



# Global Environment Facility

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May 4, 2004


Dear Council Member,

The World Bank, as the Implementing Agency for the project, ***Turkey: Anatolia Watershed Rehabilitation Project (under the Strategic Partnership for Nutrient Reduction in the Danube River Basin and the Black Sea)***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with the World Bank procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by the Council in May 2002, and the proposed project remains consistent with the Instrument and GEF policies and procedures. The attached explanation prepared by the World Bank satisfactorily details how Council's comments and those of the STAP have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at [www.gefweb.org](http://www.gefweb.org). If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,



for

Leonard Good  
Chief Executive Officer and Chairman

cc: Alternate, Implementing Agencies, STAP

# OFFICE MEMORANDUM

DATE: April 19, 2004

TO: Mr. Len Good, CEO/Chairman, GEF

FROM: Steve Gorman, GEF Executive Coordinator, 

EXTENSION: 35865

SUBJECT: **Turkey: Anatolia Watershed Rehabilitation Project  
Submission for Final CEO Endorsement**

1. Please find attached the electronic file of the GEF Project Document for the above-mentioned project for your final review and endorsement. This project is funded under the Black Sea Danube Partnership/Nutrient Investment Fund, which was approved by Council in May 2001, under streamlined CEO endorsement procedures. The scheduled Board date for this project is June 1, 2004. In order to finalize the Bank Board submission we would need to receive CEO endorsement by May 3, 2004.

2. The GEF Project Document is fully consistent with the objectives, scope, and overall cost of the proposal approved by the GEF Secretariat at pipeline entry in June 12, 2001. The Bank's response to the comments received from the GEF Secretariat are provided below. In addition, comments received from the STAP Reviewer and the response of the project preparation team are provided in Annex 12 of the GEF Project Document.

## **GEF Secretariat Comments at Pipeline Entry and Bank Response**

(i) *Priority should be placed on nutrient reduction rather than all agricultural pollutants and some justification provided that the area is a hotspot of agricultural nutrient pollution rather than just any agricultural area as part of the emphasis on targeting hotspots with this limited GEF funding.*

Bank Response. GEF-funded activities under the proposed project will be implemented in the Yesilirmak and Kizilirmak river basins which have been identified as hotspots of agricultural nutrient pollution. The Nutrient Reduction Action Plan for Turkey (prepared with GEF assistance) indicated non-point source pollution from agriculture as one of the most significant sources of nutrient loads entering the Yesilirmak and Kizilirmak rivers both of which drain into the Black Sea. The Turkey – Black Sea Environmental Priorities Study (1998) funded by the GEF Black Sea Environmental Programme estimates nutrient discharges for Yesilirmak and Kizilirmak as follows:

	Kizilirmak	Yesilirmak
Total N	4,730	7,768
Total P	278	414

Source: Turkey – Black Sea Environmental Priorities Study (1998)

The Kizilirmak and Yesilirmak basins, are intensively cultivated and home to agro-processing enterprises. The project will cover four provinces that lie within the two basins: Samsun, Tokat, Corum nad Amasya. Intensive horticultural and small-scale livestock production is carried out in both river deltas. Along Yesilirmak to the south of Samsun, Amasya and Tokat are also significantly engaged in intensive cultivation of fruits, vegetables and crops, and in as small-scale livestock production. In the upper regions of Kizilirmak, to the southwest of Samsun, the land is under intensive rice cultivation in addition to crop production. Large-scale poultry production is prevalent in Corum while plastic house or green house vegetable production (with high levels of chemical use) is becoming popular in the Bafra Delta. The potential beneficiaries in the four provinces have expressed full support for the Project and will be closely involved in all stages of project implementation.

(ii) *A link included with funding to the ARIP so that ARIP incorporates the environmentally friendly practices for sustainability and replication as part of mainstreaming.*

(iii) *Replication strategy should utilize mainstreaming into ARIP as a possible replication strategy.*

(iv) *Co-financing from EAWP II should be finalized and the estimated amount from ARIP be included so that widespread application of these demos can be promoted and replicated*

#### Bank Response.

At the time of Pipeline Entry (June 12, 2001), the Agricultural Reform Implementation Project (ARIP) was in the process of being approved by the Bank's Board and preparation of the free-standing Agricultural Pollution Control Project (APCP), which was to be funded by GEF, had just been launched. However, as APCP preparation got underway, preparation of the follow-on project of the IBRD-funded Eastern Anatolia Watershed Project was also initiated. It was subsequently decided to fully blend the two projects, under the proposed Anatolia Watershed Rehabilitation Project (AWRP) as it was agreed that the overall objective of both efforts was essentially similar, i.e. to promote natural resource conservation and management and mainstream environmental considerations in agriculture. The outcome has been to ensure that opportunities for mainstreaming, sustainability and replication are maximized by integration with IBRD-financing.

It is worth noting as well, that ARIP continues to provide both the resources and the implementing mechanisms for adopting environmentally friendly agricultural practices. Indeed, the GEF Biodiversity and Natural Resources Management Project is already working closely with ARIP to encourage farmers living close to protected areas to adopt better agricultural practices in order to reduce their impact on threatened natural sites. ARIP is scheduled to close at the end of December 2005 just as AWRP gets underway,

and so other mechanisms for replicating some of the project's lessons learned will be developed.

The recently approved Country Assistance Strategy for Turkey (approved in October 2003), includes a US\$ 250 million Rural Development Project for FY 2006. At least with respect to World Bank-financed operations, this will be the primary vehicle for replicating some of the lessons with respect to the introduction of environmentally friendly agricultural practices. The mechanisms for doing so will be identified and developed through AWRP.

Project costs for AWRP were finalized during the appraisal mission in early 2004. The total project cost is US\$45.0 million, of which the IBRD loan is US\$20.0 million and GEF Grant 7.0 million. (See Page 12: Section C; Page 42: Annex 3 – Project Costs.)

3. Please let me know if you require any additional information to complete your review of the project document prior to circulation to Council. We look forward to hearing from the Secretariat as soon as possible, whether this document can now be circulated to Council for their review and receiving your endorsement of the project for Bank Board approval.

Many thanks.

Attachment : Project Document

cc: Messrs./Mmes. King, GEF PROGRAM COORDINATION (GEFSEC);  
Bromhead, Holt, Battaglini, Nacev, Sehgal, Zeki (ECSSD) ;  
Esikuri, Khanna, Wedderburn, Aryal (ENV); ENVGC ISC,  
Regional Files

Document of  
The World Bank

Report No:

GEF PROJECT DOCUMENT  
ON A  
PROPOSED IBRD LOAN  
IN THE AMOUNT OF US\$ 20.0 MILLION  
AND A GRANT FROM THE GLOBAL ENVIRONMENT FACILITY  
IN THE AMOUNT OF US\$ 7.0 MILLION  
TO THE  
REPUBLIC OF TURKEY  
FOR THE  
ANATOLIA WATERSHED REHABILITATION PROJECT

**Europe and Central Asia Region**

## CURRENCY EQUIVALENTS

(Exchange Rate Effective January 21, 2004)

Currency Unit = Turkish Lira (TL)

TL 1 = US\$0.00000074

US\$1 = TL 1,351,000

## FISCAL YEAR

January 1 -- December 31

## ABBREVIATIONS AND ACRONYMS

AGM	General Directorate for Afforestation and Erosion Control of MEF (Agaçlandırma ve Erozyon Kontrolü Genel Müdürlüğü)
APK	Research Planning and Coordination Board of MEF (Arastirma Planlama ve Koordinasyon Kurulu)
ARIP	Agricultural Reform Implementation Project
AWRP	Anatolia Watershed Rehabilitation Project
BCPCPS	Beneficiary-Centered Problem Census Problem Solving Method
CAS	Country Assistance Strategy
CFAA	Country Financial Accountability Assessment
CSOs	Civil Society Organizations
CYGM	General Directorate for Environmental Management of MEF (Cevre Yönetimi Genel Müdürlüğü)
DHKD	Society for the Protection of Nature (Dogal Hayati Koruma Dernegi)
EAWP	Eastern Anatolia Watershed Rehabilitation Project
ECA	Europe and Central Asia Region
EMP	Environmental Management Plan
ERR	Economic Rate of Return
EU	European Union
FMR	Financial Monitoring Reports
FMSU	Financial Management Sub-Unit of the OU
GEF	Global Environment Facility
IPM	Integrated Pest Management
KHGM	General Directorate for Rural Services of MARA (Köy Hizmetleri Genel Müdürlüğü)
KKGM	General Directorate for Protection and Control of MARA (Koruma ve Kontrol Genel Müdürlüğü)
M&E	Monitoring and Evaluation
MARA	Ministry of Agriculture and Rural Affairs (Tarim ve Köy Isleri Bakanligi)
MC	Micro-catchments
MCIT	Micro-catchment Implementation Team (Mikrohavza Uygulama Ekibi)
MEF	Ministry of Environment and Forestry (Cevre ve Orman Bakanligi)
MESU	Monitoring and Evaluation Sub-Unit of the OU
MRMA	Microcatchment Resource Management Associations
NPV	Net Present Value
NTFPs	Non-Timber Forest Products
OGM	General Directorate for Forestry of MEF (Orman Genel Müdürlüğü)
ORKÖY	General Directorate of Forest and Village Relations of MEF (Orman ve Köy Iliskileri Genel Müdürlüğü)
OU	Operations Unit (Islem Birimi)
PAD	Project Appraisal Document
PAS	Procurement Accredited Staff

