at US$20.0 million. This includes demolishing existing roads and sidewalks, repair work, new road base, new road asphalting, sidewalk construction and transportation.

The main road damage in Golcuk is concentrate at the sea shore. As a result of ground movement whole parts of the roads disappeared into the sea. A total investment of US$10.0 million is identified to repair and reconstruct 20 km of municipal roads and 100,000 m^2 of sidewalks. In addition, repair and reconstruction of approximately 10 km of roads and 24,000 m^2 of sidewalks is required in Golyaka (Bolu Province). The investment cost are estimated at US$2.5 million.

Engineering Designs and Supervision. Consulting services including engineering designs, site surveys, preparation of tender documents and construction supervision will be financed under this component. This will also include the assessment of potential impact of the above works on the human and physical environment, consistent with Bank environmental and social assessment procedures. The estimated amount is US$4.7 million.

Power Distribution Systems. The heaviest damages in power distribution systems occurred in the low voltage (LV) distribution network which supplies individual consumers at 0.4 kV level. About 600 medium voltage to low voltage (MV/LV) distribution transformers were destroyed and about 450 MV/LV transformers sustained large damages which cannot be repaired at the site. About 1,500 km of LV overhead distribution lines were cut mainly due to the collapse of about 8,200 poles. Damages to underground cables affected about 35 percent of existing MV cable network and about 50 percent of LV cable network in densely populated urban areas.

The ongoing reconstruction of power distribution facilities is focused on the restoration of electricity supply to the household consumers and construction of temporary distribution networks in "tent villages" which shelter most of the population that lost their homes. These efforts, as well as the waiver of electricity payment granted by the Government to the most affected consumers, has resulted in a relatively fast recovery of electricity demand that reached the pre-earthquake level in BEDAS and SEDAS and about 70 percent of the pre-earthquake level in KEDAS and YEDM by October 1, 1999. The reconstruction of municipalities, however, will require a significant additional investments in the power distribution facilities because the temporarily built or provisionally repaired power distribution facilities cannot provide a reliable power supply to the consumers. Furthermore, the relocation of household and industrial consumers in accordance with the new urban plans will require the construction of new power distribution systems in certain areas such as Adapazari and Izmit.

This component will finance the following four activities:

(a) Rehabilitation of BEDAS Distribution System (US$18.9 million). The rehabilitation of power distribution facilities in Istanbul is focused on the replacement of about 400 km of MV cables and about 350 km of LV cables that were damaged in the earthquake. The rehabilitation program also includes the replacement of 16 MV/MV transformers and about 60 MV/LV transformers. About 600 km of LV overhead lines will be rewired and about 10 cable test vehicles will be procured to facilitate the repair and maintenance of cable network.

(b) Rehabilitation of KEDAS Distribution System (US$5.6 million). The rehabilitation of power distribution facilities in Kocaeli province will include the supply and installation of power distribution equipment in eleven municipalities and construction of two 35 kV overhead lines in Kandira and Golcuk with a total length of about 50 km. The rehabilitation of eleven municipal power distribution systems will include the replacement of about 120 MV/LV transformers, 50 km of MV distribution lines and 80 km of LV distribution lines.

(c) Rehabilitation of SEDAS Distribution System (US$9.9 million). The rehabilitation of power distribution facilities in Sakarya and Bolu provinces will include the supply of about 300 MV/LV transformers, 200 km of MV cables and 300 km of LV cables. Other equipment to be replaced in the SEDAS power distribution system includes about 200 MV circuit breakers, 350 MV disconnect switches, 500 distribution panels, and 300 MV current transformers. A Supervisory Control and Data Acquisition System (SCADA) will be supplied and installed in the SEDAS dispatch center.

(d) Rehabilitation of YEDM Distribution System (US$2.6 million). The rehabilitation of power distribution facilities in Yalova will include the supply and installation of power distribution equipment in four transformer substations, refurbishment of 5 MV overhead lines, one MV cable line and associated LV network.

Consultants will be employed for the damage assessment, the design and supervision of construction works. As a result of this assessment, the total investment cost will be reviewed and the procurement plan will be amended accordingly before implemetation.

Costs and Financing. The municipalities will benefit from investments for a total amount of US$139.73 million. Summary cost estimate for the municipal infrastructure component is presented in the table below.

Table 11: Costs of the Municipal Infrastructure component.

	Co-financiers Financing (US$ million)	**Government Financing (US$ million)**	**TOTAL (US$ million)**
Municipal Infrastructure	87.88	15.18	103.06
Power Distribution Networks	30.04	6.63	36.67
TOTAL	**117.92**	**21.81**	**139.73**

Implementation. The main implementing agencies for investments in water supply systems, wastewater networks and municipal roads are the targeted municipalities under the overall responsibility of the PIU. Each municipality will procure works, goods, and equipment according to work programs to be reviewed and approved by the PIU. The PIU will be supported by consultants, who will carry out and prepare all the

technical investigations, studies, and bidding documents required for implementing the project. In the case that a municipality does not have the capacity to implement the component, then the PIU will be responsible for its implementation.

In the case of the power distribution networks, TEDAS is responsible for implementation. By November 1, 1999, TEDAS will establish a permanent and adequately staffed Project Task Force (PTF) under the direction of an Assistant General Manager to coordinate all project-related activities. Each of the four distribution companies included in the project will establish a local PTF under the direction of General Manager to oversee the preparation and implementation of the project and conduct the technical and administrative functions under the project. One of the main responsibilities of local PTF offices in Istanbul (BEDAS), Izmit (KEDAS), Adapazari (SEDAS) and Yalova (YEDM) will be the preparation of technical specifications for bidding documents required under the project. The preparation of complete bidding documents in accordance with the Bank procurement guidelines will be done by PTF in cooperation with the PIU. A protocol will be signed between the PIU and TEDAS specifying a division of responsibilities and modes of cooperation between the PIU and TEDAS PTF, as well as between local PIU offices and local PTF offices.

Eligibility criteria. The following criteria have been used for selecting investments to be financed under this component:

- the investments are in the communities located within the nine provinces affected by the earthquake
- the investments are for repairing or constructing infrastructure that has been damaged by the earthquake and/or construction of new infrastructure in the new housing areas
- the investments have been identified as priority projects by the local communities, and the decision has been reviewed by a multidisplinary team of national and international experts, the PIU, and the Bank team
- the investments are for sub-projects that prevent health risks to the community
- the investments are of economic importance to the community (i.e. transport, essential municipal services)
- the investments are of social and environmental importance
- the investments have no alternative source of funding
- the investments are implemented in accordance with controlled and sound construction practices, and utilize appropriate designs which protect against seismic risks
- the investments comply with sound financial, technical and environmental standards
- the investments are likely to be implemented in a timely manner
- the investments have cost-effective design standards

Flow of Funds. The PIU will handle all disbursements. The municipalities will submit complete documentation of project expenditures to the PIU. The PIU will authorize payments from the project account after reviewing the works performed by the implementing agencies and authorizing payments from the project account.

Financing. The municipal infrastructure component will be financed by other co-financiers.

Annex 3: Estimated Project Costs

TURKEY: Marmara Earthquake Emergency Reconstruction Project

Program Cost By Component	Local US $million	Foreign US $million	Total US $million
Sub-component A1: National Emergency Management Syst.	42.5	44.79	87.29
Sub-component A2: Disaster Insurance Scheme	200.6	72.4	273
Sub-component A3: Land Use Planning and Enforcement of Construction Codes	5.25	5	10.25
Sub-component A4: Cadastre Renovation and Land Management	10.55	10.55	21.1
Component B: Trauma Program for Adults	3.92	2.07	5.99
Component C: Construction of Permanent Housing in Bolu, Kocaeli and Yalova	221.21	40.21	261.42
Component D – Project Management	10.38	0.51	10.89
Total Baseline Project Cost	494.41	175.53	669.94
Component E: Business Rehabilitation	66.13	22	88.13
Sub-component F: Construction of Permanent Housing in Bolu, Sakarya, Yalova, Istanbul, Bursa, Eskisehir	123.38	20.6	143.98
Component G: Repair of Existing Housing Stock and Healthcare Facilities	456.13	80.49	536.62
Sub-component H: Rebuilding and Repair of Roads, Water supply Systems, Wastewater Systems, Power Distribution Networks	65.74	61.42	127.16
Total Baseline Cost	1205.79	360.04	1565.83
Physical Contingencies	107.67	32.85	140.52
Price Contingencies	74.52	9.83	84.35
Total Program Costs	1387.98	402.72	1790.7
Front-end fee		5.05	5.05
Total Financing Required	1387.98	407.77	1795.75

Program Cost By Category	Local US $million	Foreign US $million	Total US $million
Civil Works	930.01	180.62	1110.63
Goods	16.86	68.42	85.28
Technical Assistance and Training	151.09	66.59	217.68
Business Loans	82.32	26.75	109.07
Supply and Install	1.78	10.03	11.81
Insurance Funds	200	50	250
Recurrent Costs	5.92	0.31	6.23
Total Program Costs	1387.98	402.72	1790.7
Front-end fee		5.05	5.05
Total Financing Required	1387.98	407.77	1795.75

Annex 4

TURKEY: Marmara Earthquake Emergency Reconstruction Project

The economic and financial analysis is not required in accordance with OP 8.50.

Annex 5: Financial Summary

TURKEY: Marmara Earthquake Emergency Reconstruction Project

	IMPLEMENTATION PERIOD					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Total Financing Required						
Project Costs						
Investment Costs	667.4	719.5	342.3	30.4	30.4	0
Recurrent Costs	0	0.9	0.9	0	0	0
Total Program Costs	667.4	720.4	343.2	30.4	30.4	0
Front-end fee	5	0	0	0	0	0
Total Financing	672.4	720.4	343.2	30.4	30.4	0
Financing						
IBRD/IDA	266.5	200	37.7	0.4	0.4	0
Government	214.7	258.1	251.6	30	30	0
Co-financiers	136.5	174.7	31.3	0	0	0
User Fees/Beneficiaries	54.7	87.6	22.6	0	0	0
Total Program Financing	672.4	720.4	343.2	30.4	30.4	0

Financial Summary for the Framework Program.

Annex 6: Procurement and Disbursement Arrangements
TURKEY: Marmara Earthquake Emergency Reconstruction Project

Procurement

Procurement of goods and works financed by the World Bank and other co-finaciers will be done in accordance with World Bank *Guidelines: Procurement under the IBRD Loans and IDA Credits* (issued in January 1995, revised in January and August 1996, September 1997, and January 1999). Consulting Services, technical assistance and training financed by the Bank and other co-financiers will be procured in accordance with the Guidelines – Selection and Employment of consultants by World Bank Borrowers, January 1997, revised September 1997 and January 1999. The Bank's Standard Bidding Documents, Request for Proposals and Forms of Consultants' Contract will be used. Goods, works and technical assistance to be financed by the co-financiers will be procured in accordance with the regulations and practices of each co-financier.

Procurement responsibilities

In order to ensure smooth project implementation the, Project Implementation Unit in Ankara will have overall responsibility of supervising, assisting and coordinating procurement for the entire project. As already approved by the Board of the Bank, the PIU will also provide guidance to the other implementing agencies responsible for the emergency components of their respective projects. For this purpose, the PIU's capacity will be strengthened. The PIU has acquired long experience in dealing with Bank-financed procurement. This PIU has implemented the Erzincan Earthquake Reconstruction Project and has demonstrated its capacity and capability in the ongoing successful implementation, including procurement, under TEFER. It has one director, two deputy directors, 6 team leaders, 13 junior engineers, one financial administrator, and a part time legal adviser. The teams work directly with implementation agencies in project areas and have demonstrated their effectiveness in the implementation of procurement under TEFER. The Director of the PIU has substantial experience in handling procurement in accordance with Bank procurement guidelines. The PIU will coordinate procurement activities through local implementation units which will be established by the implementation agencies. These units shall need staff familiar with the World Bank procurement procedures. In order to ensure smooth and timely implementation of MEER, the PIU's capacity will be strengthened through the provision of additional staff and equipment. A plan for strengthening the capacity, and time period for it, both at the PIU and implementation agencies will be agreed during negotiations. The PIU estimates that additional staff of about 53 persons will be needed for the implementation of MEER.

Procurement methods (Table A)

Table A:
Project Costs by Procurement Arrangements
(US$ million equivalent)

	Procurement Method /1			
Expenditure Category	ICB	NCB	Other /2	Total Cost
1. Works	241.07	0.00	1.94	243.01
	(215.03)	(0.00)	(1.73)	(216.76)
2. Goods	119.30	0.00	7.70	127.00
	107.60	0.00	6.30	113.90
3. Services	0.00	0.00	57.45	57.45
Consultant Services and Training	(0.00)	(0.00)	(50.82)	(50.82)
4. Miscellaneous	0.00	0.00	13.44	13.44
Operating Costs	(0.00)	(0.00)	(11.83)	(11.83)
5. Front-end fee	0.00	0.00	5.05	5.05
	(0.00)	(0.00)	(5.05)	(5.05)
6. Construction Materials	0.00	0.00	19.55	19.55
	(0.00)	(0.00)	(17.44)	(17.44)
7. Claims Financing (Insurance)	0.00	0.00	100.00	100.00
	(0.00)	(0.00)	(89.20)	(89.20)
Total	360.37	0.00	205.13	565.50
	(322.63)	(0.00)	(182.37)	(505.00)

Program Costs by Procurement Arrangements
(US$ million equivalent)

	Procurement Method /1				
Expenditure Category	ICB	NCB	Other /2	N.B.F.	Total Cost
1. Works	241.07	0.00	1.94	906.51	1149.52
	(215.03)	(0.00)	(1.73)	(0.00)	(216.76)
2. Goods	119.30	0.00	7.70	49.12	176.12
	(107.60)	(0.00)	(6.30)	(0.00)	(113.90)
3. Services	0.00	0.00	57.45	95.87	153.32
Consultant Services and Training	(0.00)	(0.00)	(50.82)	(0.00)	(50.82)
4. Miscellaneous	0.00	0.00	13.44	9.20	22.64
Operating Costs	(0.00)	(0.00)	(11.83)	(0.00)	(11.83)
5. Front-end fee	0.00	0.00	5.05	0.00	5.05
	(0.00)	(0.00)	(5.05)	(0.00)	(5.05)
6. Construction Materials	0.00	0.00	19.55	19.55	39.10
	(0.00)	(0.00)	(17.44)	(0.00)	(17.44)
7. Claims Financing (Insurance)	0.00	0.00	100.00	150.00	250.00
	(0.00)	(0.00)	(89.20)	(0.00)	(89.20)
Total	360.37	0.00	205.13	1230.25	1795.75
	(322.63)	(0.00)	(182.37)	(0.00)	(505.00)

1/ Figures in parenthesis are the amounts to be financed by the Bank Loan. All costs include contingencies

2/ Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (i) managing the project, and (ii) re-lending project funds to local government units.

Note: Figures may not match due to rounding. NBF = Non bank Financed

Works-ICB: Includes ICB contracts for works (US$215.03 million)

Works- Other: Includes Minor Works contracts (US$1.73 million)

Goods and Technical services-ICB: includes ICB contracts for goods (US$87.39 million) and for technical services (US$20.21 million)
Goods – Other: Includes NS contracts (US$5.60 million) and IS contracts (US$0.70 million). Lists of items under NS and IS contracts will be subject to Bank's prior review and approval.
Consulting Services –Other: includes QCBS contracts (US$45.62 million), CQ contracts (US$0.35 million), Sole source contracts (US$0.31 million), Individuals contracts (US$0.27 million), training (US$1.52 million), and service delivery contracts (US$2.75 million)
Construction materails - Other - includes contracts for construction materials (US$17.44 million). These contracts ($8,500 each) will be procured by eligible homeowners through their traditional purchasing practices (i.e., comparison of prices from different shops). The same cost control mechanisms as applied under the TEFER will be applicable under this project as well.
Incremental Operating Costs (US$11.83), including the PIU staff, rent, utilities, office expenses, vehicles operation, communications, etc.) to be incurred in accordance with an annual budget which will be prepared by the PIU and submitted to the Bank for review and approval.

Table A1: Consultant Selection Arrangements (optional)
(US$ million equivalent)

Consultant Services Expenditure Category	Selection Method						
	QCBS	QBS	SFB	LCS	CQ	Other	Total Cost[1]
A. Firms	51.78 (45.62)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.40 (0.35)	4.97 (4.58)	57.15 (50.55)
B. Individuals	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.30 (0.27)	0.30 (0.27)
Total	51.78 (45.62)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.40 (0.35)	5.27 (4.85)	57.45 (50.82)

Consultant Services Expenditure Category	Selection Method							
	QCBS	QBS	SFB	LCS	CQ	Other	N.B.F.	Total Cost[1]
A. Firms	51.78 (45.62)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.40 (0.35)	4.97 (4.58)	96.09 (0.00)	153.24 (50.55)
B. Individuals	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.30 (0.27)	0.00 (0.00)	0.30 (0.27)
Total	51.78 (45.62)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.40 (0.35)	5.27 (4.85)	96.09 (0.00)	153.54 (50.82)

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection
QBS = Quality-based Selection
SFB = Selection under a Fixed Budget
LCS = Least-Cost Selection
CQ = Selection Based on Consultants' Qualifications
Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.

N.B.F. = Not Bank-financed
Figures in parenthesis are the amounts to be financed by the Bank loan.

Disaster Insurance Scheme (Sub-component A2). This sub-component will comprise the establishment of a disaster insurance scheme in the form of a Turkish Catastrophic Insurance Pool. The funds will be used for establishing a national catastrophic insurance mechanism providing for catastrophic risk transfer and risk management, which will result in reduced government financial liabilities and better financial protection of Turkish policy holders against natural disasters similar to the Marmara earthquake. This sub-component includes the procurement of an asset management firm; a reinsurance intermediary who will be selected through QCBS; a reinsurance contract which will be procured through ICB; and disbursements against insurance claims to finance the replacement of destroyed residential properties.

Business Rehabilitation (Sub-component B1). This demand driven component will provide support to the affected private sector businesses and business associations in the disaster areas. It includes support to business community through construction cooperatives for the rehabilitation and construction of small businesses, premises for services, etc; it will provide financial support through credit coops to businesses for working capital for inventory purposes, replacement of the damaged equipment and for providing basic

business training. The PIU will collaborate with the construction cooperatives and will be responsible for the bidding process and for supervision of construction. Since the coops do not themselves have the necessary capacity, they will engage the services of qualified architects to prepare designs and drawings which will be reviewed and upon acceptance used in the preparation of bidding documents.

For this component, procurement needs have been identified to the maximum extent possible and included in the procurement plan on an indicative basis. It is envisaged that procurement of works under this component will be conducted through NCB for contracts estimated to cost less than US$5 million each (US$21.350 million in the aggregate), and the procedure applicable to small works will be used for contracts estimated to cost less than US$0.5 million each (aggregate amount US$11.650 million). National Shopping will be used for equipment contracts estimated below US$0.250 million (aggregate amount: US$1 million); for the purchase of equipment estimated at less than US$10,000 the beneficiaries may apply the commercial purchasing practices which are based on informal comparison of prices and obtaining the best value and performance. Based upon the indicative plan, each beneficiary will develop a detailed procurement plan which will adhere to the eligibility criteria and the agreed procurement procedures and will be approved by the PIU and cleared by the Bank before implementation.

The following procurement methods will be applicable to goods, works and services under the other components:

Goods

ICB. For contracts each estimated to cost US$1 million or more, simplified ICB procedures will be used. A General Procurement Notice (GPN) will be published in the Development Business in November 1999 announcing ICB procurement packages including pre-qualification, if necessary, and consultant services inviting interested eligible suppliers, contractors and consulting firms to send their expression of interest to the PIU in Turkey. The GPN will also be published in the local press. The GPN will be followed by specific advertisements for individual ICB contracts in the local press which will also be sent to suppliers who will respond to the GPN. GPN will be updated each year.

Bank's Standard Bidding Documents. Most recent bidding documents approved by the Bank for use in TEFER for each method of procurement of Goods, Works and Consulting Services will be used after Bank's review. The period allowed for submission of bids may be reduced to four weeks. At the discretion of the Borrower, currency of bid and payment may be limited to two currencies (USD and EURO) widely used in international trade to simplify the bidding and bid evaluation and thus reduce procurement processing time.

International Shopping (IS). IS will be used for procuring goods (including equipment, vehicles, materials, commodities, etc.) of standard specifications available off-the-shelf and each contract estimated to cost US$250,000 or more but less than US$1 million. IS requires comparison of price quotation obtained from at least three suppliers from two countries. The list of firms will be prepared by giving first consideration to those who have expressed interest in response to the press publications (e.g. GPN , local press). In order to obtain minimum three quotations, efforts would be made to request more than three firms to take into account the possibility that some of them may not submit quotations. Request for quotations may be sent and quotations obtained by fax/telex.

National Shopping (NS). This method will be used for contracts for goods available off-the-shelf in Turkey and each contract estimated cost less than US$250,000 by obtaining at least three quotations. Preparation of list of firms to be invited and request for quotations will follow the same principle as in the case of IS

except that all firms could be domestic suppliers.

Works

ICB. Procedures for advertising and use of bidding documents will be as described in the case of ICB Goods. ICB procedure for works will be used for contracts each estimated to cost US$5 million or more.

(a) Pre-qualification For ICB contracts estimated to cost $10 million or more or for any complex work, pre-qualification of contractors may be carried out, if requested by the Borrower. In deciding pre-qualification, it should be kept in view that there will be more time spent in the procurement process and as such post qualification may be preferred. For pre-qualification purpose, notice will be published in the local press for each contract. Such notices will also be published in the Development Business of the United Nations. One notice may include more than one package but the pre-qualification criteria for each contract or combination of contracts should be specified in the invitation and in the PQ document. Not less than 30 days should be allowed for pre-qualification response time. Contractors will also be requested to express their interest for pre-qualification in the GPN. The PQ evaluation and list of firms pre-qualified will also be cleared with the Bank before bids are invited. Bidding documents will be issued to pre-qualified firms.

(b) Post-qualification: For all contracts not subject to pre-qualification, proper post qualification criteria will be specified in the bidding documents and contracts awarded only to bidders that meet the specified criteria.

NCB will be used for contracts each estimated to cost US$0.5 million or more but less than US$5 million. However, interested foreign contractors will be allowed to participate in NCB. Not less than three to four weeks will be allowed to submit bids depending upon the nature and size of procurement. Appropriate post qualification criteria will be specified in the bidding documents if pre-qualification is not used. No bids will be rejected based on pre-determined bracketing (cut-off above and below the engineer's estimates). Awards will be made to the lowest evaluated responsive bidder based on bid evaluation criteria specified in the bidding documents and no new criteria will be adopted.

Procurement of Small Works. The bidding document cleared by the Bank for small works in TEFER Project will be used for works contracts each estimated to cost equal or less than US$0.5 million. These works will be procured under lump-sum, fixed price or unit rate contracts awarded on the basis of quotations obtained from at least three qualified local contractors in response to local advertisement. In order to obtain a minimum of three quotations, more than three firms shall be requested to take into consideration any possibility that some firms may not submit a quotation. All firms that are interested and are deemed qualified shall be allowed to participate. The bidding document shall include a detailed description of works, including basic specifications, the required completion period, a basic form of agreement consistent with the standard document cleared by the Bank and relevant drawings, where applicable. The award shall be made to the contractor who offers the lowest price quotation for the required work, and who has the experience and resources to successfully complete the contract.

Purchase of construction materials. Construction materials for rebuilding of damaged rural houses, estimated to cost up to US$8,500 equivalent for each housing unit and not to exceed US$17.44 in the aggregate shall be procured competitively from local sources following traditional local purchasing practices applicable to such purchases. The cost control mechanism that have been successfully applied for the purchase of construction materials and their use in reconstruction of rural houses will also be applied in this project.

Consulting Services. Consultants will be procured in accordance with the Bank Guidelines which shall include both competition and sole sourcing (in accordance with paragraph 3.8 to 3.11 of the Guidelines). The sole sourcing packages will be identified and justified in the procurement plan for each project. Direct contracting during project implementation will need Bank's prior approval. Urgent studies required for the selection of construction sites and preparation of construction designs and for soil investigations estimated to cost less than US$50,000 each may be procured under Sole Source procedure with Bank's prior agreement. For this purpose the PIU shall establish a list of qualified and experienced firms and will select the firms as needed. Consultants for such studies estimated to cost less than US$100,000 shall be procured through Consultants' Qualifications.

Procurement Support under Emergency Projects, Including TEFER, MEER and Other Projects with Emergency Components. Given the flexibility in procurement due to the emergency situation (i.e., very high thresholds for different procurement methods), under TEFER, MEER and several other projects which have been modified to respond to the emergency situation created by the recent earthquake, it is strongly recommended that the PIU shall employ qualified international consultants who will provide procurement support in reviewing the procurement actions of different project implementation agencies responsible for implementing Bank-financed emergency projects in order to ensure that the procurement arrangements agreed between the Bank and the Government of Turkey are being adhered to. The consultant could undertake the supporting activities in accordance with a schedule and could be authorized to conduct both ex-ante and ex-post. The Bank can provide the Government the necessary technical assistance in establishing the proposed system.

Post Review Ratio. One in five contracts

Prior review thresholds (Table B)

Table B: Thresholds for Procurement Methods and Prior Review [1]

Expenditure Category	Contract Value Threshold (US$ thousands)	Procurement Method	Contracts Subject to Prior Review (US$ millions)
1. Works	>5000	ICB	219.77
	> 500	NCB	0.00
	< 500	MW	0.00
2. Goods	>1000	ICB	68.04
	> 250	IS	
	< 250	NS	
3. Services	< 100	QCBS/CQ/SS	45.95
	< 50	Ind	10.05

Total value of contracts subject to prior review: 343.81

Overall Procurement Risk Assessment

Frequency of procurement supervision missions proposed: One every 6 months (includes special procurement supervision for post-review/audits)

[1] Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.

Review Thresholds for Goods and Works. All contracts for Goods estimated to cost US$1 million or more under ICB procedure, all contracts for works estimated to cost US$5 million or more under ICB and the first NCB contract for works will be subject to Bank prior review. Contracts not covered by Bank's prior review will be pre-reviewed by the PIU and post reviewed on selective basis by the Bank.

Review Threshold for Consulting Contracts. Procurement documentation for consultant contracts procured competitively and each estimated to cost US$0.1 million or more with firms and US$50,000 or more with individuals, and all sole source contracts will be subject to Bank's prior review. Follow up assignments will be permissible to the extent that this will be indicated in initial TORs and the initial assignment was through a competitive selection method. Contracts below the above amounts will be subject to selective post review.

Disbursement

Allocation of loan proceeds (Table C)

Table C: Allocation of Loan Proceeds

Expenditure Category	Amount in US$million	Financing Percentage
Works (a) under sub-component C1 for reconstruction of urban housing	180.16	90%
Works (b) under sub-components A1, A4, B2, and C1 for reconstruction of rural housing	30.06	100% (exclusive of taxes)
Goods	48.00	100% of foreign expenditures, 100% of local expenditures (ex-factory costs) and 85% of local expenditures for other items procured locally
Consultants' services and training	74.08	100%
Reinsurance premiums	19.70	100%
National Catastrophic Insurance Program under sub-component A2	100.00	100% of Eligible Claims up to the equivalent of US$17 million for the first 18 months and 40% thereafter, in either case up to the attachment point of the excess of loss reinsurance cover specified in the Risk Management Plan, and 100% of Eligible Claims in excess of the reinsurance cover specified in the Risk Management Plan
Incremental operating costs	6.60	90%
Unallocated	41.35	
Total Project Costs	499.95	
Front-end fee	5.05	
Total	505.00	

The loan will be disbursed over a period of five years, because of the need to create enough liquidity for the Turkish Catastrophic Insurance Pool under the Disaster Insurance Scheme (sub-component A2). All other components are expected to disburse over a period of three years in accordance with the nature of an emergency project. Disbursements will be made against eligible project expenditures for goods, including technical services, works and consultants' services. As shown in Table C, goods will be financed at 100% for imported (foreign) items, 100% for those from ex-factory sources, and at 85% for locally purchased items. Civil works will be financed at 90%, and consultants'services at 100% (excluding taxes), operating cost will be financed 90%.

Use of statements of expenditures (SOEs):

All disbursements against contracts below the following thresholds will be made against Statement of Expenditures:

US$5.0 million for civil works
US$1.0 million for goods
US$100,000 for consulting firms contracts

US$50,000 for individual consultants contracts

For these expenditures under SOE, detailed supporting documents evidencing payments to contractors and suppliers will be kept at the PIU. These documents would be made available for the required audits as well as to the Bank supervision missions upon request.