PDA	Provincial Directorate of Agriculture (Tarım İl Müdürlüğü)
PDEF	Provincial Directorate of Environment and Forestry (Çevre ve Orman İl Müdürlüğü)
PDRS	Provincial Directorate of Rural Services (Köy Hizmetleri İl Müdürlüğü)
PIP	Project Implementation Plan
PMG	Project Management Group (Proje Yönetim Grubu)
PMR	Project Management Report
PMT	Provincial Management Team (İl Yönetim Ekibi)
PMU	Project Management Unit (Proje Yönetim Birimi)
PSU	Procurement Sub-Unit of the OU
QAG	Quality Assurance Group
REA	Regional Environmental Assessment
SA	Social Assessment
SEE	State Economic Enterprises
SPO	State Planning Organization (Devlet Planlama Teskilati)
TCs	Treasury Controllers
TEMA	Foundation for Combating Soil Erosion for Reforestation and the Protection of Natural Habitats
TORs	Terms of Reference
TÜGEM	General Directorate of Agricultural Production and Development of MARA (Tarımsal Üretim ve Geliştirme Genel Müdürlüğü)

Vice President:	Shigeo Katsu
Country Director:	Andrew N. Vorkink
Sector Manager:	Marjory Anne Bromhead
Task Team Leader:	Peter A. Dewees

**TURKEY**  
**ANATOLIA WATERSHED REHABILITATION PROJECT**

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## MAP(S)

Project Watersheds (IBRD 32583)

Sample Microcatchment Management Plan for Forestry Activities (IBRD 32584)

TURKEY  
ANATOLIA WATERSHED REHABILITATION PROJECT

**GEF Project Document**

Europe and Central Asia Region  
ECSSD

<p><b>Date:</b> March 13, 2004  <b>Sector Manager:</b> Marjory-Anne Bromhead  <b>Country Director:</b> Andrew N. Vorkink  <b>Project ID:</b> P070950  <b>Lending Instrument:</b> Specific Investment Loan (SIL)</p>	<p><b>Team Leader:</b> Peter A. Dewees  <b>Sector(s):</b> General agriculture, fishing and forestry sector (100%)  <b>Theme(s):</b> Other environment and natural resources management (P), Other rural development (P), Pollution management and environmental health (S), Water resource management (S)</p>
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<p><b>Global Supplemental ID:</b> P075094  <b>Sector Manager/Director:</b> Marjory-Anne Bromhead  <b>Lending Instrument:</b> Specific Investment Loan (SIL)  <b>Focal Area:</b> I - International waters  <b>Supplement Fully Blended?</b> Yes</p>	<p><b>Team Leader:</b> Peter A. Dewees  <b>Sector(s):</b> General agriculture, fishing and forestry sector (80%), General public administration sector (20%)  <b>Theme(s):</b> Pollution management and environmental health (P), Environmental policies and institutions (S)</p>
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**Project Financing Data**

Loan     Credit     Grant     Guarantee     Other:

**For Loans/Credits/Others:**

**Loan Currency:** United States Dollar

**Amount (US\$m):** 20.0

**Borrower Rationale for Choice of Loan Terms Available on File:**  Yes

**Proposed Terms (IBRD):** Variable-Spread Loan (VSL)

**Grace period (years):** 4

**Years to maturity:** 17

**Commitment fee:** 0.75 % of the undisbursed amount

**Front end fee (FEF) on Bank loan:** 1.00%

**Payment for FEF:** Capitalize from Loan Proceeds

Financing Plan (US\$m):	Source	Local	Foreign	Total
BORROWER/RECIPIENT		8.60	0.05	8.65
IBRD		18.38	1.62	20.00
LOCAL COMMUNITIES		8.51	0.95	9.46
GLOBAL ENVIRONMENT FACILITY		5.67	1.33	7.00
<b>Total:</b>		41.16	3.95	45.11

**Borrower/Recipient:** REPUBLIC OF TURKEY

**Responsible agency:** MEF AND MARA

Undersecretariat of Treasury

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**P070950 Estimated Disbursements ( Bank FY/US\$m):**

<b>FY</b>	2005	2006	2007	2008	2009	2010	2011	2012	
<b>Annual</b>	0.75	2.50	2.70	3.00	3.10	3.20	3.20	1.55	
<b>Cumulative</b>	0.75	3.25	5.95	8.95	12.05	15.25	18.45	20.00	

**P075094 (GEF) Estimated Disbursements ( Bank FY/US\$m):**

<b>FY</b>	2005	2006	2007	2008	2009	2010	2011	2012	
<b>Annual</b>	0.65	1.32	1.45	1.53	1.18	0.55	0.21	0.11	
<b>Cumulative</b>	0.65	1.97	3.42	4.95	6.13	6.68	6.89	7.00	

**Project implementation period:** 7 years

**Expected effectiveness date:** 09/01/2004

**Expected closing date:** 06/30/2012

## A. Project Development Objective

### 1. Project development objective: (see Annex 1)

The project's overall development objective is to support sustainable natural resource management practices in 28 microcatchments in Anatolia and Turkey's Black Sea Region and thereby raise incomes of communities affected by resource degradation. In support of this objective, the project will:

- encourage local communities to take responsibility for planning and implementing an integrated approach to sustainable natural resource management in selected microcatchments;
- introduce communities to more environmentally-friendly farming and forestry production practices to raise land productivity, to reduce pressures on marginal lands, and to improve household income;
- help reduce nutrient discharge from agricultural sources into the Black Sea;
- strengthen the policy formulation and regulatory capacity towards meeting European Union (EU) standards for agricultural nutrient pollution control;
- improve the overall framework for river basin planning and management in the context of EU directives on water;
- strengthen institutional capacity to promote sustainable natural resource management and to raise public awareness about resource degradation issues.

### 2. Global objective: (see Annex 1)

The key global environment objective is to introduce farming practices which will reduce the discharge of agricultural nutrients into surface and ground water in watersheds draining into the Black Sea in four provinces. The Project will help introduce improved manure and nutrient management practices as well as organic farming which, over the long run, will help reduce the discharge of nitrogen and phosphorus into the surface and ground waters of Turkey and the Black Sea. Project activities in this area are directly linked to the *Strategic Action Plan for the Protection and Rehabilitation of the Black Sea*, formulated with the assistance of the GEF. The nutrient reduction component is being prepared under the umbrella of the Black Sea/Danube Strategic Partnership-Nutrient Reduction Investment Fund under which riparian countries are eligible for Global Environment Facility (GEF) grants for projects that help to control or mitigate nutrient discharge into the Black Sea.

### 3. Key performance indicators: (see Annex 1)

- Increased quality and quantity of forest cover, in the project area;
- Increase vegetation cover in the rangelands in the project villages compared to non-project villages by 20 percent at the mid-term and 50 percent at year 7, over the baseline;
- Increased public awareness of causes, effects and mitigating measures of natural resource degradation as measured by baseline, mid-term, and end of project surveys;
- Adoption of environmental friendly agricultural practices by microcatchment farmers;
- Increased income in project villages compared to non-project villages;
- Reduced nutrient load in selected water receiving bodies in microcatchment areas.

## B. Strategic Context

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

**Document number:** R2003-0181 **Date of latest CAS discussion:** 11/6/2003

The objective of the CAS is to help Turkey continue to implement fundamental reforms to reduce economic vulnerability, to achieve high and stable growth, and to continue the process of addressing long-neglected

social and environmental problems. The CAS aims to assist in reducing the risk of the reemergence of economic crises, and the natural disasters which sometimes precipitate these, and to help Turkey achieve its objective of getting ready for EU membership. The planned assistance program for FY04-06 supports poverty reduction. In particular, it aims at: making the economy more resilient to crises (including natural disasters) that disproportionately affect the most vulnerable; contributing to sustainable economic growth that is critical to pull many of the poor out of poverty; promoting human development to create opportunities for the poor by making access to health and education more equitable and making the social protection system more efficient; improving the delivery of and access to services in disadvantaged areas; and increasing empowerment through enhanced local participation and civil society involvement. Specifically, the CAS focuses on four themes: sound macroeconomics and governance; equitable human and social development; creating an attractive business climate; strong environmental management and disaster prevention.

The Anatolia Watershed Rehabilitation Project is included in the Country Assistance Strategy (FY04 to FY06) discussed by the Board in November 2003. It is consistent with two of the four themes articulated in the CAS, specifically focusing on equitable human and social development and strong environmental management and disaster prevention. In this latter respect particularly, reversing the trend of long-term environmental degradation is identified as a priority, including support for further progress to meeting EU environmental regulations, and introducing sound practices for water, soil, and forestry management.