All other expenditures above the SOE thresholds will be submitted on the basis of full documentation.

Special account:
To facilitate disbursement against eligible expenditures, the Government would establish in its Central Bank a Special Account (SA) to be operated by the PIU under terms and conditions satisfactory to the Bank. The Bank would, upon request, make an Authorized Allocation of US$50 million. Applications for the replenishment of the SA would be submitted monthly or when 20 percent of the initial deposit has been utilized, whichever occurs earlier. The replenishment application would be supported by the necessary documentation, the SA bank statement, and a reconciliation of this bank statement. All documentation evidencing these expenditures would be retained by the Project Implementation Unit and would be reviewed by the external auditors and visiting Bank supervision missions. The SA would be audited annually by independent auditors acceptable to the Bank.

	Section 1: Procurement Review (US$million)						
Goods and Civil Works	ICB	NCB	IS	NS	Minor Works	Other methods	Percentage of loan amount subject to prior review
Procurement thresholds: Individual and aggregate	**W>5.00 ($219.77) G>1.00 ($68.04)**	**W<5.00**	**G<1.00 ($7.77)**	**G<0.25 ($17.2e2)**	**W<0.50 ($1.73)**		
Prior Review	**($219.77) ($68.04)**						**$287.81 57%**
Consultants	QCBS	QBS	LCS	SS	CQ	Ind	
Procurement method thresholds	**($44.79)**			**($1.03)**	**($0.13)**	**($10.05)**	
Prior Review	**($44.79)**			**($1.03)**	**($0.13)**	**($10.05)**	**$56.00 11.1%**

Section 2: Capacity of the Implementing Agency in Procurement and Technical Assistance requirement review
Country Procurement Assessment Report or Country Procurement Strategy Paper status: **December 26, 1996** Are the bidding documents for the procurement actions of the first year ready by negotiations

Section 3: Training, Information and Development on Procurement

Estimated date of Project Launch Workshop 12/00/99	Estimated date of publication of General Procurement Notice **11/99**	Indicate if there is procurement subject to mandatory SPN in Development Business **Yes [y]** No [ ]	Domestic Preference for Goods **Yes [x]** No [ ]	Domestic Preference for Works, if applicable Yes [ ] No [N]

Retroactive financing Yes [] No **[N]**	Advance procurement Yes [ ] **No [N]** Explain

Explain briefly the Procurement Monitoring System: **The existing PIU has a well-established procurement monitoring system which will be used for tracking procurement actions and for generating the project management and other reports. On the Bank side, the newly introduced SAP will be used for procurement monitoring and for preparing 384s.**

Co-financing: Explain briefly the procurement arrangements under co-financing: **The project includes a substantial amount of co-financing expected from other co-finaciers. Goods, works and technical assistance to be financed by the other co-financiers will be in accordance with WB guidelines.**

Section 4: Procurement Staffing

Indicate name of Procurement Staff or Bank's staff part of Task Team responsible for the procurement in the Project: Name: **Naushad Khan, Senior Procurement Specialist Ext: 32699**
Ibrahim Sirer, Procurement Specialist, World Bank Office, Ankara

Explain briefly the expected role of the Field Office in procurement: **Mr. Khan based at HQ and Mr. Sirer based at the World Bank Office in Ankara will be jointly responsible for supervision of procurement under the project. Mr. Sirer will be responsible for review and clearances (in consultation with the TTL) of procurement actions subject to Bank prior review, except for those subject to the mandatory review of RPA for which Mr. Khan will be responsible.**

Annex 7: Project Processing Schedule

TURKEY: Marmara Earthquake Emergency Reconstruction Project

Project Schedule	Planned	Actual
Time taken to prepare the project (months)	3	
First Bank mission (identification)	08/24/99	
Appraisal mission departure	10/15/99	
Negotiations	10/16/99	
Planned Date of Effectiveness	11/30/99	

Prepared by:

Bank team in cooperation with the Government of Turkey.

Preparation assistance:

The preparation team worked closely in cooperation with, and received significant financial support from, UNDP for the preparation of the following elements: disaster management and mitigation, business rehabilitation, temporary housing and the trauma program for adults. In addition, the team received financial support from the European Union, the Dutch Trust Fund, the New Zealand Trust Fund and the Canadian Trust Fund. Finally, the City of Amsterdam's Housing Department provided two teams of experts to support the damage assessment and site selection teams for the housing component.

Bank staff who worked on the project included:

Name	Speciality
Piotr Wilczynski	Task Team Leader
Christoph Pusch	Deputy Task Team Leader/Housing and Municipal Infrastructure
Amy Evans	Environment/Consultants and Trust Fund Arrangements
Catherine Stevens	Social Aspects/Trauma
Milena Messori	Operations
Alcira Keimer	Emergency Management
Richard Andrews	Emergency Management
Bruce Amlicke	Emergency Management
Joe Bishop	Emergency Management
Fred Krimgold	Emergency Management
Eugene Gurenko	Disaster Insurance Scheme
Rodney Lester	Disaster Insurance Scheme
Ian McLean	Disaster Insurance Scheme
Vijay Kalavkonda	Disaster Insurance Scheme
Rick Hill	Social Rehabilitation
Odd Hellesoy	Trauma Recovery
Richard Lacroix	Business Rehabilitation
Simon Gill	Business Rehabilitation
Suha Satana	Business Rehabilitation

Eric Peterson	Housing
Yaman Uzumeri	Housing
Saffet Attik	Housing
Olgun Ersenkal	Physical Infrastructure
Mirtha Pokorny	Roads
Dejan Ostojic	Energy
James Moose	Energy
Jolanta Kryspin-Watson	Institutional Arrangements
Naushad Kahn	Procurement
Gurdev Singh	Procurement
Ibrahim Sirer	Procurement/Physical Infrastructure
Rohit Mehta	Disbursement Officer
Roberto Tarallo	Financial Mangement
Alptekin Orhon	Financial Mangement
Dilek Barlas	Lawyer
Marc Walker	Lawyer
Simay Gurunkcu	Social Survey
Ismail Arslan	Economist
Nedret Durutan	Senior Policy Advisor
Cuneyt Okan	Environment and Industrial Assessment
Anders Halldin	Environment and Industrial Assessment
Hulya Bayramoglu	Team Assistant
Ulker Karamullaoglu	Team Assistant

The list includes consultants who worked on preparing the project. In addition, the team was supported by Nuran Ercan and Salih Kamal Kalyoncu from the TEFER PIU.

Annex 8: Documents in the Project File*
TURKEY: Marmara Earthquake Emergency Reconstruction Project

A. Project Implementation Plan

B. Bank Staff Assessments

C. Other

TKGM: Kadastro Otomasyonu Projesi (Cadastre Automation Project)
*Including electronic files

Annex 9: Statement of Loans and Credits

TURKEY: Marmara Earthquake Emergency Reconstruction Project

Project ID	FY	Borrower	Purpose	Original Amount in US$ Millions IBRD	IDA	Cancel.	Undisb.	Difference between expected and actual disbursements* Orig	Frm Rev'd
Number of Closed Projects: 115									
TR-PE-48851	1999	GOVERNMENT OF TURKEY	COMMODITIES.MKT.DEV.	4.00	0.00	0.00	3.90	0.60	0.00
TR-PE-58877	1999	REPUBLIC OF TURKEY	EMGY FLOOD RECOVERY	369.00	0.00	0.00	307.23	96.23	0.00
TR-PE-9073	1999	GOT	INDUSTRIAL TECH	155.00	0.00	0.00	155.00	0.00	0.00
TR-PE-48852	1998	TEAS	NAT'L. TRNSM. GRID	270.00	0.00	0.00	269.75	60.25	0.00
TR-PE-8985	1998	CESME - ALACATI UNION	CESME W.S. & SEWER.	13.10	0.00	0.00	13.00	2.10	0.00
TR-PE-9072	1998	REP. OF TURKEY	PRIV. OF IRRIGATION	20.00	0.00	0.00	18.06	9.15	0.15
TR-PE-9089	1998	REPUBLIC OF TURKEY	BASIC ED I	300.00	0.00	0.00	295.19	143.59	0.00
TR-PE-9095	1997	REPUBLIC OF TURKEY	PRIM HEALTH CARE SER	14.50	0.00	0.00	14.50	7.67	0.00
TR-PE-35759	1996	GOVERNMENT OF TURKEY	PUBLIC FINAN. MGT.	62.00	0.00	0.00	58.41	42.41	1.94
TR-PE-38091	1996	GOVERNMENT OF TURKEY	ROAD IMPR. & SAFETY	250.00	0.00	0.00	152.34	76.55	0.00
TR-PE-9076	1995	GOVERNMENT	HEALTH II	150.00	0.00	0.00	100.12	94.08	0.00
TR-PE-9093	1995	ANTALYA WATER SUPPLY AND	ANTALYA WATER SUPPLY	100.00	0.00	0.00	75.38	19.29	0.00
TR-PE-9102	1994	GOT	PRIVATIZATION IMPLEM	100.00	0.00	67.43	5.11	72.51	-0.23
TR-PE-9023	1993	REPUBLIC OF TURKEY	E. ANATOLIA WATERSHE	77.00	0.00	0.00	44.23	47.42	-24.48
TR-PE-9064	1993	GOVERNMENT	EMPLOYMENT & TRAININ	67.00	0.00	0.00	36.31	33.90	0.00
TR-PE-9065	1993	MUN. OF BURSA/BUSKI	BURSA WATER & SANITA	129.50	0.00	20.00	23.41	16.68	-7.57
TR-PE-9099	1993	GOVT. OF TURKEY	EARTHQUAKE RECONSTRU	285.00	0.00	78.50	10.05	83.53	23.23
TR-PE-9044	1992	REPUBLIC OF TURKEY	AGRIC. RESEARCH	55.00	0.00	6.00	12.87	18.37	6.87
TR-PE-9097	1992	GOT	TA FOR TREASURY DATA	9.20	0.00	0.00	1.10	1.10	0.00
			Total:	2,430.30	0.00	171.93	1,595.96	825.43	-0.09

	Active Projects	Closed Projects	Total
Total Disbursed (IBRD and IDA):	875.40	9,703.29	10,578.69
of which has been repaid:	99.05	7,473.86	7,572.91
Total now held by IBRD and IDA:	2,447.33	2,263.40	4,710.73
Amount sold:	0.00	3.55	3.55
of which repaid:	0.00	3.55	3.55
Total Undisbursed:	1,595.96	32.46	1,628.42

* Actual disbursements to date minus intended disbursements to date as projected at appraisal.

TURKEY
STATEMENT OF IFC's
Held and Disbursed Portfolio
31-Jul-1999
In Millions US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
0/97	Rant Leasing	3.54	0.00	0.00	0.00	3.54	0.00	0.00	0.00
1970/71/82/83/98	Viking	11.79	0.00	0.00	0.00	11.79	0.00	0.00	0.00
1979/82/83/89/91/96/	Trakya Cam	0.00	5.06	0.71	0.00	0.00	5.06	0.71	0.00
99	Pinar ET	12.75	0.00	0.00	0.00	12.75	0.00	0.00	0.00
1983/94/98	Silkar Turizm	3.80	0.00	0.00	4.33	3.80	0.00	0.00	4.33
1986/90	Kiris	22.28	0.00	0.00	0.00	22.28	0.00	0.00	0.00
1988/90	Elginkan	15.84	0.00	0.00	1.49	15.84	0.00	0.00	1.49
1988/93/96	Edirne	2.35	0.00	0.00	0.00	2.35	0.00	0.00	0.00
1989	Kepez Elektrik	14.17	0.00	0.00	0.00	14.17	0.00	0.00	0.00
1990	Koy-Tur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1990/92	Conrad	16.81	0.00	0.00	0.00	15.47	0.00	0.00	0.00
1990/93	Kula	4.77	0.00	0.00	0.00	4.77	0.00	0.00	0.00
1991	NASCO	11.54	0.00	0.00	3.96	11.54	0.00	0.00	3.96
1991	Cayeli Bakir	21.00	0.00	0.00	10.20	21.00	0.00	0.00	10.20
1992	Korfezbank	13.50	0.00	0.00	29.50	13.50	0.00	0.00	29.50
1992/97	Eldor	5.25	0.00	0.00	0.00	5.25	0.00	0.00	0.00
1993/96	Medya	3.96	4.99	0.00	0.00	3.96	4.99	0.00	0.00
1993/96	Sise Ve Cam	17.92	0.00	0.00	23.90	17.92	0.00	0.00	23.90
1993/96	Turkiye Garanti	20.00	0.00	0.00	95.00	20.00	0.00	0.00	95.00
1993/98	AYTAC	6.00	0.00	0.00	7.50	6.00	0.00	0.00	7.50
1994	Cerrahogullari	1.03	0.00	0.00	0.00	1.03	0.00	0.00	0.00
1994	CBS Holding	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
1994	Pinar SUT	1.88	0.00	0.00	0.00	1.88	0.00	0.00	0.00
1994	Tekfen	2.14	0.00	0.00	0.00	2.14	0.00	0.00	0.00
1994	Global Security	0.00	0.00	2.50	0.00	0.00	0.00	2.50	0.00
1994/95/96	Demirbank	12.00	0.00	0.00	18.00	12.00	0.00	0.00	18.00
1994/96	Borcelik	24.00	0.00	12.06	0.00	24.00	0.00	12.06	0.00
1994/96/97	Assan	17.73	5.00	0.00	7.50	17.73	5.00	0.00	7.50
1994/97	Garanti Leasing	7.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
1994/98	Isvicre Hayat	0.00	0.00	0.49	0.00	0.00	0.00	0.49	0.00
1994/98	Ekspres Bank	4.29	0.00	0.00	0.00	4.29	0.00	0.00	0.00
1995	Entek	25.00	0.00	0.00	26.50	25.00	0.00	0.00	26.50
1995	TDD	1.20	0.00	0.00	0.00	1.20	0.00	0.00	0.00
1995	Yalova Acrylic	10.00	0.00	0.00	5.33	10.00	0.00	0.00	5.33
1995	Arcelik	44.80	0.00	0.00	28.60	44.80	0.00	0.00	28.60
1995/96	CBS Boya Kimya	0.00	0.00	3.65	0.00	0.00	0.00	3.65	0.00
1995/96	Turk Ekon Bank	15.00	0.00	0.00	20.00	15.00	0.00	0.00	20.00
1995/99	CBS Printas	0.00	0.00	0.62	0.00	0.00	0.00	0.62	0.00
1996	Kocbank	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
1996	Koclease	12.86	0.00	0.00	0.00	12.86	0.00	0.00	0.00
1996	TCRA	0.00	0.00	0.10	0.00	0.00	0.00	0.05	0.00
1996	Oyak Bank	13.33	0.00	0.00	20.00	13.33	0.00	0.00	20.00
1997	Toprak Leasing	4.44	0.00	0.00	0.00	4.44	0.00	0.00	0.00
1997	Demir Leasing	12.78	0.00	0.00	0.00	12.78	0.00	0.00	0.00
1997/98	Finans Leasing	9.67	0.00	0.00	0.00	9.67	0.00	0.00	0.00
1997/98	Yapi Kredi Lease	8.67	0.00	0.00	0.00	8.67	0.00	0.00	0.00
1997/98	Adana Cement	15.00	0.00	0.00	10.00	15.00	0.00	0.00	10.00
1998									

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1998	Alternatif Bank	10.00	5.00	0.00	15.00	10.00	5.00	0.00	15.00
1998	HPSTAS	12.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998	Indorama Iplik	10.00	0.00	0.66	0.00	10.00	0.00	0.66	0.00
1998	Ipek Paper	31.67	0.00	0.00	18.00	31.67	0.00	0.00	18.00
1998	Modern Karton	20.00	0.00	0.00	10.00	20.00	0.00	0.00	10.00
1998	Ottoman	20.00	0.00	0.00	80.00	20.00	0.00	0.00	80.00
1998	Pasabahce-Schott	15.71	0.00	0.00	15.71	15.71	0.00	0.00	15.71
1998	Soktas	12.35	0.00	0.00	0.00	12.35	0.00	0.00	0.00
1999	Gumussuyu Kap	9.00	3.00	0.00	0.00	4.00	3.00	0.00	0.00
1999	SAKoSa	24.93	0.00	0.00	24.38	21.02	0.00	0.00	19.51
1999	TEB Finansal	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Portfolio:	634.75	23.05	20.79	474.90	607.50	23.05	20.74	470.03

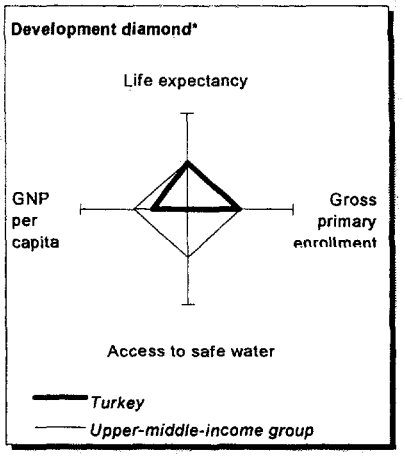
		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic
	Total Pending Commitment:	0.00	0.00	0.00	0.00

Annex 10: Country at a Glance

TURKEY: Marmara Earthquake Emergency Reconstruction Project

9/8/99

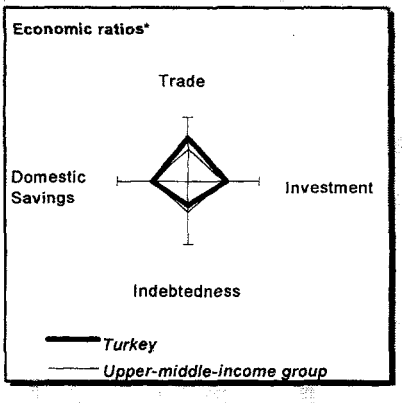
POVERTY and SOCIAL	Turkey	Europe & Central Asia	Upper-middle-income
1998			
Population, mid-year *(millions)*	63.5	473	588
GNP per capita *(Atlas method, US$)*	3,160	2,190	4,860
GNP *(Atlas method, US$ billions)*	200.5	1,039	2,862
Average annual growth, 1992-98			
Population *(%)*	1.5	0.1	1.4
Labor force *(%)*	2.8	0.6	2.0
Most recent estimate (latest year available, 1992-98)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	73	68	77
Life expectancy at birth *(years)*	69	69	70
Infant mortality *(per 1,000 live births)*	40	23	27
Child malnutrition *(% of children under 5)*	10		
Access to safe water *(% of population)*	..	..	79
Illiteracy *(% of population age 15+)*	17	4	11
Gross primary enrollment *(% of school-age population)*	105	100	108
Male	107	101	..
Female	102	99	..



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

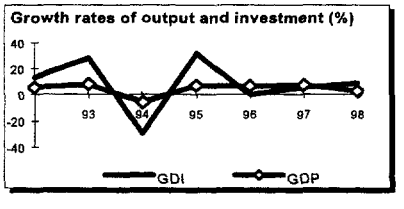
	1977	1987	1997	1998
GDP *(US$ billions)*	60.9	87.3	190.7	198.8
Gross domestic investment/GDP	19.9	25.7	25.1	24.6
Exports of goods and services/GDP	3.7	15.6	24.6	24.8
Gross domestic savings/GDP	13.3	23.5	19.3	21.1
Gross national savings/GDP	16.2	26.6	23.8	26.7
Current account balance/GDP	-5.2	-0.9	-2.4	0.3
Interest payments/GDP	0.3	2.2	1.7	1.7
Total debt/GDP	18.8	46.9	47.8	51.4
Total debt service/exports	29.1	35.5	20.2	21.6
Present value of debt/GDP	..	..	43.3	..
Present value of debt/exports	..	..	146.6	..

	1977-87	1988-98	1997	1998	1999-03
(average annual growth)					
GDP	4.0	4.3	7.7	2.8	5.0
GNP per capita	1.4	2.8	6.9	2.3	3.6
Exports of goods and services	..	10.4	19.1	10.5	6.8

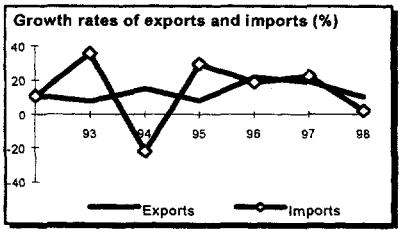


STRUCTURE of the ECONOMY

	1977	1987	1997	1998
(% of GDP)				
Agriculture	31.4	18.3	15.1	17.6
Industry	21.5	31.8	28.2	25.4
Manufacturing	13.6	20.2	18.3	16.1
Services	47.0	49.9	56.7	57.0
Private consumption	74.9	68.7	68.4	66.3
General government consumption	11.8	7.8	12.3	12.6
Imports of goods and services	10.3	17.8	30.4	28.2



	1977-87	1988-98	1997	1998
(average annual growth)				
Agriculture	0.9	1.3	-2.2	7.0
Industry	5.3	5.1	9.2	1.8
Manufacturing	5.5	6.0	11.2	1.8
Services	3.8	4.3	6.9	3.3
Private consumption	..	4.5	10.9	-3.1
General government consumption	..	3.5	4.1	5.0
Gross domestic investment	..	5.4	5.8	9.3
Imports of goods and services	..	11.8	22.4	2.2
Gross national product	3.8	4.5	8.6	3.9

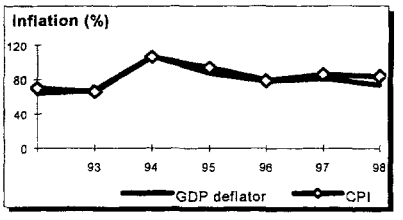


Note: 1998 data are preliminary estimates.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

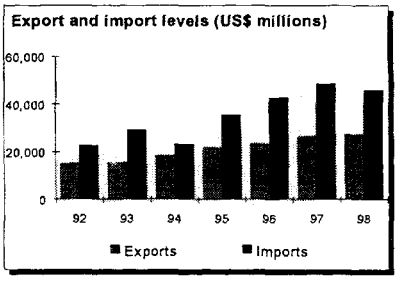
PRICES and GOVERNMENT FINANCE

	1977	1987	1997	1998
Domestic prices				
(% change)				
Consumer prices	..	..	85.6	83.7
Implicit GDP deflator	23.7	33.6	81.2	74.2
Government finance				
(% of GDP, includes current grants)				
Current revenue	..	22.6	23.4	24.7
Current budget balance	..	5.7	-0.8	-1.4
Overall surplus/deficit	..	-6.1	-8.7	-8.9



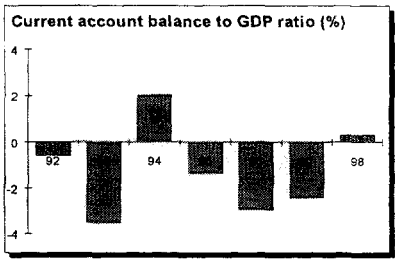
TRADE

	1977	1987	1997	1998
(US$ millions)				
Total exports (fob)	1,753	10,322	26,799	27,531
Textiles	314	3,316	9,894	10,487
Processed agricultural products	889	1,826	2,578	2,130
Manufactures	126	270	970	1,033
Total imports (cif)	5,796	14,158	48,559	45,935
Food	40	830	1,679	1,494
Fuel and energy	1,544	3,275	6,093	4,499
Capital goods	1,979	3,956	11,277	11,036
Export price index *(1995=100)*	..	83	90	86
Import price index *(1995=100)*	..	86	91	88
Terms of trade *(1995=100)*		96	98	99



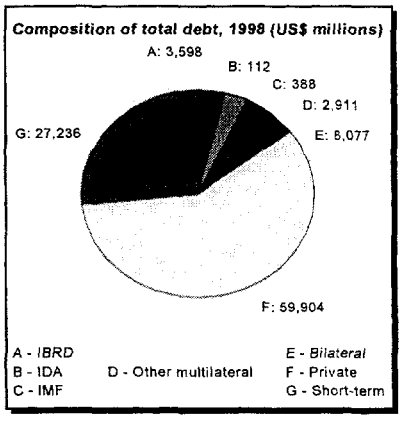
BALANCE of PAYMENTS

	1977	1987	1997	1998
(US$ millions)				
Exports of goods and services	2,293	14,135	47,576	50,785
Imports of goods and services	6,220	15,326	56,511	55,412
Resource balance	-3,927	-1,191	-8,935	-4,627
Net income	-319	-2,005	-558	-481
Net current transfers	1,107	2,390	4,866	5,727
Current account balance	-3,139	-806	-4,627	619
Financing items (net)	2,772	1,775	7,971	-172
Changes in net reserves	367	-969	-3,344	-447
Memo:				
Reserves including gold *(US$ millions)*	..	5,494	27,168	29,506
Conversion rate *(DEC. local/US$)*	18.0	856.3	151,239	259,627



EXTERNAL DEBT and RESOURCE FLOWS

	1977	1987	1997	1998
(US$ millions)				
Total debt outstanding and disbursed	11,452	40,944	91,152	102,226
IBRD	512	6,290	3,587	3,598
IDA	181	170	118	112
Total debt service	954	5,981	11,349	13,198
IBRD	63	776	965	882
IDA	2	5	7	7
Composition of net resource flows				
Official grants	10	42	49	37
Official creditors	237	480	-121	34
Private creditors	637	1,284	10,841	-153
Foreign direct investment	27	106	554	573
Portfolio equity	1	97	1,634	-6,386
World Bank program				
Commitments	144	957	35	956
Disbursements	165	787	266	424
Principal repayments	27	320	698	643
Net flows	138	467	-432	-219
Interest payments	38	461	274	246
Net transfers	100	7	-706	-465



Additional
Annex No.: 11

SOCIAL SURVEY

I. INTRODUCTION

Following the devastating earthquake in the Marmara region of Turkey on 17th August, 1999, the World Bank was asked by the Government of Turkey to prepare an emergency reconstruction loan as soon as possible. This loan will most likely cover the following areas: housing, municipal infrastructure (water, sewerage, electricity, telecoms, roads), education, insurance, health, trauma counseling, industry, environmental clean up, institutional development for emergency response and enforcement of building codes. The following report outlines the findings of the rapid social survey that has been carried out to support the preparation of the MEER project.

II. OBJECTIVE

The overall objective of the social survey is to lay out the profile of the population that has been effected by the earthquake, and assess the needs of this population to ensure that proper assistance is provided for specific needs of various groups through the project. A second objective is to evaluate the differences between the various cities that have been effected differently by the earthquake and to make relevant recommendations for particular needs in the different regions.

III. METHODOLOGY

Given the emergency context of this operation, the time constraints associated with this disaster situation and the need to produce useful data quickly for the preparation of the emergency reconstruction project, the following methodologies were agreed upon as the most appropriate to achieve the above mentioned objectives. A questionnaire was prepared in order to identify: a) the demographic and the socio-economic profile; and b) various needs, preferences and attitudes of the population which was effected(Annex 1). Then, a survey was conducted in the region hit by the earthquake. It was carried out predominantly within the tent camps but also among the tents installed on the streets, and among earthquake victims in hospitals. It was undertaken between September 16th and 18th, or approximately one month after the August 17th earthquake (Table. 1 and Table. 2).

Table. 1 SURVEY REGION

Region	Frequency	Percent
Adapazari	207	% 31.7
Avcilar	23	% 3.5
Degirmendere	41	% 6.3
Derince	3	% 0.5
Florya	17	% 2.6
Gölcük	122	% 18.7
Izmit	147	% 22.5
Sapanca	7	% 1.1
Yalova	47	% 7.2
Unknown	39	% 6.0
Total	653	% 100

Table. 2 SURVEY LOCATIONS

Location	Frequency	Percent
Hospital	24	% 3.7
Tent Camps	460	% 70.4
School Yards	14	% 2.1
Tents on The Streets	68	% 10.4
Lodgings	19	% 2.9
House	2	% 0.3
Streets , Cars	2	% 0.3
Other	32	% 4.9
Unknown	32	% 4.9
Total	653	% 100

After two days of training, a field survey was carried out by 5 supervisors and 30 surveyors in three days. Each questionnaire took around 30-45 minutes to complete. Samples were targeted from diverse tent camps in different regions to ensure a representative sample. A sample of 653 people were interviewed. The sample population has an average age of 40 (min=14, max=79) and has the following gender and age frequencies.