#### **1a. Global Operational strategy/Program objective addressed by the project:**

The Project's strategic objectives are directly tied to the objectives of the Strategic Action Plan for the Black Sea, supported by GEF. The Project's objective of reducing the discharge of agricultural nutrients into ground and surface waters is consistent with GEF *Operational Program on Waterbodies* (Operational Program 8). The Project provides an opportunity for GEF to be a catalyst for actions that integrate improved land and water resource management practices. GEF support will reduce the costs and barriers to farmers in adopting improved agricultural practices. It will also help develop mechanisms to move from demonstration level activities to operational projects that reduce non-point source pollution from agriculture to the Black Sea.

The Project is consistent with several additional GEF Operational Programs, including Operational Program 3 on *Forest Ecosystems*, Operational Program 12 on *Integrated Ecosystem Management*, and Operational Program 9 *Integrated Land and Water Multiple Focal Area*. Rehabilitation and improved management of degraded watersheds, in combination with improved nutrient and manure management will also reduce threats to biodiversity and promote increased carbon sequestration.

#### **2. Main sector issues and Government strategy:**

##### **Main Sector Issues**

The main issues affecting the rural sector in Turkey fall into several areas, but generally reflect weaknesses in the overall incentives framework for agricultural production and problems related to the serious degradation of natural resources.

***Sectoral Policies and the Incentives Framework:*** Turkey's agricultural sector has significant potential, but this has gone largely unrealized. Over the last 20 years, agriculture grew at only about one-third the rate of overall GNP. As a result, agriculture's contribution to national production shrank from 36 percent to 14 percent, although the sector still accounts for 45 percent of employment. A key problem with the policy environment has been the structure of agricultural support which has traditionally been channeled

through a complex maze of input and credit subsidies, output price supports, high border protection, export controls, deficiency payments, price controls, market interventions to protect consumers, and others. This fiscally expensive and economically inefficient system is driven by short-term political concerns rather than long-term strategy. Price distortions have led to unsound agricultural practices, including overemphasis on the use of agrochemicals with serious effects on soil and water quality. The Government is now addressing these issues in the framework of an overall structural reform program supported by the IBRD Agricultural Reform Implementation Project (ARIP).

Although the poverty incidence is not significantly different between urban and rural areas, a large fraction (over 40 percent) of the poor are engaged in agriculture. There is marked inter-regional variation in the poverty incidence. Regions with a higher poverty incidence generally derive a larger share of their income from agriculture and have significantly lower agricultural productivity than better off regions. Productivity differences across rural areas are a reflection of differences in resource endowments, the status of the natural resource base, and access to public infrastructure.

It is especially striking that the incidence of poverty is closely associated with altitude. Even in wealthier regions, the incidence of poverty is significantly higher at higher elevation areas, compared with the lowlands, due to the precarious state of the natural resource base and limited opportunities for income diversification. The consequent dependence on forests to provide rural goods and services for the rural poor is much greater than in other areas. Average household income in higher altitude forest areas is anywhere from 40 to 60 percent of the average household income in other rural areas. Between 1975 and 1990, largely in response to rural poverty and to risk mitigation, the population of about 95 percent of forest villages in Turkey declined due to out-migration. The most important cause of out-migration was poverty, experienced both in terms of wealth and income and also in terms of inadequate infrastructure and social services. In mountain villages, land for agriculture and pasture (a crucial determinant of income) is severely limited. On average, households in forest areas have access to 2.5 ha of land, which compares with the average for all rural households in Turkey of 6.4 ha. The proximity of the forest does provide some benefits: 57 percent of villagers are completely dependent on wood for heating, and about half of these are dependent on wood for cooking as well. The scarcity of good farming land in mountains and other forested areas has meant that communities are often dependent on mixed land uses, including grazing. Indeed, livestock management is a much more important livelihood strategy in these areas than most other farming options.

***Degradation of Natural Resource Base:*** Deforestation to meet increasing timber, fuel and fodder demands, together with overgrazing of rangeland, farming of steep slopes, and the lack of effective soil conservation practices on agricultural land have resulted in widespread degradation of land and water resources. Only 6.6 percent of the Land in Turkey does not suffer from erosion with 7.2 percent slightly, 20.1 percent moderately, 36.4 percent severely and 22.3 percent very severely eroded. Land degradation has significantly reduced the carrying capacity of rangeland and the fertility of agricultural land in the upper catchment areas and thus negatively affected farming households' ability to derive a livelihood in the upland regions, with resulting higher poverty rates in these areas. Reduced vegetative cover has led to marked reductions in soil moisture content thus subjecting agricultural lands to significantly higher vulnerability to drought. Land degradation has also led to unstable and increasingly torrential river flows with increased incidence of flooding and growing sedimentation problems. Landslides have also become a growing problem.

***Agriculture based pollution of ground and surface water:*** In many areas of the country, particularly in low lands and fertile plains, extension workers and farmers heavily emphasize the use of external inputs like pesticides, inorganic fertilizers and animal feed. At the same time farmers are not sufficiently familiar

with these technologies and their risks. Relevant Government bodies are ill equipped to legislate and implement the necessary controls to prevent the over-use of chemicals. As a result, existing regulatory restrictions are weak and there are indications that excessive application of agricultural chemicals has led to considerable contamination of soil and ground water, including the contamination of drinking water in rural communities. Excessive input use has also led to high levels of nutrient loads in ground water and rivers draining into the Black Sea, causing eutrophication.

The *Black Sea Region Transboundary Diagnostic Analysis* (1996) identified Turkey's rivers which empty into the Black Seas as a key sources of phosphorus (P) and nitrogen (N) pollution. It estimated that Turkey's annual discharge of nitrogen contributed about 20 percent, and its discharge of phosphates 12 percent, of total N and P respectively produced in the non-Danube Black Sea Basin. Three of the largest rivers emptying into the Black Sea originate in Central Anatolia. While one of them (Sakarya) embraces industrial as well as agricultural areas, the main source of pollution in the other two (Yesilirmak and Kizilirmak) is agriculture. The main sources of river pollution from agriculture non-point sources are: (i) poor agricultural practices, including inappropriate and over-application of fertilizers and pesticides, (ii) soil erosion, (iii) poor drainage and, (iv) inappropriate handling of animal manure waste.

***Limited Institutional Capacity to Promote Sustainable Natural Resource Management:*** The current system to protect and manage Turkey's natural resources suffers from an over reliance on centralized management, a lack of coordination among key agencies involved in rural development, limited public awareness and participation, insufficient use of economic instruments for natural resource management and, limited research on the linkages between natural resource management and communities' socio-economic development.

***Inadequate Policy and Regulatory Capacity for meeting EU Standards:*** Turkey's status as an EU candidate country calls for important changes in the country's environmental policy and regulatory framework, specifically taking account of the EU Directives on Water Resource Use, Nitrates, and Environmental Impact Assessment. Turkey must adopt a detailed, directive-specific program to transpose the national legislative and regulatory framework in a manner consistent with the EU environmental *acquis*, and to develop a plan to finance supporting investments. In the medium term Turkey will need to implement the environmental *acquis* through the development and enforcement of environmental and sectoral legislation. A number of directives (for example, the Nitrates Directive) will be particularly difficult to implement for Turkey, given the current status of infrastructure and available financial resources. The Water Framework Directive has important implications for integrated river basin planning and management.

## **Government Strategy**

***Sectoral Policy:*** In 1999, the Government launched an ambitious economic reform program to create the basis for stable economic growth and to set the stage for the country's entry into the EU. The sectoral reform program encompasses three main initiatives designed to reduce the heavy burden on the budget and consumers, while promoting agricultural growth. These include: i) introduction of a unified national program of direct income support; ii) phasing out the system of subsidies for fertilizer, credit and price support and linking support prices to market prices; and iii) privatization of most State Economic Enterprises (SEEs) in agriculture to reduce state involvement in the marketing and processing of agricultural products. The overall program of agricultural policy reforms will increase Turkey's competitiveness while protecting natural resources and the poor. The Bank is supporting the Government's agriculture sector reform strategy with the IBRD-financed Agricultural Reform Implementation Project (ARIP), approved in July 2001. Government has also undertaken significant efforts to improve the rural

population's access to physical and social infrastructure through substantial investments in both.

**Natural Resource Management:** The need to embrace natural resource management as an integral part of a sustainable rural development strategy was clearly identified in Government's National Environmental Action Plan. The NEAP spelled out the need to introduce improved agricultural practices to reduce soil degradation and ground and water pollution from agriculture. The Government has initiated efforts to rehabilitate degraded areas and to promote environmentally friendly agricultural practices. However, widespread adoption of these practices has remained limited due to lack of funds for expansion and promotion, lack of coordination among various Government agencies involved in the rural sector and an approach that traditionally relies too much on central command and control rather than on participation by affected communities. Under the recently completed World Bank supported Eastern Anatolia Watershed Management Project (EAWP) the Government introduced a more holistic and participatory approach to natural resource management on a watershed basis in eleven provinces, with positive effects on the status of natural resources as well as household incomes. Among other things, the EAWP received a 'best practice' rating from the Bank's Quality Assurance Group (QAG). Under the EAWP, the Ministry of Forestry, the Ministry of Agriculture and Rural Affairs (MARA) and the General Directorate of Rural Services (Köy Hizmetleri Genel Müdürlüğü or KHGM) began to coordinate and integrate their activities at the microcatchment (MC) level. The approach resulted in a series of quite positive outcomes, increasing rural incomes and reducing natural resource degradation in MCs. In order to build on some of the lessons learned, and to use Bank and GEF-financed interventions as a means for introducing further innovation in rural land management, Government has decided to introduce MC planning and management initiatives in several other areas, and has agreed to integrate these activities with agricultural pollution control measures in lower parts of MCs as well as to bring about better river basin-wide planning. The Government has requested financial support from IBRD and GEF for this effort.