Table. 3 GENDER

Gender	Frequency	Percent
Male	324	% 49.6
Female	325	% 49.8
Unknown	4	% 0.6
Total	653	% 100

Table. 4 AGE GROUPS

Age	Frequency	Percent
0 - 15	2	% 0.3
16 - 20	43	% 6.6
21 - 30	107	% 16.4
31 - 40	195	% 29.9
41 - 50	165	% 25.3
51 - 60	83	% 12.7
61 - 70	43	% 6.6
71 +	11	% 1.7
Unknown	4	% 0.6
Total	653	% 100

When evaluating the following data, one very important point should be kept in mind. This survey represents a snap shot of the attitudes and the profile of the population at a specific point in time. The overall conditions in the region are extremely dynamic and fragile (changing number of tent camps, changing nature of help provided to each region, intensity of the after shocks etc. Hence, the results of this survey should be expected to differ in some key areas – such as intention to migrate, for example – from surveys conducted at a different time. In addition, some of the data provided here may not be relevant after a few weeks.

IV. FINDINGS

The questionnaire developed for the survey covered the following areas: demographic profile, socio-economic status, damage and loss information, housing, settlement and migration, health, education, sources of income for the household. Although all of these areas are interrelated, the findings will be presented along these categories.

A. Demographic Profile

The survey provides the following data about the demographic profile of the sample population (653 respondents). The mean age of the respondents are 40 (min=14, max=79) and % 80 are married. The average number of people per household is 4.5. The mean age of the household population (approximately total population of 2940) is 29 (min=0, max=95). % 40.8 of the household population below the age of 21.

Education level of the household population (including the adults and the children who are eligible for schooling) is as follows:

Never been to school	% 9.0
5 years primary school degree	% 36.6
3 years middle school degree	% 9.0
3 years high school degree	% 15.2
College degree	% 3.3

The following tables (Table. 5 and Table 6) show the birth place information of the respondent population. The majority of this population was born in Marmara, Black Sea, and East Anatolia regions, and % 34.3 was born in towns.

Table. 5 BIRTH PLACE (REGION)

Region	Frequency	Percent
Marmara	317	% 48.5
Black Sea	103	% 15.8
East Anatolia	102	% 15.6
Central Anatolia	40	% 6.1
Southeast Anatolia	21	% 3.2
Mediterranean	14	% 2.1
Aegean	10	% 1.5
Other	43	% 6.8
Total	653	%100

Table. 6 TYPE OF BIRTH PLACE

Type	Frequency	Percent
Village	193	%29.6
Town	224	% 34.3
City	204	% 31.2
Unknown	32	% 4.9
Total	653	%100

The average years of residence of this population in a) the Marmara region is 30 years, b) in the same neighborhood is 14 years, c) in the same house is 2 years. One possible interpretation of this finding is that this population might have been mobile in the region itself, i.e. changing neighborhoods, possibly when they were able to find jobs. The average 2 years of residence in the same house may imply that the one or two story houses they had been living might be converted into five or six story apartment buildings over the last ten or fifteen years overlapping with the construction boom in the Marmara region. Although they might be living on the same land, the type of housing they are occupying might have changed.

B. Type of Jobs/Income

The average household income of the respondent population per month is 168 million TL ($ 363). Several additional information might help to contextualize this average. The average for household income per month in the Marmara region is $ 666, and the Turkey average is $ 458 Statistical Yearbook of Turkey 1997. State Institute of Statistics, Prime Ministry, Republic of Turkey. Although the monthly income average of this population seems close to the country average, when compared to the regional average it implies a more striking picture. This comparison suggests that the population that we had access to, i.e the ones who stayed in the tent camps even after a month of the earthquake, those who did not have any other place to go, represent also the economically marginal population of the region whose average household income is almost half of the regional average. The poverty line in Turkey is $ 200 (average household income per month) Recep Dumanli (1996) Poverty and Its Dimensions in Turkey. State Planning Organization Publications No. 2449 June.. The following table (Table. 7) shows the frequency of income groups among the respondent population.

Table. 7 HOUSEHOLD INCOME (PER MONTH-MILLION TL)

Income	Frequency	Percent
0 - 100	276	% 42.3
101 - 200	195	% 29.9
201 - 300	77	% 11.8
301 - 400	20	% 3.1
401 - 500	4	% 0.6
500 +	11	% 1.7
Unknown	70	% 10.7
Total	653	% 100

As this distribution shows, % 42.3 of this population is in the 0-100 million TL household income group (between $ 0-214 bracket) which is close to the minimum wage in Turkey ($ 200 per month)

Ministry of Work and Social Security.. The regional distribution of household income groups suggests that the respondent population of Adapazari is the lowest income group, whereas, Izmit has the most equally distributed income among the respondent population (Table. 8).

Table. 8 HOUSEHOLD INCOME (PER MONTH-MILLION TL) REGIONAL DISTRIBUTION

Region	0 - 100	101 - 200	201 - 300	301 - 400	401 - 500	500 +
Adapazari	% 55.5	% 30.2	% 11.5	% 2.2	-	% 0.5
Degirmendere	% 44.4	% 33.3	% 16.7	% 2.8	-	% 2.7
Gölcük	% 45.5	% 36.6	%10.7	% 3.6	% 0.9	% 2.7
Izmit	% 36.7	% 34.4	% 20.3	% 5.5	% 2.3	% 0.8
Yalova	% 42.8	% 38.1	% 11.9	% 7.1	-	-

The following table (Table. 9) shows the source of income for the households. Majority of the laborers works in the construction business and some have temporary jobs.

Table. 9 TYPES OF JOB / INCOME

Job / Income	Frequency	Percent
Retired - Retired + Income	178	% 27.2
Laborer	111	% 17.0
Small-to-Medium Size Business	87	% 13.3
Artisan / Petty Trader	60	% 9.2
State Employee	58	% 8.9
Driver	29	% 4.4
Unemployed	14	% 2.1
Other	108	% 16.7
Unknown	8	% 1.2
Total	653	% 100

As shown in the following tables (Table. 10 and Table. 11), % 61.9 of the respondent population has insurance, and % 40.4 of this insurance is SSK that covers mainly health.

Table. 10 INSURANCE (Do you have insurance?)

Insurance	Frequency	Percent
Yes	404	% 61.9
No	231	% 35.4
Other	8	% 1.2
Unknown	10	% 1.5
Total	653	%100

Table. 11 **TYPE OF INSURANCE** SSK is the insurance system that mainly laborers are eligible for. Small to medium size business owners, artisans are eligible for Bagkur insurance system. Emekli Sandigi covers state employees.

Type	Frequency	Percent
SSK	264	% 40.4
Bağ - Kur	47	% 7.2
Emekli Sandýðý	79	% 12.1
Private	6	% 0.9
Other	17	% 2.6
Unknown	240	% 36.8
Total	653	% 100

% 56 of the respondent population do not have enough money to sustain themselves after the August 17th earthquake (Table. 12). % 40 of the respondent population said that there was a damage in the workplace that provided the income for their household. Many of the workplaces that have been damaged are small businesses and constructions that provided income (in some cases, temporary income) for the laborers. But in interpreting these percentages it should be kept in mind that in surveys conducted in these kinds of disaster situations, respondents will always exaggerate the losses and damages they have to get the maximum possible support they can from various agencies. So it should be expected that these percentages reflect some inflated numbers. But given the sources of income and the amount of income these households had even before the earthquake, it is also expected that these respondents will not have enough cash to sustain themselves for a long time.

Table. 12 **CURRENT AVAILABLE CASH (Do you have enough money to sustain yourselves?)**

Cash Available	Frequency	Percent
Yes	256	%39.2
No	366	% 56.0
Don't know	14	% 2.2
Other	12	% 1.8
Unknown	5	% 0.8
Total	653	%100

The regional breakdown of the above table shows that this percentage increases in Adapazari, Degirmendere, and Golcuk, and decreases in Izmit (Table. 13).

Table. 13 **CURRENT AVAILABLE CASH (Regional Distribution)**

Region	Yes	No	Don't Know	Other
Adapazari	% 34.3	% 63.8	% 1.0	% 1.0
Degirmendere	% 34.1	% 61.0	% 4.9	
Gölcük	% 29.2	% 66.7	%1.7	% 2.5
Izmit	% 49.6	% 42.9	% 3.4	% 4.1

C. Housing

The section on housing provides the following information: house ownership; type of housing; housing damage; type of damage; temporary and permanent housing preferences. Among the respondent population % 47 own their house, % 42.4 rent it (Table. 14).

Table. 14 HOUSE OWNERSHIP

Ownership	Frequency	Percent
Owner	307	% 47.0
Rental	277	% 42.4
Relative's House (No Rent)	50	% 7.7
State Lodging	4	% 0.6
Other	13	% 2.0
Unknown	2	% 0.3
Total	653	% 100

% 61.7 of the respondent population live in apartment units. The average size of the houses is 100m2 with 3 bedrooms and a living room. % 29.2 of the houses have 5 floors. Majority of the sample population (% 85.8) does not own a second house (Table. 15, Table. 16, Table. 17).

Table. 15 TYPE OF HOUSING (1)

Type	Frequency	Percent
Apartment Unit	403	% 61.7
House	194	% 29.7
State Lodgings	2	% 0.3
Cooperative Housing	27	% 4.1
Other	26	% 4.0
Unknown	1	% 0.2
Total	653	%100

Table. 16 TYPE OF HOUSING (2) (How many floors did the building have?)

Floors	Frequency	Percent
1 Floor	69	% 10.6
2 Floors	134	% 20.5
3 Floors	83	% 12.7
4 Floors	92	% 14.1
5 Floors	191	% 29.2
6 Floors	55	% 8.4
Other	28	% 4.3
Unknown	1	% 0.2
Total	653	% 100

Since our respondent population is mainly constituted of people whose houses have been damaged, Table 16 also implies that the majority of the buildings that were damaged were actually 5 floor buildings. 5 floors seem to be the critical number in terms of implementing building codes and having the optimum number of floors without an elevator.

Table. 17 SECOND HOUSE OWNERSHIP

2nd House Ownership	Frequency	Percent
Yes	81	% 12.4
No	560	% 85.8
Other	7	% 1.1
Unknown	5	% 0.8
Total	653	% 100

In terms of damage, % 93.3 of the respondent population had their house damaged. The figures of the type of damage reveal that % 21.4 of the houses was completely collapsed, and % 20.1 was mildly damaged (Table. 18, Table. 19). The percentage of the mildly damaged houses suggests that there is a number of housing supply that can be used if repaired. But, as will be shown in some of the following tables, the percentage of people who are willing to move in to mildly damaged buildings even after repair is very low.

Table. 18 HOUSING DAMAGED

Damaged	Frequency	Percent
Yes	609	% 93.3
No	40	% 6.1
Other	3	% 0.5
Unknown	1	% 0.2
Total	653	% 100

Table. 19 TYPE OF HOUSING DAMAGE

Type of Damage	Frequency	Percent
Completely Collapsed	140	% 21.4
Did not collapse completely, but		
it is dangerous to get in and out	201	% 30.8
It is damaged, can not live in it, but		
can get in and out	119	% 18.2
Mildly damaged, could be lived in if repaired	131	% 20.1
Other	23	% 3.6
Unknown	39	% 6.0
Total	653	% 100

Regarding the housing damage question, another issue is the assessment of this damage. When the respondents were asked who assessed this damage, the most frequent responses were: Ministry of Public Works, municipality, and do not know. These responses were immediately followed by a series of concerns about how much they do not trust these assessments even when made by the ministry or the municipality. Some of the respondents suggested that they even witnessed the collapse of certain buildings that have been assessed as mildly damaged by these officials which led to an increasing sense of distrust.

Series of questions regarding temporary and permanent housing options and preferences reveal the following data that has important implications for housing programs. When asked about the short term housing plans, such as what they are planning to do in terms of shelter in the following months, *rather than what they wished to have*, % 27.3 said they are planning to live in prefab housing (Table. 20). But the striking aspect of this table is that % 18.8 do not know where they might be living in the following months which suggest a high level of uncertainty (something which will lead to a high level of anxiety) in terms of the possible alternatives that they are able to consider.

Table. 20 SHORT-TERM HOUSING / SHELTER (Where are you planning to live in the following months-this winter?)

Type of Shelter	Frequency	Percent
Anywhere provided by the state	71	% 10.9
Tent / Tent Camps	124	% 19.0
Pre- Fab Housing	178	% 27.3
Move back to my place after repairing	47	% 7.2
Move in with a relative	13	% 2.0
Don't know	123	% 18.8
Other	94	% 14.4
Unknown	3	% 0.5
Total	653	% 100

Table 20 also shows that the percentage of people who are planning to move back to their places after repairing is very low. Although this might be explained through fear and anxiety, it is also closely related to the sense of distrust in the assessment of the housing damage, as discussed above. Also the fear and anxiety associated with houses might eventually go down, but a decrease in the sense of distrust in established institutions is expected to take much longer.

In terms of temporary housing preferences, the most frequent answer in open-ended question is prefab housing. When the same question is given with a list of specific options and they are asked to evaluate each option, prefab housing again has the highest frequency (% 53). Among these options, repairing own house or moving somewhere else, even temporarily is again extremely low (Table. 21).

Table. 21 TEMPORARY HOUSING PREFERENCES

	Frequency	Percent	
Temporary Options	**Yes**	**No Yes**	**No**
Houses in Adana	5	611 % 0.8	% 93.6
Hotels in Antalya	7	609 % 1.1	% 93.6
Pre-fab Housing	346	270 % 53.0	% 41.3
More Developed Tent Camps	32	584 % 4.9	% 89.4
State Housing	26	590 % 4.0	% 90.4
Refugee Housing	6	609 % 0.9	% 93.3
Housing in Any City - Rent			
Provided by the State	93	523 % 14.2	% 80.1
Repairing Your Own House	59	556 % 9.0	% 85.1

But when the question is put differently, i.e when they are asked to choose between moving to a prefab housing as soon as possible and staying in tents for a while and then moving to a permanent housing, the percentage of prefab housing does not drop drastically, but the number of people who will be interested in the other option increases significantly (Table. 22). These figures suggest that even the ones who were not willing to stay in more developed tent camps temporarily (see Table 21), are willing to stay in tents if moved to permanent housing later on, rather than moving to prefab housing as soon as possible.

Table. 22 HOUSING PREFERENCES

Preference	**Frequency**	**Percent**
To move to a pre-fab housing		
as soon as possible	308	% 47.2
To stay in the tents for a while and then		
move to a permanent housing	240	% 36.8
Don't know	24	% 3.7
Other	44	% 6.7
Unknown	37	% 5.7
Total	653	% 100

The following table shows the regional distribution of housing preferences (Table. 23).