A recent institutional reorganization has been undertaken to improve the effectiveness of some of the key institutions with environmental management responsibility, and to more closely align the institutional framework with EU environmental directives. KHGM, which had previously been in a separate State Ministry, has been incorporated into the Ministry of Agricultural and Rural Affairs. The Ministry of Environment and the Ministry of Forestry have also been merged, to create the Ministry of Environment and Forestry (MEF). These changes should further facilitate implementation of a holistic approach to rural development and natural resource management. In conjunction with these changes, and as part of the overall program of public sector reform, Provincial Directorates for agriculture, forestry, and the environment are also currently being restructured.

The *Forestry Sector Review* (2001) jointly prepared by the Bank and Government identified several vital challenges facing the forestry sector. These include issues related to poverty, land tenure, the need to establish multipurpose, participatory forest management planning, and to control soil erosion in degraded areas. The Ministry of Environment and Forestry has started to prepare a National Forestry Program, in a participatory manner, that includes a review of the existing status of the sector, short and long term forestry policy and strategies, and which outlines implementation strategies and an action plan. Preparation of the program is funded by FAO. To date the agreed policy recommendation includes preparation of watershed-based forest resource management plans, participation of local communities in resource management decisions and interventions, and benefit sharing and collaboration with other sectors and stakeholders.

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

Building on the successful approaches to community based and integrated approach to natural resource management, the proposed project aims at addressing the following sectoral issues:

- ***Land Degradation in Upper Watershed Areas:*** The project will work with communities to develop and implement an integrated natural resource management plan in the upper part of selected microcatchments. Communities will choose from a menu of technical options to rehabilitate and to more sustainably use degraded forest, range, and agricultural lands. The project will provide opportunities to help raise income of participating communities in return for adopting and implementing rehabilitation measures.
- ***Agriculture Based Water Pollution and Nutrient Flow into the Black Sea:*** The project will help introduce environmentally friendly agricultural practices aimed at reducing ground and surface water pollution and nutrient discharge into the Black Sea. It will provide training to extension staff and farmers on appropriate nutrient management strategies, organic farming, integrated pest management and improved manure handling.
- ***Inadequate Policy and Regulatory Capacity Towards Meeting EU Standards:*** The project will support the implementation of the EU Nitrates Directive through staff training and through the provision of equipment to monitor nitrate levels at selected locations in the four participating Black Sea Provinces. It will also support the preparation and implementation of a Code of Good Agricultural Practices, in line with EU environmental standards, and will strengthen the institutional capacity in support of organic farming. The project will provide a framework for integrated river basin planning in the Yesilirmak and Kizilirmak basin, consistent with guidance provided in the EU Water Framework Directive.
- ***Limited Awareness of Natural Resource Degradation Issues and Mitigating Measures:*** Awareness of the consequences of natural resource degradation and agriculture based pollution and of mitigating measures is limited. The project will help develop and implement a strategy to raise awareness of the causes and effects of unsustainable agricultural practices and of effective approaches to improved natural resource management.
- ***Limited Institutional Capacity to Promote Integrated Natural Resource Management:*** The project will provide concerned agency staff at the national and local level with training in the new approach to natural resource management and effective implementation of environmentally improved agricultural practices. This will include allowing local staff to learn first hand from their colleagues, who have already gained experience with integrated natural resource management. The project will also help build capacity needed to meet Turkey's obligations under the Convention on the Protection of the Black Sea Against Pollution and several additional international protocols aimed to reduce pollution in the Black Sea. It will also help develop the capacity of private smallholder and commercial farmers to use environment-friendly agricultural practices and resource management.

***Strategic Choices:*** Three strategic choices were made with respect to this project. The first decision, made during preparation of the CAS, was to limit activities supported by the project specifically to natural resource management interventions, complementing sectoral policy reforms which are being addressed by ARIP. The second decision was to focus on watersheds in which EAWP had already successfully operated, but to expand activities into new microcatchments in these watersheds. This decision was motivated by the need to consolidate the achievements of EAWP, and in particular, further to strengthen the

institutional capacity for integrated natural resource management built under this project at the field level. Thirdly, the decision was taken to broaden the activities supported by EAWP to include agricultural pollution control and waste management to provide scope for greater innovation and to test out farmer-based approaches to nutrient management within the framework of MC planning.

## C. Project Description Summary

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

**Project Approach:** The proposed project will build and expand on a community-based approach to natural resource management. Under this approach, natural resource degradation is seen as a multi-sectoral problem, requiring microcatchment specific solutions. MC development thus involves the integration of forestry, soil and water conservation; crop- and livestock production; and limited off-farm income generation in a mutually reinforcing manner. A team of provincial rural services, agriculture and forestry staff will work with villagers to help MC communities identify and rank their principal resource management and development problems. Project staff will present MC communities with a menu of conservation and income generating activities appropriate to the specific MC conditions, with some of them being conditional on the adoption of others, so as to encourage adoption of conservations measures which may include short term costs to communities or specific groups. Implementing agencies will simply identify and demonstrate to concerned communities what can be undertaken to stem or reverse resource degradation, but they will not implement such measures on a massive scale. Instead they will create the conditions to encourage land users themselves to adopt more productive and protective land management systems. The project will introduce the innovation of piloting the management of agricultural waste to limit nutrient runoff, through integration with watershed micro-catchment activities.

**Project Area and Land Use:** The project will be implemented in 6 provinces (Samsun, Tokat, Sivas, Kayseri, Corum, and Amasya provinces) covering: i) two main ecological regions, namely the Black Sea and Continental ecological regions; and ii) three of Turkey's 26 major river basins, the Kizilirmak and Yesilirmak basins (which drain into the Black Sea) and the Seyhan basin (which drains into the Mediterranean Sea). The project will rehabilitate 28 MCs in 5 of the 6 provinces (Tokat, Sivas, Kayseri, Corum, and Amasya provinces), and will reduce agricultural based nutrient discharge into the Black Sea, through GEF supported activities, in four of the provinces (Samsun, Tokat, Corum and Amasya). Each of the 28 MCs to be rehabilitated by the project will cover between 5,000 and 15,000 hectares and the total area under development will be in the order of 202,000 hectares, out of which about 30,000 ha will be the physical implementation area. Detailed information on each MC will be gathered and analyzed during the MC planning process.

Of the 8 million ha of land in the project provinces about 45 percent is agricultural land, 19 percent is gazetted forest (comprising both forest and brush land) and 29 percent is rangeland. Although there are significant differences among provinces, the principal land use in the project MCs is rangeland. Rangeland conditions vary from moderately productive but overgrazed to severely degraded and eroded. Agriculture is generally limited to small scale, often subsistence production, including in the Black Sea provinces. Due to limited land availability, crops are often planted on fragile slopes. The type of crop rotation is determined by ecological characteristics of the production area as well as socio-economic conditions of farmers. Generally, wheat and barley are rotated with fallow, rarely with pulses. Due to land constraints, continuous cereal production which leads to significant soil degradation is also common in many MCs. Only about one quarter of agricultural land is irrigated, although small scale irrigation is possible in MCs with perennial streams and springs. In lower irrigated parts of MCs, cereals are rotated with sugarbeet, oil crops, beans, maize or horticultural crops.

**Rural Population:** With the exception of MCs in the lower watersheds in the four Black Sea Provinces, MCs to be included in the project are primarily located in rural mountainous areas. The rural population in these watersheds is around 2 million. Many of the 400 or so villages in the project area are classified as “forest villages” with limited access to proper agricultural and range land. Most households in the project area rely on crop and livestock production as their main source of income, with forest villagers supplementing their income with forestry based work. As a result of the significantly degraded natural resource base and limited access to infrastructure, household incomes in the MC area are significantly below the average rural household income in Turkey. Many households in the project area remain largely in the subsistence economy. A survey in four project provinces showed that (excluding subsistence consumption) average household cash income ranged from between US\$ 100 to \$750 per year in mountainous areas, while average household income in rural areas in the Black Sea provinces varied between US\$ 100 per year in mountainous MCs and \$ 1300 per year in the more commercialized farming areas of Corum. Due to low incomes and a degraded natural resource base, there is significant outmigration.

## **A. Overall Project Description**

The project will have five components. Costs are indicative and include physical and price contingencies, as well as counterpart and beneficiary contributions.