Table. 23 REGIONAL DISTRIBUTION OF HOUSING PREFERENCES

	To move to a	**To stay in the tents**			
	pre-fab housing	**for a while and then**			
Region	**as soon as**	**move to a**	**Don't know**	**Other**	**Unknown**
	possible	**permanent housing**			
Adapazari	% 47.9	% 39.2	% 4.6	% 7.7	% 0.5

Avcilar	% 22.2	% 72.2	% 5.5	-	-
Degirmendere	% 62.5	% 30.0	% 5.0	% 2.5	-
Gölcük	% 58.0	% 32.8	% 3.4	% 5.9	-
Izmit	% 52.1	% 35.9	% 5.6	% 6.3	-
Yalova	% 52.4	% 30.9	-	% 16.7	-

The choice of prefab housing should be interpreted with caution. First of all, we see that if other viable options are given as permanent solutions, the percentage of prefab housing preference drops as seen in Table 22. Also, the observations in the field suggest that respondents do not have a clear idea of what prefab housing really is. The image that many of them share is a house similar to the house that they have been living before the earthquake which was in average a 100m2 with 3 bedrooms and a living room. Moreover, the information that the respondents have access to in terms of the housing solutions that will be offered by the government, the prefab solution is presented as the only viable solution and the only one that will be offered by the government. In this context, it is expected that people would choose the option which they think is the only possible option they can get from the government even when they are not convinced with that alternative as the real solution. Another problem is that, the formal procedures for qualifying for disaster benefits, including housing benefits, are extremely unclear and ambiguous for the respondents. Given this ambiguity, it is again expected that respondents will try to maximize whatever they can get from the government, and pick the prefab option assuming that that is the only offered solution.
For the permanent housing preference, the most frequent answer is a one floor house, and % 75 would want this built in the Marmara region.

D. Migration

Both the actual and potential migration rates seem low, % 72.1 are not planning to migrate, temporarily or permanently, in the near future (Table. 24 and Table. 25). These figures are also lower than the ones seen in a survey completed by IBS Marketing Research Services about ten days before this survey. The potential migration trend in IBS report points to % 23.7 of the respondent population, this survey shows that only % 18.1 of the respondent population are planning to migrate, temporarily or permanently, in the near future. This drop in the figures also points to the relevance of timing in the evaluation of research findings. It is expected that these figures will drop over time either because people who were planning to migrate will eventually move, or people might change their minds about migrating, and decide to stay in the region.

Table. 24 MIGRATION TRENDS (Are you planning to migrate, temporarily or permanently, in the near future?)

Intention	Frequency	Percent
Yes	118	% 18.1
No	471	% 72.1
Don't know	29	% 4.4
Other	19	% 2.9
Unknown	16	% 2.5
Total	653	% 100

Table. 25 MIGRATION TRENDS
(After this earthquake, have there been people among your neighbors, relatives, friends who migrated out of this region?)

Migration	Frequency	Percent
Yes	210	% 32.2
No	424	% 64.9
Other	8	% 1.2
Unknown	11	% 1.7
Total	653	% 100

E. Health

The preliminary findings on health reveal that the health situation of the population in the Marmara Region was quite problematic even before the earthquake hit the region. Among this population with an average age of 40 years (min. = 14, max. = 79) (sample of 653 people interviewed), % 38 of the people regularly take (before the earthquake) treatment or medication for an illness which they have. In addition, % 37 of the population has at least one member of their household who regularly takes such medication or receives treatment. Furthermore, % 12 of the sample said that there is at least one member of the household who needs constant care due to being handicapped, retarded, disabled or due to old age.

After the earthquake, % 64 of those interviewed admitted that they experienced extreme fear, % 58 insomnia, % 48 panic, and % 41 depression. As for the reaction of children, % 79 of those with children said that the children suffered extreme fear, % 60 suffered insomnia, % 55 panic and % 46 depression. % 71 of those interviewed said they would accept psychological treatment if it were offered.

V. CONCLUSIONS

The findings of the social survey point to the following observations: high level of uncertainty and anxiety about the future; low level of trust in established institutions; lack of information and/or misinformation, especially about housing, work and physical damage in the region. In any kind of reconstruction project, these observations need to be taken into account. Since the majority of this population is not willing to move out of the region, either temporarily or permanently, solutions need to be developed within this region.

VI. RECOMMENDATIONS

There is a possibility of developing several pilot projects which can deal with the above mentioned issues. Any project has to take an integrated approach and should have community participation as the primary objective. Since there seems to be an extremely low sense of trust in the established institutions, the source of trust would lie within the community, and for any kind of reconstruction project to succeed, community participation in collaboration with reliable private sector agencies and/or NGOs seems to be the key issue.

Although the level of trust in established institutions is extremely low, there are certain governmental institutions that can function more effectively given financial and technical assistance. The most outstanding one among these is the General Directorate for Social Services and Child Protection. If this institution, which already has an extensive network of community programs, can be supported with more staff and financial resources, it can be used much more efficiently in social rehabilitation programs especially with respect to children and women.

Following are some recommendations for possible community participation and empowerment programs:

Increased information: Marmara Region Information System:
Since lack of information and /or misinformation and not having access to information seem to be one of the key issues, an information flow system could be developed in the region. Such a network can be available to the use of any person or organization, encompass a broad base, encourage sharing, provide ease and transparency in the relationship of local administration, the state, civil organizations, and citizens. Types of information in this kind of network would include: housing options; registration for housing and benefits; health; mental health; news about reconstruction timetables and eligibility for various benefits; updated needs assessment of people living in the tent camps.

Possible Partners: Association of the Municipalities of the Marmara Region and the Straits, Association of Human Settlements, Universities and NGOs specialized in providing expertise and software in establishing such a network.

Community Involvement in the Resettlement and Rehabilitation Process:
The main objective of this project could be to strengthen the participation of the community in the provision of resettlement activities with particular emphasis on the requirements of specific groups. This kind of participation has the potential to provide people with an opportunity to re-establish themselves in a timeframe and manner according to their own requirements. The speed of change for the communities from an emergency situation to one of permanence, together with the financial and physical requirements of their housing and social rehabilitation, can be determined by the communities and not external agencies.

Consultation with communities on their requirements, with emphasis on the disabled, women and children can be followed by the development of participatory planning processes. Guidelines can be established for ensuring that communities are consulted and that they are represented when deciding the type and substance of the rehabilitation process including planning, design, construction of houses and community facilities, and evaluation and monitoring of the process.

The project partners can be responsible for setting up and managing the participation program including consultation with communities, establishing the participatory mechanisms, providing training and information, establishing performance indicators to assess the results of the program and ensuring the approach is institutionalized.

Possible project partners: Metropolitan municipality, district municipality, Association of Human Settlements, Chamber of Architects, Chamber of Urban Planners, The International Union of Local Authorities, private architectural firms who are willing to provide support service in land use management, and provide alternative building plans and material during the reconstruction phase.

Note. The research for this report was carried out at the request of the World Bank, with the collaboration of Koç University, Yeditepe University (Department of Social Anthropology) and Marmara University. The Computer center and computer facilities of Yeditepe University were used for the analysis of the survey data. Funding was provided by the European Commission and the World Bank.

Additional
Annex No.: 12

ENVIRONMENTAL DATA SHEET FOR PROJECTS in the IBRD/IDA Lending Program

Country: Turkey
Project ID No: TR-PE-068368
Project Name: Marmara Earthquake Emergency Reconstruction (MEER) Project
Total Project Cost: US$.737 billion USD ($505 million USD IBRD loan)
Appraisal Date: October, 1999
Board Date: 16 November 1999
Team Leader: Piotr Wilczynski
Managing Unit ECSSD Sector Rural Development
Est. date for receipt of EA by Bank: N/A
EA Category (A/B/C): B Date Assigned: 14 October, 1999
Date Sheet Updated:

Major Project Components: The primary purpose of the project is to restore living conditions in the region of Turkey that was affected by the August 17, 1999 Marmara earthquake, support economic recovery and growth, and develop an institutional framework for disaster risk management and mitigation. The main components and sub-components are:

Component A – Disaster Response Systems and Risk Mitigation
- Sub-component A-1: National Emergency Management System
- Sub-component A-2: Disaster Insurance Scheme
- Sub-component A-3: Land Use Planning and Construction Code Enforcement
- Sub-component A-4: Cadastre Renovation and Land Management

Component B – Business Rehabilitation and Mitigation of Social Effects
- Sub-component B-1: Business Rehabilitation
- Sub-component B-2: Mitigation of Social Effects

Component C - Physical Reconstruction
- Sub-component C-1: Construction of Permanent Housing
- Sub-component C-2: Repair of Existing Housing Stock and Healthcare Facilities
- Sub-component C-3: Municipal Infrastructure

Component D – Project Management and Implementation Arrangements

Major Environmental Issues. The overall environmental impact of the MEER project is expected to be very positive, in that it is directed toward restoration of necessary municipal infrastructure, including water supply and wastewater treatment, in the cities heavily damaged by the earthquake. Environmental issues are primarily associated with component C (Physical Reconstruction). Under component C, environmental issues arise in connection with the construction of new permanent housing (sub-component C-1) and restoration of municipal infrastructure (sub-component C-3). The types of environmental issues faced within component C include land clearing for site preparation, movement of workers, equipment and materials to and from project site, proper disposal of debris and damaged equipment (including power cables and transformers), proper design of reconstructed water supply systems, sewerage and storm water

systems, wastewater treatment systems, streets and bridges. Under sub-component A-1, the construction of an emergency operations center will require environmental oversight from the project for site selection and preparation, design and infrastructure. Under sub-component B-1, environmental issues may arise in connection with wastes generated from the small industry and services (e.g., metal working, auto service and parts shops, small manufacturing) that would be housed in the reconstructed premises to be financed under the project.

Other Environmental Issues. Apart from the components and sub-components referenced in the preceding paragraph, the interventions financed by the project address institutional and legal reform related to emergency management, insurance, land registration and management, building code compliance, small business rehabilitation, social services for the population effected by the earthquake, and project management, and do not involve significant environmental issues.

Proposed Actions. Compliance with the environmental requirements of Turkey and the Bank will be achieved in the following way. In the PIU an Environmental Specialist hired under the TEFER project will be responsible for screening the specific investments eligible for financing under this operation. The list of investments is included in Annex A of the PIP. Initial assessments carried out by the project team, including road and municipal infrastructure engineers, and the Bank environmental specialist's review during appraisal show that no major environmental impacts are foreseen. Moreover, the PIU Environmental Specialist will be responsible for reviewing the project list and assuring that environmental requirements as stipulated in Turkish environmental law and ordinances are followed. Compliance with those requirements by the implementing agencies will be a condition for financing by the PIU. For Component C, site assessments will be carried out. Environmental aspects related to the construction phase of this component will be incorporated in the TORs for contractors and enforced by the PIU environmental specialist. Funding for continuation of the services of the Environmental Specialist is included in the MEER budget for the PIU, together with resources for other studies and additional assessments that might be identified by the environmental specialist as necessary.

Justification/Rationale for Environmental Category. Category B is considered most appropriate as major environmental impacts are not anticipated, and adequate provisions are made in the project for studies, assessments and oversight of environment issues that may arise in connection with construction or repair of housing, infrastructure, small industry and the emergency operations center.

Status of Category A Environmental Assessment. (presents EA start-up date, EA first draft, and current status) N/A

Remarks. (gives status of any other environmental studies, lists local groups and local NGOs consulted, tells whether borrower has given permission to release EA, etc)

Sub-component C-1 (new permanent housing construction) includes provisions for consultations with beneficiaries regarding siting, building design and proximity to social services.

Signed by: _____
{Team Leader}

Signed by: _____
{Environment Sector Leader}

October 14, 1999

Additional
Annex No.: 13

TEMPORARY SHELTER REPORT

Introduction

On August 17, 1999 an earthquake measuring 7.4 on the Richter scale produced extraordinary damage in the Marmara region of Turkey – its industrial heartland. Over 15,000 lives have been lost. Damage to housing stock was particularly devastating. More than 300,000 housing units were destroyed or damaged, forcing an estimated 600,000 people to find emergency shelter. Many found no other option but to live in tents. Cold winter conditions are expected by mid-November.

By October 1 between 160,000 and 280,000 people were living outside or in tents in the Marmara region. The Government of Turkey, obliged to address the temporary shelter needs of this population until permanent housing can be made available, must find an efficient cost-effective solution. A range of options is available.

The assistance now being provided has been adequate but uneven, and most of the displaced seem unclear about the choices for their future. Their strategies for finding shelter before the winter are influenced by several factors. These include their post-earthquake income strategies, education requirements for their children, dealing with the trauma of the earthquake and of their present condition, their strategy for utilizing fully the resources now being made available by the government and relief community, and their own need to regain control and direction in their lives. Capacities and credibility of engineering and construction processes, as well as identification of a clear category of need for temporary shelter are also critical factors.

Objective

The objective of this report is to outline and analyze the issues affecting the population made homeless in the Marmara earthquake, to address options for providing temporary shelter for those living outside and in tents, and to make recommendations aimed at an efficient and cost effective program to provide temporary shelter.

1. Profile of the affected

1.a. Number of "homeless". Those who have moved in with relatives or friends or have been able to rent or move into vacant housing somewhere are not considered to be in need of temporary housings. As a general rule, those in need of temporary housing are those who are living in a tent or in the open and this report will refer to this group as "homeless".

There is yet no clear, comprehensive census on the numbers of people who are homeless. Estimates of a number of town officials and leaders interviewed in the affected communities indicated that there are as many people in tents outside of organized camps as there are in organized tent camps. Approximately 80,000 people are now registered in tent communities (Government of Turkey, Ministry of Internal Affairs). Based on the estimates of community leaders, this would indicate that approximately 160,000 people are now in need of temporary housing.

A survey by the State Institute of Statistics (SIS) provides a different figure. Based on a comprehensive

interview of people in the four worst damaged provinces of the Marmara region, the SIS uses a figure of 250,000 who are homeless. This survey counted every person who could be found living outside in a tent, as well as those in public houses (government vacation housing). Including the other three provinces that were affected (Istanbul, Eskisheir, and Bursa) would increase the number to 280,000. This figure is calculated by taking the number homeless as a percentage of all houses damaged in the surveyed provinces/municipalities, and applying this percentage to the number of damaged houses in Istanbul, Eskisheir, and Bursa, and adding that figure to 250,000. Actual homeless will be somewhat less. This figure includes those in public vacation houses (camps). Consequently, this figure is higher than the number of people living in tents and outside (homeless). The number of those who are in tents relative to the level of damage is much lower in Istanbul, this means that the percentage of homeless to damage used to raise the total figure to 280,000 is actually higher than the actual number of homeless.