**Component 1: Rehabilitation of Degraded Natural Resources (US\$ 23.5 million).** This component will provide support for the planning and implementation of a menu of activities to be implemented by village communities under the direction of the MEF and MARA, in partnership with communities. The component’s primary objective is to protect degraded areas from further degradation, erosion and pollution. Rehabilitation interventions are focused around four sub-components as outlined below and will be implemented in 28 micro-catchments and in 6 provinces. The activities include a specific program for piloting actions on reducing nutrient discharge to the water bodies that will be implemented in the lower parts of watersheds of four participating Black Sea provinces using GEF funds.

The main sub-components are as follows:

- i) *Rehabilitation of forest land* including soil conservation by afforestation, protection and improvement of poor & degraded soils, gallery plantation, rehabilitation of oak coppices and of degraded high forests, participatory replanting and inventory of non-wood forest products. All implemented by MEF (AGM & OGM).
- ii) *Rangeland Rehabilitation*, including improved management of forest rangelands under MEF and rehabilitation activities on rangeland outside the forest land by MARA.
- iii) *Rehabilitation of Agricultural Land*, including: fallow reduction, appropriate use of marginal agricultural land, wild tree grafting, river bank protection, and construction and production on agricultural terraces. Implemented by MARA (KHGM and TÜGEM).
- iv) *Environment-friendly agricultural practices*, including demonstrations of improved crop production practices, organic farming and Integrated Pest Management by MARA and nutrient reduction activities implemented by MARA/MEF.

With regard to the environment-friendly practices, implementation of selected activities to reduce nutrient

discharge into the water bodies in the lower watersheds of participating Black Sea provinces will be financed by the Global Environment Facility (GEF) grant, by Government and by beneficiaries.

**Component 2: Income Raising Activities (US\$ 17.57 million).** Under this component target communities would be offered a menu of activities designed to raise household incomes in return for participation in conservation activities supported under Component 1. Income generating activities are designed to provide participating communities with the incentives to undertake conservation efforts even if they incur short or medium term costs (e.g. short term closure of range lands, closure of forest land) or if benefits can only be reaped in the long run (afforestation). The menu offered will vary in accordance with agro-ecological and socio-economic conditions in each village, as well as with farmers' resources and needs. The approach will be flexible so as to be able to respond to the needs of the villagers and flexibility will be maintained during project implementation. The main income generating activities which will be financed by the project include small scale irrigation including creation of small irrigated perimeters and farm ponds, implemented by MARA (KHGM); investments in livestock improvement, greenhouses and small-scale freshwater fisheries implemented by MEF (ORKOY); and farm and crop enterprise diversification (including rainfed and irrigated horticulture, irrigated forage crops, vegetable production, planting trees on field boundaries, agricultural processing and beekeeping) implemented by MARA (TÜGEM).

**Component 3: Strengthening Policy and Regulatory Capacity Towards Meeting EU Standards (US\$0.28 million).** This component will provide support for implementing the following three sub-components which emphasize participatory approaches to sustainable natural resource management, corresponding to locally expressed priorities:

- i) *Support for the Application of the EU Nitrates Directive* through the monitoring of nitrate levels at selected sites in the four Black Sea provinces, as first step in implementing the nitrates directive.
- ii) *Development and Promotion of a Code of Good Agricultural Practices* based on on-farm trials, demonstrations and training. The preparation and ultimate application of this code is a mandatory part of the nitrates directive program.
- iii) *Institutional Support for Organic Farming:* The project would provide technical assistance to strengthen the institutional capacity in support of producing and marketing organically produced farm products.

**Component 4: Awareness Raising, Capacity Building and Replication Strategy (US\$ 1.06 million):** This component, implemented jointly by MEF and MARA) will have the following sub-components:

- i) *Public Awareness in Micro-catchment Development:* This will raise awareness amongst target beneficiaries and other stakeholders about the program approach and terms of participation in Micro-catchment development. The goal will be to increase transparency in program implementation and empower beneficiaries to demand program services.
- ii) *Public Awareness, Capacity Building and Replication Strategy:* With regard to the four Black Sea provinces, the component would provide capacity building and public awareness activities at the local, national and regional level, for the training of beneficiaries and participating institutions as well as for the future replication of similar activities in Turkey and other Black Sea riparian countries.

**Component 5: Project Management and Support Services (US\$ 2.5 million):** This component will have the following sub-components:

- i) *Project Administration:* This sub-component will support the technical assistance, financial services, logistical and operational requirements necessary to ensure the appropriate and efficient administration of project activities and resources by central and provincial project management units.
- ii) *Support Services:* This sub-component will fund extension, technical assistance and some study tours for project managers, technical project staff and farmers.
- iii) *Monitoring & Evaluation System:* The project would provide for the upgrading of the present Monitoring and Evaluation system.
- iv) *Fund for applied research and technology dissemination:* This sub-component will finance short-term, small scale applied research on soil, water, crop, natural resource management, agricultural pollution, livestock and forestry focusing on MC environment.

Component	Indicative Costs (US\$M)	% of Total	Bank financing (US\$M)	% of Bank financing	GEF financing (US\$M)	% of GEF financing
Component 1: Rehabilitation of Degraded Natural Resources	23.50	52.1	10.15	50.8	6.13	87.6
Component 2: Income Raising	17.57	38.9	7.95	39.8	0.00	0.0
Component 3: Strengthening Capacity for Meeting EU Environmental Standards	0.28	0.6	0.00	0.0	0.18	2.6
Component 4: Awareness Raising, Capacity building and Replication Strategy	1.06	2.3	0.51	2.6	0.38	5.4
Component 5: Project management and Support Services	2.50	5.5	1.19	6.0	0.31	4.4
<b>Total Project Costs</b>	44.91	99.6	19.80	99.0	7.00	100.0
<b>Front-end fee</b>	0.20	0.4	0.20	1.0	0.00	0.0
<b>Total Financing Required</b>	45.11	100.0	20.00	100.0	7.00	100.0

As indicated in the table, the GEF Grant will be financing: (a) promotion of environmentally friendly agricultural practices under rehabilitation of degraded natural resources component; (b) strengthening policy an regulatory capacity component; (c) public awareness and replication activities; and (d) relevant project management and support services.

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

The key institutional reforms supported by this project include (i) participatory watershed management; (ii) improved inter-agency collaboration at central and field level to facilitate effective natural resource management; (iii) direct engagement of communities in implementation of MC plans, including full responsibility for operation and maintenance of project supported investments; (iv) increased responsibility of local level implementing agencies in planning and implementation of resource management activities and, (v) increased policy and regulatory capacity to meet international obligations to reduce polluting discharge into the Black Sea and move towards EU standards on agricultural pollution control.

### 3. Benefits and target population:

Beneficiaries	Benefits
Farmers and rural households living in degraded micro-watersheds	<ul style="list-style-type: none"> <li>● Improved longer term access to wood and non-wood forestry products</li> <li>● Increased availability of water for animal and human consumption</li> <li>● Sustainable increases in crop yields</li> <li>● Higher fodder production on rangelands</li> <li>● Improved livestock yields</li> <li>● Higher and more stable household incomes leading to reduced poverty</li> <li>● Improved well water quality</li> <li>● Reduced flooding due to smoother streamflows</li> <li>● Reduced siltation and sedimentation</li> </ul>
Communities living downstream of degraded areas	<ul style="list-style-type: none"> <li>● Improved well water quality</li> <li>● Improved downstream water quality</li> <li>● Reduced cost of water treatment for human consumption</li> <li>● Reduced siltation and sedimentation loads</li> <li>● Reduced flooding due to smoother streamflows</li> </ul>
Non-farming households in watersheds emptying into Black Sea and in Black Sea riparian countries	<ul style="list-style-type: none"> <li>● Improved water quality</li> <li>● Safer food products</li> <li>● Reduced nutrient discharge to main rivers and Black Sea</li> </ul>
Commercial beef fattening and dairy producers in peri-urban areas of Black Sea region	<ul style="list-style-type: none"> <li>● Ability to meet environmental regulations with regard to discharge into water</li> <li>● Improved water quality</li> <li>● Income from sale of manure</li> </ul>
Agro-processors and commercial farmers	<ul style="list-style-type: none"> <li>● Ability to meet EU requirements on nitrate and good agricultural practice</li> </ul>
Ministry of Agriculture and Rural Affairs (MARA) and Ministry of Environment and Forestry (MEF)	<ul style="list-style-type: none"> <li>● Ability to meet EU requirements on nitrate monitoring and code of good agricultural practice</li> </ul>
Staff of MARA and MEF	<ul style="list-style-type: none"> <li>● Higher job satisfaction</li> <li>● Improved technical skills w.r.t sustainable resource management and environmental friendly agricultural production techniques</li> </ul>

### 4. Institutional and implementation arrangements:

The project would be implemented over a seven year period under the same institutional arrangements as the recently completed EAWP.