The range of 160,000 to 280,000 homeless represents a range of 35,000 to 62,200 required dwelling units. A figure often used by the government for persons per family is 4.5.

Damaged Homes

Figures in Table A were provided by the Ministry of Public Works and Settlement (MPWS) Directorate of Technical Research and Implementation, who will manage contracts for construction of pre-fab units for temporary shelter:

TABLE A

A. Housing units which are completely destroyed	66,441
B. Housing units which are severely damaged, but able to be repaired	67,242
C. Housing units which are lightly damaged	80,160

These figures provide an idea of the number of potentially homeless. These categories are also important because they are used to determine eligibility for benefits offered by the Government of Turkey (GoT).

Many of those who left their homes have moved in with relatives, or otherwise found adequate shelter. This will reduce the numbers in all categories, but especially A.

1.b. Shelter options now employed by affected population. Those who have left their homes seek shelter from three categories:

A. Shelter in or next to homes with friends or relatives. In many cases this involves migration out of the area.
B. Move to undamaged second home, vacation home, or rent accommodation. This could also involve migration to other areas of Turkey or outside the country.

C. Tent-shelter. (1) Tent-shelter in organized camps. People in camps are more likely to have lost their home completely.
(2) Tent-shelter in the neighborhood of the damaged house. The affected in this category are likely to remain close to a damaged but still standing home because they are protecting assets from looting, because they have other support from relatives close by, or because it is close to their workplace or source of income.

1.c. Demographics and preferences. Two surveys also provide some information on the expressed preferences and demographics of the homeless: (1) A survey conducted by IBS, an Istanbul-based marketing research firm in the first weeks after the earthquake, and (2) A survey completed in late September conducted by a team from Koc University lead by Dr. Ayfer Bartu commissioned by the World Bank MEER team. The Bartu Survey is attached in Annex 11 and provides the basis for much of the analysis in this report. A few of its finding are particularly important to the issue of temporary housing.

Demographics of the homeless

The homeless population is poor and relatively poorly educated. Most work as a small businessman/trader, laborer, or are retired. Nearly half owned their own houses, 61% lived in an apartment building. Approximately half were not born in the region. Thirty-eight percent are under some sort of treatment for illness, and 41%-64% have experienced psychosocial problems since the earthquake. This increases to 79% for children.

Indicators of Intent (where do you plan to live in the following months?)

Pre-fab housing	27.3%
Anywhere provided by state	10.9%
Tent Camps	19.0%
Return to repaired house	7.2%
Move in with a relative	2.0%
Do not know what they intend to do	*18.8 %*

Temporary housing preferences

Pre-fab housing	53%
Resort housing in other regions	1.9%
Developed tent camps	4.9%
State housing	4.0%
Rental unit (rent provided by state)	14.2%
Repair and return to own home	9 %

The State Institute of Statistics asked a similar question. The results of that survey are:

Pre-fab housing	41%
Rental unit (rent provided by state)	57%
Public houses	0.2 %

The Bartu study also asked the respondents to choose between moving to a pre-fab house or staying in a tent and then moving to permanent housing. 47.2% chose pre-fab and 36.8 % chose to stay in tents in anticipation of permanent housing.

The demographics and location of respondents in the Bartu study, combined with the answers to this last question, offer some explanation for the difference in response to question on housing preference between the Bartu study and the SIS study. The sample in the Bartu study is a poor population seeking a permanent solution. A more substantial pre-fab home is more likely to become permanent than any of the other "temporary" options. When the option of a permanent house is offered, the pre-fab preference drops. This preference for a quick permanent housing solution is typical of similar populations displaced by disaster (F.C. Cuny, *Disasters and Development*, Oxford Press, 1986; *Shelter After Disasters: Guidelines for Assistance*, Office of the United Nations Disaster Relief Co-ordinator. United Nations. 1982. New York; B.E. Friday, *Rebuilding Shelter After Natural Disaster: Three Decades of USAID Experience in Latin America and the Caribbean.* USAID, 1999).

Dr. Bartu also points out that her surveyors were treated as if they were collecting data for a list of beneficiaries. The surveyors remarked that those respondents choosing the pre-fab option insisted that the surveyor mark down their name as if to make sure they were being placed on the list to receive the pre-fab. Studies of other post-disaster populations show that it is also typical of the displaced that they develop focused strategies for assuring that they are eligible for as many options as possible. This is particularly true of those from lower economic strata. It is important to note that approximately one half of those who wanted to move to a pre-fab unit thought they would actually be living in one – indicative of a group seeking to keep as many options open as possible.

Experience from other disasters also indicates that a number of those with particularly few financial resources anticipate that a pre-fab home, or other temporary shelter constructed of permanent materials, will become permanent. The experience with the use of pre-fab housing has justified this belief. While this strategy does provide housing for the poor, the temporary pre-fab projects are typically poorly planned due to the intention that they will indeed be temporary. In fact, at least a portion of the project usually becomes permanent.

A greater percentage of the SIS respondents own (or owned) their own homes and fewer are in tent camps. More are also living next to friends or relatives. This group is more likely to have dependable emotional, financial, and physical support, have greater financial resources, and be less interested in the benefits associated with camps. They are more likely to have a plan for reconstruction, repair or some other permanent solution, and not now have access to the benefits associated with the camps. This group will more likely have plans that the cash from the rental subsidy will support. At the time of writing, the Government of Turkey Social Solidarity Fund (SSF) had been accepting applications for the government rental subsidies for seven days. Rates in Kocaeli and Sakarya provinces were at 87% and 42% of the total eligible population, respectively. The SSF offices in each province were continuing to process 1000-2000 applications each day.

The dissonance between studies also implies a population with widely varying perceptions of what the accessible programs for reconstruction will be. The high numbers of respondents in the Bartu study who do not know what will happen supports this picture of widespread uncertainty and confusion.

The picture that is painted is of a poor population, uncertain of what their options are, and seeking to secure as many opportunities as possible. Also indicative of their uncertainly, most want a permanent

solution as soon as possible.

1.d. Incomes. The number of those employed as well as levels of income have both dropped due to the effects of the earthquake. The service sectors are the hardest hit, due to both losses of shop infrastructure and inventories, as well as a significant drop in demand due to the pervasive access to free relief goods. There was a much smaller reduction in employment in the salaried jobs in the industry sector. For example, the number of jobs in large industry in the Izmit area dropped only 3% from 130,000 to 125,000 (Nihat Guher, Head of Board, Izmit Chamber of Commerce).

The number of retired in the communities of the affected area are approximately 25% (Bartu survey). This population on small fixed incomes probably includes a large number of people who had low monthly shelter costs due to the fact that they owned their homes. Given the income levels of this population, we can assume that many built their own homes.

1.e. In most areas, housing damage is scattered. Occupied, undamaged buildings are interspersed with damaged buildings. With the exception of the town of Adapazari, losses are distributed throughout the community, and rarely is one community completely destroyed.

2. Needs of the homeless – other issues affecting shelter choices

2.a. Levels of shelter damage, resource protection, storage. Sixty nine percent of the damaged homes (147,402, Ministry of Public Works figures for numbers and levels of damage) units are still standing, and can be repaired. But many of the occupants of these buildings are afraid to re-occupy these buildings for fear of possible collapse, particularly as aftershock continue. Nevertheless, the contents of the buildings represent a lifetime of accumulated resources and the owners prefer to remain close to the building to guard against theft. Those with items salvaged from collapsed buildings or seeking to move require storage and/or other means of securing their belongings.

2.b. Access to health care, nutritional issues. Health care needs for displaced populations typically increase and are exacerbated by the trauma of the event as well as uncertainty. Nutritional needs in this population continue to require outside support, although some of the homeless population could feed themselves from their own resources. It is typical for affected populations who receive common pre-cooked rations (e.g. in group kitchens) to undergo some weight loss. Emotional complications tied to victimization are also reinforced by reduced dietetic choices.

2.c. Transport. Decisions regarding shelter are affected by transport options. Displaced persons with a job may opt to remain in a tent rather than find a rental apartment if the apartment is much further from the place of employment than the tent.

2.d. Information. One of the most overlooked but critical needs of the displaced is accurate and relevant information about the forces affecting their condition. This can include information about dead and injured – particularly from distant communities - employment opportunities, benefit programs, temporary and permanent housing choices, and available health services. Reliable, clear, and accessible information is crucial to the process of transition out of victimization and dependency (discussed below).

2.e. Credible reconstruction capacity. As discussed below, evidence indicates a low level of credibility of some Turkish engineering and construction practices among this population, particularly that sponsored by the government. The poor credibility of the damage assessments conducted by the MPWS will have to be addressed before an effective repair and reconstruction program can begin.

3. Types of temporary housing.

3.a. *Tents.* There are an estimated 80,000 tents now in use by people displaced by the earthquake. These range from a piece of plastic tied across wooden frames to large insulated winter tents manufactured by and supplied by the Turkish Army. Tents are often used in refugee emergencies, but can not for long be considered acceptable by more sophisticated populations. As winter approaches the only acceptable tent would be the Army winter tent or its equivalent. These 30m2 tents can be heated, appear to be acceptable to a significant percentage of the displaced, and could provide less expensive temporary shelter for those who have no other acceptable options. Well-run tent camps provide the security especially important to the recently displaced. However, they are expensive to maintain. Costs for an American based relief organization to administer one of the camps for Kosovo refugees in Macedonia April – June 1999 was approximately 185 US$/month/camp occupant (Source: Jerry Dine, Mercy Corps International, Portland Oregon, USA. and encourage dependency).

Although the use of tents does not preclude families from cooking their own meals, usually meals are provided for the camp occupants, further enforcing dependency and often contributing to emotional and other health effects related to personal control of the diet.

3.b. *Pre-fabricated (pre-fab) construction.* Pre-fab houses have also been used to house displaced, particularly in colder climates where shelters must be heated in the winter. In this context, pre-fab houses provide excellent shelter, can allow families to cook their own meals, but are expensive compared to other options. The record of pre-fab use also indicates that these units are often perceived as being permanent, both by occupants who tend to stay and use the pre-fab as a core house to which they add, and by governments who find it easier to believe that a family is accommodated in a pre-fab house and reduce or abandon efforts to provide a genuinely permanent solution. The eventual permanence of pre-fab ' temporary' housing for displaced is well documented (*Shelter After Disasters: Guidelines for Assistance*, Office of the United Nations Disaster Relief Co-ordinator. United Nations. 1982. New York; B.E. Friday , *Rebuilding Shelter After Natural Disaster: Three Decades of USAID Experience in Latin America and the Caribbean.* USAID, 1999). These publications describe how well meaning but hastily planned pre-fab communities usually are not dismantled, and eventually become slums. This was the case with the pre-fab community created in the aftermath of the Skopje earthquake in 1964, which is now a problematic low-income section of Skopje. Problems associated with pre-fab housing are not limited to less developed countries. Mary Camario, in a paper delivered in January 1999 at the US/Japan Workshop of Reducing Urban Earthquake Hazards in Kobe, reported that after the Kobe earthquake Japan spent 2.5 billion USD on 48,000 temporary pre-fab houses. The cost was more than the cost of a typical permanent house, the inappropriate pre-fab units contributed to myriad emotional problems in the mostly elderly population, and five years later approximately 12,000 are still occupied. A draft guideline from the World Bank also warns of the problems associated with pre-fab housing (*Providing More Bank Assistance for Housing Reconstruction after Natural Disasters,* World Bank Disaster Unit, April 1999 Draft). The Government of Turkey has contracted for 29,300 30m2 prefab duplex units. The Ministry of Public Works and Settlement (MPWS) set standards and price for these pre-fab units. One of the largest Turkish manufacturers of pre-fab housing, TEPE, normally sells a unit like the ones specified by the MPWS for 4,200 USD. The price set by the MPWS is 3,300 USD. Finding suitable land for the pre-fab units appears difficult, and the use of land for pre-fabs will further reduce land available for permanent housing. At the time of writing information available to the MEER team indicated that construction of permanent housing would be delayed due to land being re allocated for pre-fab temporary housing.

3.c. *Conversions of large existing spaces.* This option has apparently not been considered for this

emergency. Large spaces such as warehouses or large retail spaces can be partitioned into "apartments". This option has fewer developmental costs since water, sewage, and power are at the site. It is also likely to be in town, and close to employment and services.

3.d. *Host families.* This presents the fewest costs to the state. The burden of added support taken on by the host family is considerable. Allowing the displaced that are living with host families to draw the same benefits as others can offset this burden.

3.e. *Use of existing excess capacities, rental/vacation housing.* The standard vacancy rate for housing in Turkey is 4%. With the destruction of so many houses, it is not clear whether there is any excess dwelling capacity in the region. As many as 30% of those who are homeless may have migrated from the area ("A Socio-Economic and Statistical Analysis of the August 17 Earthquake", IBS Marketing Research Services. Istanbul, 1999). The recent SIS survey indicates that more than 10% of the current homeless are contemplating migration, and more than 10% are contemplating leaving for other towns in Turkey (State Institute of Statistics survey). Many will take the benefits that accompany this option and migrate out of the area. The benefits of residency in camps provide a strong incentive to stay. If cash benefits were available in outside locations in lieu of in-kind benefits in the camps, the amount of migration would be higher. At the time of writing, a high percentage of those with high and medium damage to their homes were electing to take the rental subsidy. Although many had already found accommodation other than in tents, clearly most would not find space to rent in the area and would have to migrate or remain in a tent.

Table B compares the five options discussed above for a population of 10,000 families.

4. Rapid Transition to Permanent Housing.

The requirement and cost for temporary housing can be reduced by re-directing resources into programs which would make permanent housing available within the next three months. Options which place resources into permanent solutions are attractive because they use resources for costs that the government or society would bear in any case. Conversely, the costs of temporary housing are largely unrecoverable.

4.a. *Completion of housing under construction.* The Housing Development Agency (HDA) identified 6000 – 8000 units in the earthquake area that are now near completion and which could be available as rental units for displaced. This option is constrained by the ability of the HDA to bring the owners of these units (many of whom are part of a cooperative) to some consensus of agreement about renting their newly completed units for up to eighteen months until other housing is built or repaired. If this option is pursued, the cooperative should not be required to achieve 100% consensus. Availability of 80%-90% of the units in the building would avoid a few dissents from preventing an agreement and would provide a significant amount of housing. This option may also be available from other sources of housing under construction.