**Project Management:** The responsibility for overall project management and coordination will lie with the Ministry of Environment and Forestry's General Directorate for Afforestation and Erosion Control (MEF/AGM). Overall project management and supervision will be assured by a *Project Management Group (PMG)* and line agency specific *Project Management Units*. The Project Management Group comprises representatives of each participating line agency with MEF/AGM acting as the project coordinating agency. The Project Management Group will be supported by an *Operations Unit* in charge of day to day project management and coordination. The OU will be established at MEF/AGM and have

sub-units for financial management, procurement and monitoring and evaluation. Funds will be made available to hire a social scientist and a communications specialist, as needed, to assist in the preparation of specific studies. At the local level each Province will establish a *Provincial Project Management Team* comprised of representatives from field units of the project agencies. The Operations Unit will be headed by AGM and be responsible for project coordination and supervision of local level implementation.

**Implementation Arrangements:** The project will be implemented by field staff of the relevant General Directorates of the MEF and MARA (see Annex 2). For each microcatchment, a Microcatchment Implementation Team (MCIT) will be established with staff from relevant provincial agencies. This team will be responsible for the elaboration and implementation of the MC development plan in collaboration with beneficiary communities and in close consultation with local government units (provincial Governor, municipality) and local NGOs. These implementation arrangements are similar to those adopted under EAWP and there thus is considerable experience with this approach, both at the local and the central level. Overall implementation responsibility for GEF-related activities will rest jointly with MARA's General Directorate for Protection and Control (KKGM) and the MEF's General Directorate of Environmental Management. The PMG's Operation's Unit will also be responsible for handling the administration of GEF-financed activities.

**Procurement Arrangements:** All procurement under the project will be carried out under the supervision of the OU's procurement sub-unit which will have four staff, including at least two professional procurement specialist (employed as consultants to the unit). Tendering for small works and small amounts of locally available goods will be carried out by the field units of the implementing agencies, subject to close supervision and approval by the OU's procurement sub-unit. All other procurement will be carried out by the OU's procurement unit, with implementing agencies providing necessary technical specifications, bills of quantities and terms of reference. Bids will be evaluated by a Bid Evaluation Committee comprising technical specialists of the relevant line agency and representatives of the OU's procurement sub-unit and approved by the PMG. Not later than April 30, 2005, the OU will hire two independent, professional procurement specialists as consultants to the OU with qualifications, experience and for a term acceptable to the Bank.

**Financial Management:** Overall responsibility for financial management of the project rests with the OU in the MEF. Following the project financial management assessment carried out by the Bank, an action plan was agreed upon with the MEF, and implemented, to bring its financial management capacity up to standards satisfactory to the Bank. As part of this action plan the OU's financial management sub-unit has been fully staffed with specialists satisfactory to the Bank and a computerized project financial management system has been set up. A Financial Management Manual satisfactory to the Bank has been prepared.

*Financial Monitoring Reports:* The formats of the Financial Monitoring Reports (FMRs) have been agreed and included in the project Financial Management Manual and the PIP. The OU will prepare quarterly FMRs for submission to the PMG and the Bank.

*Audit Arrangements:* Annual financial statements for the project will be audited by the Treasury Controllers in accordance with International Standards on Auditing and under TORs agreed upon with the Bank.

*Disbursement Arrangements:* The Government will open two Special Accounts in US\$ at the Central Bank, one for proceeds from the IBRD loan and one for proceeds from the GEF grant. All payments will be executed centrally by the OU's financial management sub-unit with the authorization of the PMG

Coordinator and the Financial Manager of the OU. Payments exceeding 20 percent of the authorized Special Accounts allocation will be made directly from the loan account. Disbursements will be made against Statements of Expenditures for: (i) works under contracts costing less than US\$3,000,000 equivalent each, but excluding the contracts which are subject to prior review; (ii) goods, under contracts costing less than US\$300,000 equivalent each, but excluding the contracts which are subject to prior review; (iii) services of consulting firms under contracts costing less than US\$ 100,000 equivalent each; (iv) services of individual consultants under contracts costing less than US\$ 50,000 equivalent each; (v) training (subject to provision of an agreed training plan) and (vi) incremental operating costs. Full documentation in support of SOEs would be retained by the PMU for at least one year after the Bank has received the audit report for the fiscal year in which the last withdrawal from the Loan Account was made. This information will be made available for review during supervision by Bank staff and for annual audits which will be required to specifically comment on the propriety of SOE disbursements and the quality of the associated record-keeping.

**Monitoring and Evaluation:** Overall project Monitoring and Evaluation will be the responsibility of the Project Management Group which will be supported in this task by the Operation Unit's M&E staff. Building on the M&E system of the EAWP, the M&E unit will develop and implement an M&E system which will include both routine monitoring and evaluation and special-purpose M&E focused on impact assessment. The M&E system will include targeted annual performance objectives and monitoring indicators using the Key Performance Indicators in Annex 1 as a basis. A baseline survey against which project performance targets can be measured will be carried out in each MC during the detailed MC development planning phase. The M&E unit will produce quarterly reports for submission to the Project Management Group covering progress in physical implementation, use of funds and project impact. Reports will be produced in a format agreed with the Bank. Quarterly reports will be consolidated into semi-annual progress reports to be submitted to the Bank. The latter will also include implementation and work plans for the six months following the reporting period. The development of beneficiary-based Participatory Monitoring will be developed during the course of project implementation, working with Microcatchment Resource Management Associations. Reporting formats for M&E System have been agreed and finalized.

## **D. Project Rationale**

### **1. Project alternatives considered and reasons for rejection:**

Three alternatives to the proposed intervention were considered and rejected:

No follow-up watershed rehabilitation project: The question of whether the achievements of EAWP were sufficient to allow for sustainable natural resource management in Turkey without a follow-up project was considered and rejected on the following grounds: First, while EAWP successfully developed and tested a new approach to natural resource management, its achievements (in line with project objectives) remained limited in terms of physical coverage and number of local implementing agency staff involved. Financial constraints and the time and resources required to mobilize and train additional staff to replicate EAWP's approach on a larger scale would make it unlikely that this would occur without further support by a project. Second, natural resource rehabilitation and management is a long term endeavor and many of the processes initiated under EAWP need to be taken a step further. Examples include range land management through "participatory grazing management", participatory and equitable use of wood and non-wood forest resources from rehabilitated forest lands and boundary tree plantations and, the need to expand the awareness of environmentally friendly agricultural practices. Third and most importantly, it was felt that because natural resource degradation is such a dominant feature in many of Turkey's watersheds, the

economic and social costs of not addressing this problem in an effective manner were too high.

Country-wide coverage: Given widespread unmet demand for inclusion into the EAWP and the need to address natural resource degradation issues in a large part of the country, the question of whether the proposed follow-up project should aim at replicating and expanding on EAWP's approach at a national scale or should limit its interventions to a set of strategically important watersheds with serious resource degradation issues was considered. It was decided to limit the project area to three river basins, including three provinces which were already covered by EAWP and four adjacent provinces which contribute significantly to Black Sea pollution. This decision was motivated by the perceived need further to solidify the institutional capacity for integrated natural resource management at the field level and the ability to build on the momentum gained through EAWP in terms of awareness and interest in participatory natural resource management by communities in neighboring MCs, as well as to explore the scope for innovating by tackling the problem of agricultural waste pollution. The expansion of the project on a national scale would have taxed the institutional capacity for replication, given the number of agencies involved and the need for intensive supervision and monitoring by the Project Management Group.

Stand alone project for agricultural pollution control: Consideration was given to having a separate GEF financed project focusing on reducing agriculture induced nutrient discharge into the Black Sea. This option was discarded on grounds that environmentally friendly agricultural practices should be an integral part of sustainable natural resource management and thus be integrated with other natural resource management activities on a watershed basis. Furthermore, effective participation of all relevant stakeholders requires cooperation among all key agencies engaged in natural resource management and rural development which is best achieved through the participatory resource management approach already developed under EAWP.

**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)
<b>Bank-financed</b>			
Sectoral Policy Reform	Agricultural Reform Implementation Project	S	S
Natural Resource Degradation	Eastern Anatolia Watershed Rehabilitation Project	S	S
Sectoral inefficiency, low productivity, resource degradation	Agricultural Research Project	S	S
Institutional Development	Commodities Market Development Project	S	S
	Privatization of Irrigation Project	S	S
<b>Other development agencies</b>			
Biodiversity conservation	GEF financed Biodiversity and Natural Resource Management Project		
Environmental legislation and EU accession	EU financed: Analysis of Environmental Legislation		
	Approximation Advice for Turkish Environmental Legislation		

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

**3. Lessons learned and reflected in the project design:**

**International experience:**

Participatory natural resource management using a sub-watershed approach has worked well in several other countries. Like the first EAWP in Turkey, the Loewss Plateau Natural Resource Management Project in China was followed by a second project and received an "outstanding" rating from the Quality Assurance Group (QAG). Similar approaches have also been successfully used in Brazil (Land Development 1 and 2 in Southern Brazil) and in other regions. EU countries also follow similar principles, with incentives provided to farmers to adopt sustainable farming practices.

**Key lessons learned from agricultural and environmental projects in the region include the need to:**

- actively involve concerned communities in the identification of problems and proposed solutions for natural resource degradation;
- effectively communicate project rationale, objectives and benefits to all stakeholders;
- establish a direct link between objectives of environment friendly agricultural practices, rehabilitation efforts and tangible benefits for key stakeholders;
- aggressively disseminate information about benefits of improved environmental management to assure widespread adoption of new technologies;
- make long-term commitments to address agriculture and environmental issues through phased programs of interventions and broad-based participation.

**Country specific lessons:**

The project builds on some of the country-specific lessons gained in the EAWP. The ICR for EAWP identified the following issues, which have been accounted for in the design of this operation:

- establish strict guidelines to assure that the project's focus remains on rehabilitation of MCs with site specific solutions;
- ask village beneficiaries to contribute at least 10 percent of the cost for all MARA activities and inform farmers about this requirement up-front so that they can take this into consideration when deciding whether or not to participate in the project;
- inform villagers up-front that they will be responsible for the operation and maintenance of small irrigation schemes and rehabilitated rangelands following initial project financed investments. Develop and test guidelines should for the creation of village/beneficiary associations to take this responsibility;
- clear selection criteria are needed for small scale irrigation investments to assure that they are made selectively and cost effectively.
- development of MC plans requires up to one year to allow implementing agency staff to adequately diagnose the causes of natural resource degradation, decide on technically sound rehabilitation measures and properly interact with the target groups. Implementation of MC plans requires 3 years to assure sustainability of interventions;
- the project should not initiate work in more than two MCs per province per year to assure a manageable work load for field staff during the peak fourth year;
- the participatory nature and complexity of the project call for a project duration of at least seven years;

**4. Indications of borrower and recipient commitment and ownership:**

This project was prepared within the scope of the Country Assistance Strategy, as agreed between the Government of Turkey and the World Bank. In order to be ensure consistency with the overall public expenditure program, the loan amount was reduced based on Government's request. It is strongly supported by all line agencies charged with implementation, motivated by the positive results on the ground of earlier interventions. The Government's commitment to the proposed project was further reflected in their organizing inter-agency workshop to clearly identify the key lessons learned from EAWP with the objective to integrate those into the design of the follow-up project. Based on these lessons, Government agencies undertook project preparation of the loan portion themselves.

The Government has demonstrated its commitment to reduce the discharge of pollutants into the Black Sea by ratifying several key international conventions and protocols to this effect, including the Convention on the Protection of Black Sea Against Pollution. In the fall of 2000, the Government requested Bank support to help it meet its international obligations to reduce pollutant discharge into the Black Sea. The

government has also indicated its commitment to approximating Turkish environmental legislation towards the EU *acquis* by requesting EU funding for advice on Turkish environmental legislation.

## **5. Value added of Bank and Global support in this project:**

Experience in Turkey and elsewhere has shown that effective natural resource rehabilitation and management calls for a long-term commitment through phased programs of interventions and broad-based participation. The Bank's value-added lies in its ability to make a long term commitment to help Turkey address natural resource degradation issues in a more systematic and sustainable manner. The Bank's strategy for natural resource management emphasizes the importance of an integrated approach to watershed management and the proposed project implements this approach. The Bank's ability to draw on experience with similar projects in other countries provides an important backing and strengthens the credibility of the initiatives undertaken by field staff in Turkey. This operation will further strengthen the local capacity for more sustainable natural resource management and will provide support to gradually expand the approach successfully tested under earlier interventions on a larger scale.

The principal value added of GEF support for the project comes from providing additional funds to help reduce barriers to farmers' adopting more environmental friendly agricultural practices and thus to allow the Government to scale up a program which has so far largely been limited to localized pilot activities. GEF funding will allow the Government to accelerate its program of demonstrating environmental friendly agricultural practices on a wider range of farms and to engage in a much needed public awareness program on agricultural pollution. Agricultural pollution and conversion of flood plains areas into agricultural polders is a problem with major transboundary effects in many ECA countries, particularly those in the Black Sea region. Some level of financial support from the public sector and the international community are necessary, as program to control agricultural pollution have significant externalities, affect transboundary pollution and involve an element of public good.

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

### **1. Economic (see Annex 4):**

● Cost benefit      NPV=US\$15.3 million; ERR = 18.6 % (see Annex 4)

○ Cost effectiveness

○ Incremental Cost

○ Other (specify)

Economic benefits of the project fall into two main categories: (i) benefits from a restored natural resource base and, (ii) increased household income from intensification and diversification of farming systems. The quantification of economic benefits from an improved natural resource base in the 28 project MCs includes a valuation of three distinct benefits: (i) savings in erosion induced soil loss; (ii) yield increases due to improved agricultural land and (iii) reduced flood control costs. Other benefits, such as reduced siltation in dams, improved quality of drinking water due to reduced sedimentation content of the water, increased soil moisture content and reduced carbon sequestration have not been quantified due to lack of credible data. The quantification of incremental benefits from improved farming techniques and diversification has been based on farm budgets for various project supported activities and the application of net benefit streams for these activities to the activity target area in the 28 MCs, taking into consideration the expected phasing of project activities.

As many resource management and protection activities are expected to have a long term impact and may incur net costs during the initial project years, the ERR and the NPV were calculated over a period of 25 years, with an annual discount rate of 12 percent applied to the NPV calculation. Sensitivity analysis

suggests that a 20 percent increase in project costs combined with a 20 percent reduction in project benefits still results in a ERR of 14.4 percent and an NPV of US\$ 5.7 million. Similarly, a 2 year delay in project benefits would result in an ERR of 18.3 percent and an NPV of US\$ 13.7 million. If the impact of project activities on erosion were not to materialize the ERR would drop to 18.1 percent and the NPV to US\$ 13.7 million. Excluding the irrigation component reduces the ERR to 12.3 percent and the NPV to - US\$ 0.4 million, pointing to the critical importance of irrigation investments.

The *incremental cost analysis* for the GEF-funded component is presented in additional Annex 11 to this PAD. In the baseline scenario prevailing agricultural practices are only partially corrected through ongoing Government, NGO and bilaterally supported efforts of limited reach and the proposed AWRP without GEF support. The cost of activities in the baseline scenario is estimated at US\$ 37.92 million. Available resources would not be sufficient to develop environmentally friendly farming practices in the lower part of the key watersheds that empty into the Black Sea, nor to strengthen Turkey's capacity to meet EU standards and raise public awareness about the need for agricultural pollution control, nor to support adaptive research aimed at reducing agricultural pollution while maintaining or increasing yields. The incremental cost of activities to be supported by GEF related activities amount to US\$7.0 million, which will be sought from GEF.

## **2. Financial (see Annex 4 and Annex 5):**

NPV=US\$ million; FRR = % (see Annex 4)

### **Fiscal Impact:**

The scope and cost of the project was reduced in light of Turkey's tight fiscal situation. Assurance has been sought from Government that the necessary Government counterpart contribution is consistent with the available fiscal envelope of the two implementing Ministries. Total Government financing during the project implementation period is estimated to be US\$ 8.65 million (around 19 percent of project costs). The Government's average annual contribution thus amounts to around US\$ 1.2 million per year over the life of the project, divided across 2 Ministries and 7 implementing agencies. Although this is not a substantial share of the implementing agencies' overall budget and the Government has confirmed that this project is of high priority, there is a risk that the Government will not be able to make counterpart funds available on a timely basis, if the country's fiscal situation further deteriorates. Beyond project implementation, the fiscal impact of the project is expected to be minimal, as the main recurrent expense derives from the management and operation of irrigation investments which will be entirely born by project beneficiaries.

## **3. Technical:**

The majority of technologies to be promoted under the project have already been tested and validated in particular areas of Turkey under other projects such as the recently completed EAWP. The promotion of proposed technologies is backed up by operational manuals of the Ministry of Environment and Forestry and the General Directorate of Rural Services which were prepared on the basis of results of successfully completed adaptive research and experience gained under internationally and nationally financed projects. During project preparation a number of tools were used to identify priorities, these include : (i) the Beneficiary Centered-Problem Census-Problem Solving (BCPCPS) method used in the villages of 12 indicative MCs, ii) a detailed baseline survey of 12 indicative MCs, iii) farm surveys conducted with livestock owners and crop producers in the 4 GEF provinces, iii) a detailed baseline survey in support of the social assessment carried out in 5 selected MCs, and iv) collection of baseline information in another 6

selected MCs for the Regional Environment Assessment. Cost estimates for the proposed interventions are based on actual unit costs of similar interventions carried out under the EAWP and an estimate of target areas for the combination of proposed interventions based on initial MC plans developed for 12 MCs. While the unit costs are thus accurate, overall cost estimates are a first best approximation, as actual costs will depend on the mix of activities adopted by communities in each one of the 28 MCs. Specific investment identification and cost estimates for the GEF-financed agricultural pollution sub-components were based on technical designs and data prepared by consultants in collaboration with implementing agency staff and agreements reached with the local beneficiaries.