4.b. *Rapid assessment and repair of damaged housing.* The Bartu Survey (Appendix A) lists 38.3% of the respondents as being from repairable houses and 28% of the homeless interviewed came from homes that had light or no damage. SIS survey figures are higher.

Buildings in the "lightly damaged" category should not have structural damage, yet many of the former residents are afraid to return to them. A credible assessment and/or repair program could encourage many of these to return to their homes.

This option is constrained by three potential problems:

(1) The Bartu survey, the preliminary World Bank damage report, as well as the consensus of area municipal and commercial organization leadership interviewed indicate a general distrust of the MPWS engineering assessments. Awareness of the need for dependable engineering is now extremely high among this population, and efforts to repair and certify as safe will have to address the need for credible engineers and contractors to supervise the work. A large and respected private sector engineering firm, well respected University Engineering Department, or well regarded foreign firms may provide the credibility required. Repairs should proceed only when there is clear assurance that the assessment and work will be accepted.

(2) Cost of repairs. It is unclear that this population has sufficient financial resources to pay for repairs. As the Bartu survey indicates the homeless group are typically very low-income families, although many (58.8%, State Institute of Statistics) own their homes. There will be a need to make low interest loans and repair subsidies available to this group in order to encourage rapid implementation.

(3) Capacity of the industry. It is not clear that local engineering and contracting capacity can support a rapid large-scale repair effort – particularly with the heightened expectations and standards of the post-earthquake population requiring caution and exceptional thoroughness at every step. To maximize the amount of repaired dwelling space available before winter, initial project should be for lightly and moderately damaged buildings which are now unoccupied, which would provide shelter for the homeless, and for which repairs which can be completed in three months. One local expert suggests that 30,000 units might be repaired before winter under such a program (Dr. Ali Turel, Department of City and Regional Planning, Middle East Technical University. Personal communication, 30 September, 1999).

5. Social program management.

The impact of displaced program management on both costs and success of temporary housing programs is often not appreciated. Addressing better mental health and cognitive recovery as well and producing clarity in the social service and assistance program will reduce other assistance costs and return displaced to productive lives more quickly.

5.a Reducing dependency. It is now well documented that those cared for through relief processes will increasingly become less likely to return to productive life the more they are allowed to act as victims, and look to the state or relief organizations for support and direction for their lives. Although the relief community is now learning to support the movement out of victimization as early as possible, the tendency is still to do the opposite – continuing to make decisions for affected populations and encourage them to be taken care of. Often relief agencies must be prodded to begin programs that provide incentives for families to leave camps, begin jobs, and move past victimization.The costs of this continued dependency is measured in considerable social support costs to the state, as well as loss of productive energy in the society. Opportunities to participate, guide, and choose direction of the next stage in their lives are important emotional and cognitive steps in the return to a productive life. Failure to discourage dependency will increase and prolong the requirement for temporary shelter.

5.b. Support for transition out of relief. Several types of programs assist people who will leave the support network of camps. Employment counseling, enterprise support (loans and training) skills training, trauma counseling, and other programs focusing on the future support this transition. As these programs become accessible to the tent camp populations, increasing numbers will choose to leave the camps for

other options.

Where feasible, cash payments for food, housing, and hygienic items allow/force people to begin making their own choices as well as reduce the burden on the state and relief organizations of providing and administering these support programs. Cash payments also typically assist in reviving the local economy as people begin using private suppliers rather than the relief networks. This dynamic would be particularly important in this region as the small business sector is hardest hit, and suffers even further from the loss of business due to large amounts of free food and assistance. Answers to the Bartu social survey (Appendix A) indicate that the benefits associated with registration in a camp are an incentive to remain in the camp. As long as this incentive remains, dependency and its costs will remain high.

Increased transport options allow the displaced to seek housing in communities away from their places of employment.

5.c Standardization, reduction of administrative costs. The variety of programs and benefits and the dispersion of sources for these programs encourage confusion among a population struggling to bring clarity and direction back into their lives. This is particularly true when similar programs are administered by more than one agency. Although some populations will require special programs (young, disabled, elderly, vulnerable women), standardization of benefits across the population and consolidation of similar programs under one administrative process reduces administrative costs, reduces the efforts required by displaced to access programs, produces confidence in their ability to be independent from relief, leaves more time for employment or reconstruction, and ultimately supports the movement away from dependency on relief.

6. Temporary shelter quality, housing preference, and effective use of resources.

Every displaced population brings to the response certain expectations. The Bartu survey asked the respondents if they would accept an option that provided less privacy or less quality for the opportunity to move into permanent housing more quickly. Results from the survey as well as conversations with the surveyors and with leaders in the community indicate that many of the displaced place highest priority on moving into permanent housing as quickly as possible (see section 1.c. "Temporary housing preferences").

Section 4 above discussed the advantages of options that would reduce the resources invested in non-recoverable temporary housing by redirecting them to accelerated permanent solutions. Under one scenario, costs for temporary housing could be reduced to the costs of rental subsidies and support programs.

Assuming a homeless population of 55,000 households, 50% could be expected to participate in rent subsidy (the SIS survey indicates 57% would choose to use this – actual registration was 87% and 42% after one week of registration; see note 8). Sixty nine percent of the buildings are lightly or medium damaged. Under a rapid assessment and repair of lightly damaged houses addressing 22,000 units, 40% could return to their own buildings by winter. A program to complete permanent housing projects in the area under the HDA would house another 10%, nearly eliminating the need for temporary construction. Conceivably the percentages of displaced using rent subsidy, returning to repaired houses, and moving into a permanent unit completed in the next month could each be larger.

7. Priority Issues and Recommendations

7.a. Increasing use of the range of shelter options. With a large population of homeless, and the onset of winter in less than two months, all programs to encourage and support all options should be put in place.

Recommendation: Rapid implementation of programs that would encourage the use of a wider range of temporary shelter options would ultimately reduce the requirements for more expensive construction of temporary shelter. This can be done by:

(1) Creating incentives and encouragement to use existing housing:

a. Rapid assessment, repair, and certification of unoccupied damaged buildings to speed re-occupancy. Incentives could include low-cost loans or subsidization of the required engineering work. If the homeless (those in tents) receive priority for repair, a program to support rapid repairs has the potential to reduce the need for non-recoverable temporary housing significantly.

Social research, planning, and a public information process that will address a distrust of engineering and construction practices must precede this program to ensure that assessments, repairs and their certification are credible and accepted.

b. Rental support. The existing program for rental support and repair payments is commendable for (a) its simplicity, and (b) because it allows beneficiaries to collect payments in towns in other regions. The use of this option can be increased significantly by:

(1) providing incentives for second home owners to offer free space for rent,
(2) helping to identify available rental units,
(3) implementation of a transport assistance program.

c. Rapid transition to permanent housing. A number of displaced could be placed in permanent housing that is near completion. This may require targeted support of financing for completion of the housing, and agreements with the owners to rent a large percentage of the units to displaced for up to 18 months until other permanent housing can be completed.

(2) Convert the use of existing buildings for temporary shelter. Warehouses and other large open buildings can be partitioned into temporary units. The availability of essential infrastructure and services should reduce the cost of construction to half the cost of pre-fab units. In addition, these buildings are usually located in the town, and close to employment, shops, and services. Permanent housing is also available in other cities. More housing than necessary was built for the displaced from the Adana earthquake. A substantial amount of housing is available in that city.

7.b. Coordination/information. As indicated above there are a number of needs that affect the choices now being made by those who require shelter. Many of the decisions about shelter are going forward with inadequate information about the numbers of homeless and their needs. There is a need for coordination between the existing programs for assistance, which will ultimately reduce the need for the construction of temporary shelter and will help avoid the construction of too many or too few temporary shelters.

Recommendation: Establish and empower a central unit for information and planning and direction of the response and reconstruction. By driving programs and processes to make and implement decisions about benefits and information, this unit would accelerate and rationalize the shelter provision process and

reduce the overall need for the more expensive temporary shelter options. Among the important tasks of the unit would be to collect accurate information and compile a central database for:

(1). Accurate information on numbers of displaced. This information is crucial to the planning now in process.
(2). Refined understanding of preferences for temporary housing priorities.
(3). Range of programs and services now being provided by NGOs, the Army, the municipalities and the central government

The coordination unit would also have the mandate and the resources to:

(1). Provide a process of rapid registration of displaced which could be used to determine and distribute benefits, as well as reduce re-migration to camps. At the time of writing this process was underway under the guidance of the GoT Social Solidarity Fund.
(2). Initiate a program to provide accurate information to the affected on benefits and programs.
(3). Make key decisions and provide coordination on issues crucial to the needs of the affected as well as the efficiency of the response effort. Efficient coordination of programs which respond to needs for health care, transport, child care, employment counseling, housing options, and job training will ultimately encourage displaced to move away from camps and reduce the requirements for temporary shelter built by the state.

7.c. Program support for other options.

Recommendation: Rapid implementation of programs which will encourage and support the use of rent subsidies, the movement into the shelter options above, as well as support those who are moving in with friends and relatives.

(1). Simplification and standardization of benefits programs. It is important that benefits not be tied to occupancy in a camp in order to reduce the incentives to remain there. Simplicity and clarity will encourage use of the program, reduce time spent accessing benefits and re-direct energy into employment, reconstruction, and re-integration.

(2). Increased support for transport in the region in order to make more distant rental housing options feasible.

(3). Information campaigns to assure that the displaced are aware of the support programs and options know how to utilize the programs, and where to go to apply.

7.d. Phasing out material relief.

Recommendation: Phase out in-kind or material relief as soon as possible. Immediately transition to a system of cash support payments which can be accessed at convenient points throughout the area.

7.e. Avoiding delay of permanent shelter construction.

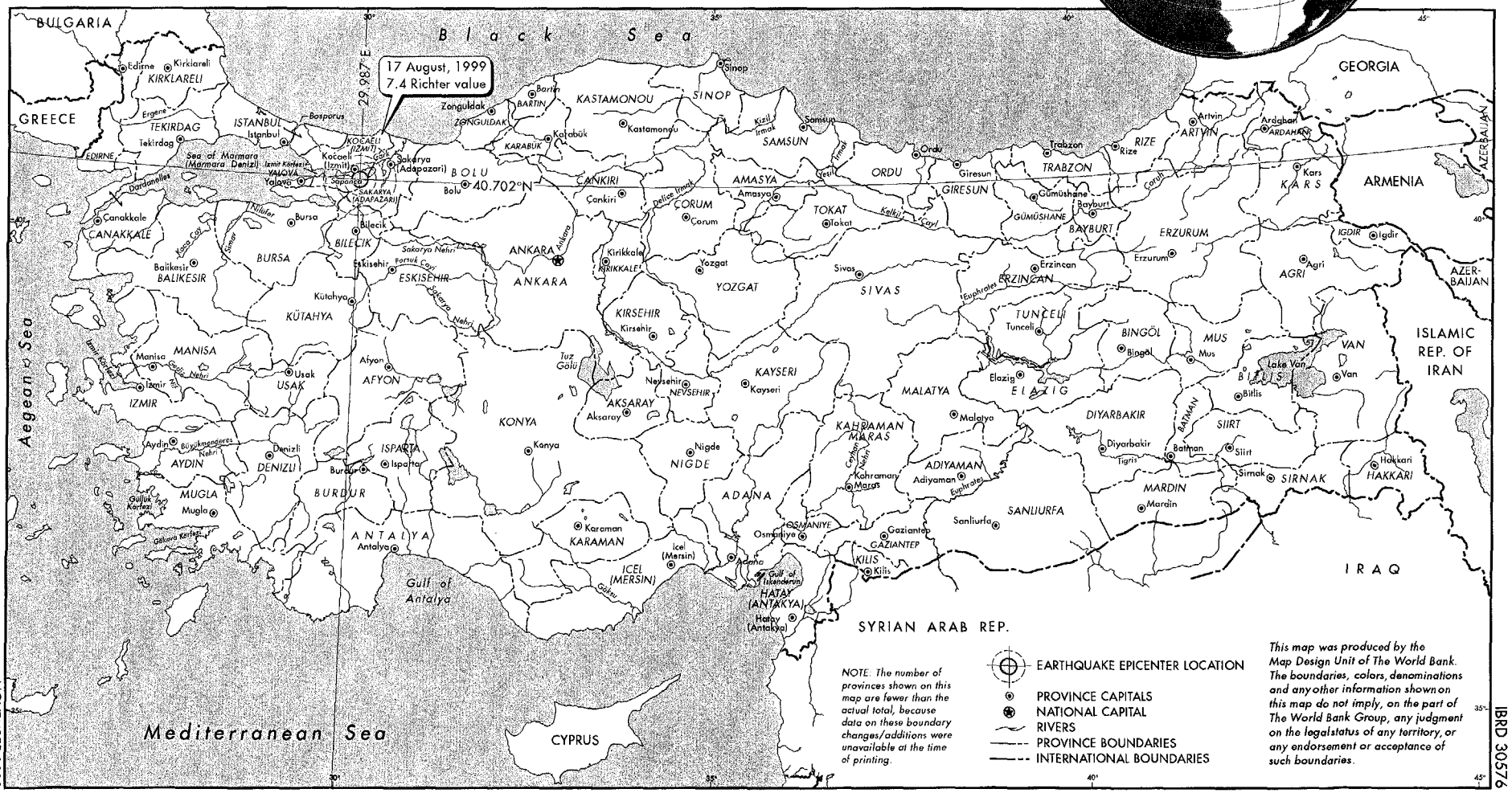
Recommendation: Assure that land used for temporary shelter construction does not delay the construction of permanent replacement housing for those affected by the earthquake.

7.f. Flexible funding.

Recommendation: By using the full range of options presented above, need for expensive temporary housing could be nearly eliminated. Given the short time for preparation, it is impossible to know how those who are displaced will react to the various programs available and precise allocation of funds for each program will be difficult. For this reason, a flexible funding mechanism is important. A central disaster fund should be established from which transfers could be made to a number of programs as their use by beneficiaries requires. This would allow the Government of Turkey to provide a wide range of options and provide added support to those that are successful as appropriate.

MAP SECTION

TURKEY
MARMARA EARTHQUAKE EMERGENCY RECONSTRUCTION (MEER) PROJECT



NOTE: The number of provinces shown on this map are fewer than the actual total, because data on these boundary changes/additions were unavailable at the time of printing.

EARTHQUAKE EPICENTER LOCATION
PROVINCE CAPITALS
NATIONAL CAPITAL
RIVERS
PROVINCE BOUNDARIES
INTERNATIONAL BOUNDARIES

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