#### **4. Institutional:**

##### **4.1 Executing agencies:**

The institutional capacity for project implementation at the field and national level is adequate in all implementing agencies. The project builds on the institutional capacity established under the recently completed EAWP, in particular the close cooperation in the field between staff of the agencies of the two implementing Ministries and the four key agencies, namely, TÜGEM, ORKÖY, AGM, and KHGM and expands on these strengths by involving CYGM and KKG. The project will further strengthen the interagency collaboration and technical expertise needed to successfully develop and implement participatory MC based natural resource management plans.

##### **4.2 Project management:**

Overall project management and oversight will be the task of the inter-agency Project Management Group under the MEF. For day to day project management, the PMG will be assisted by an Operations Unit (OU) which will be staffed by financial management, procurement, and M&E specialists with qualifications satisfactory to the Bank. Funds will be provided to hire a communications specialist and a social scientist, as required, for specific studies.

##### **4.3 Procurement issues:**

As the project focuses on community participation and MC specific investments, procurement of small works and small quantities of locally available goods will need to be carried out by the implementing agencies. These offices have limited experience with Bank procurement procedures and will thus need to be closely supervised by the OU's procurement sub-unit. To assure adherence to Bank procurement guidelines, it was agreed that field office staff will only proceed with procurement decisions upon receiving approval by the OU's procurement sub-unit. All field offices will use standard Bank procurement documents which will be translated into Turkish for this purpose. The experience of the EAWP showed that procurement of larger contracts by individual implementing agencies was not an effective way to assure timely procurement in line with Bank procurement guidelines. Therefore, the procurement function will be centralized and carried out by specialized staff of the OU's procurement sub-unit, with line agencies providing technical specifications and participating in bid evaluation through their representation in the Bid Evaluation Committee.

##### **4.4 Financial management issues:**

The financial management assessment concluded that the existing FM capacity in the MEF was not adequate for meeting the Bank's minimum requirements. To address these deficiencies, a financial management action plan was prepared and agreed upon with MEF. The action plan to improve the OU's

financial management capacity and the project's financial management system have been implemented.

## **5. Environmental:** Environmental Category: B (Partial Assessment)

### **5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including consultation and disclosure) and the significant issues and their treatment emerging from this analysis.**

The project is expected to have overall very positive environmental impacts. It will contribute to reduced erosion, increased vegetative and forest cover, improved land management, and will reduce the discharge of polluting nutrients into waterways. Broader positive environmental impacts include the institutional measures to support application of the EU Nitrates Directive and public awareness building in this regard.

A Regional Environmental Assessment was commissioned by Government, to provide the analytical framework to better address environmental concerns in the design, implementation, and monitoring of project interventions. The Regional Environmental Assessment confirmed that the project is not expected to result in any significant environmental risks or negative environmental impacts. A range of potential, minor negative impacts are, however, possible. These have been identified, and mitigation measures have been incorporated into the project's design. They include:

- potential impacts resulting from poorly designed soil erosion control measures such as terracing;
- potential impacts resulting from the rehabilitation or construction of access roads;
- potential impacts on forest villages which may find traditional access to forests restricted;
- potential impacts associated with the possible use of pesticides in the production of tree seedlings for afforestation and microcatchment rehabilitation; and
- concerns about dam safety, resulting from the construction of numerous small farm ponds and irrigation tanks.

The Regional Environmental Assessment was reviewed in draft, and revised based on the comments from the client and the Bank. The final Regional Environmental Assessment was translated into Turkish, and was made widely available in Turkey. A consultation on the revised draft was held on February 20, 2003 and involved project agencies and NGOs.

### **5.2 What are the main features of the EMP and are they adequate?**

The EMP describes mitigation steps which have been incorporated into the project's design. These include:

- design standards for the construction of various erosion control measures have been reviewed to ensure that they represent prevailing 'best practice,'
- prevailing national standards for forest roads construction have been reviewed for their adequacy in addressing potential environmental problems, and these will be adopted as a contractual obligation of roads subcontractors;
- With respect to forestry activities, communities and individuals with interests in the use and management of forest resources will be identified and consulted during the participatory preparation of microcatchment plans. The project will not limit communities' traditional use of forested areas.
- The extent of planned pesticide use was examined, which is very minor. Measures have been incorporated into the project to limit their use, consistent with principles of Integrated Pest Management.
- Standards for the construction of small dams and farm ponds were reviewed to ensure that dam safety measures have been adequately incorporated into their design by qualified engineers.
- The impact of water abstraction on the Black Sea, as a result of the project was reviewed and is

expected to be negligible, and a waiver to the requirement to notify riparians was sought and received.

### 5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft: 01/15/2003

The Regional Environmental Assessment was received and disclosed before the project was Appraised.

### 5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

The Terms of Reference for the Regional Environmental Assessment were prepared based on experience gained from consultation processes undertaken in the EAWP, and reported on in the ICR. The draft Regional Environmental Assessment was discussed extensively with MEF and with the project agencies and NGOs before the project was Appraised. Public consultations on the Regional Environmental Assessment were carried out in a national workshop, held in February 2003.

### 5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

The project's Monitoring and Evaluation system has incorporated environmental performance indicators, which are to be based on special studies outlined in the EMP.

## 6. Social:

### 6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.

The project area is located in areas of high poverty. The majority of the population depend on a combination of cropping, livestock and non-farm activity as the primary livelihood strategy. Land degradation in the upper catchments due to deforestation, overgrazing and unsustainable agricultural practices over time have had a negative impact on local livelihood strategies and contributed to the incidence of poverty. Because of its high visibility, overgrazing by goats has been singled out as a cause of land degradation and large livestock owners have come increasingly coming under pressure from the rest of the community agriculturalists to reduce their herds and switch to other economic activities. The project will help alleviate some of this tension by providing incentives to livestock owners to switch away from livestock or to adopt more sustainable management practices. In addition, the project implementation plan and other relevant material outlines conflict resolution measures inherent in the BCPCPS process to ensure that potential conflict situations are resolved up-front and that livestock owners will participate effectively in the development of MC plans. In some areas, local communities have protested against the reinstatement of pasture leases to nomadic shepherds from provinces outside the project area due to the damage inflicted by the seasonal movement of these animals on their agricultural lands. The project will ensure that nomadic shepherds are not deprived of their legal access to pasture grounds. In the southeastern part of the project area, significant portions of land that fall officially under the jurisdiction of the MEF are either occupied by human settlements or are being cultivated under usufructary and other tenure claims. There are concerns among local communities that the project will strengthen the Ministry's claim over these lands. In MCs where such contested land claims occur, the project will work together with local communities to transfer long term management responsibility to community members and strengthen the role of local communities in protecting the forest lands. Conflict resolution remains at the heart of the BCPCPS process.

*Social Development Outcomes:* The project is expected to result in increased equity, community

empowerment and social inclusion. Labor intensive project interventions such as tree planting and construction will provide poor villagers with income-earning opportunities, while improved agricultural and forestry productivity and diversification of income sources will enhance the livelihood strategies of poor villagers. The project's emphasis on participation in the conservation of natural resources is at the core of successful resource management and essential for improved livelihood strategies. Project interventions at the MC level will be demand driven primarily through the inclusion of all concerned in the development of MC plans.

#### 6.2 Participatory Approach: How are key stakeholders participating in the project?

Project preparation activities involved all key stakeholders: national, regional and local government authorities; NGOs; local communities including land-owning farmers, landless farmers, and livestock owners. The project's approach to sustainable natural resource management on a MC basis rests on the active participation of MC communities. As part of the BCPCPS process, a team of provincial rural services, agriculture and forestry staff will work with villagers to help MC communities identify and rank their principal development problems and then identify and rank proposed solutions which can be implemented under the umbrella of the project. Project implementation staff's contribution to these consultations is limited to facilitation. The resulting MC development plan spells out proposed activities and participation requirements of all involved. Each project agency works together with a group of volunteers from the MC villages to determine the scale and site of interventions regarding forestry, agricultural, and irrigation development activities included in the MC plan. The plan must be supported by all involved and is posted in the village for review/objection by all. To assure full participation and ownership of MC plans by concerned communities, one full year is allocated to MC plan development, with MC implementation occurring during the following three years. During the problem and solution identification process, particular efforts are made to encourage women's participation, so as to assure that gender issues are mainstreamed into MC development planning and implementation. Provincial implementing agency staff will receive training on community mobilization and other participatory techniques.

#### 6.3 How does the project involve consultations or collaboration with NGOs or other civil society organizations?

Civil society organizations have shown interest in the project and were consulted during preparation. These include the Turkish Foundation for Combating Soil Erosion, for Reforestation, and for the Protection of Natural Habitats (TEMA). The Association for Livestock Producers was also consulted. CSOs and NGOs are expected to play a role during project implementation in monitoring, training, and awareness raising.

#### 6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

The project will create at the local level MC Resource Management Associations (MRMA) that will mobilize the community to participate in project implementation and to take up responsibility for post-project operation and maintenance. The development of participatory monitoring strategies will rely on the involvement of these Associations. At the field level, for each province, a Provincial Project Management Team (PMT) consisting of the participating line agencies will be formed to ensure coordination between agencies and effective delivery of goods and services to the project beneficiaries. For each microcatchment, a Microcatchment Implementation Team (MCIT) will be established.

#### 6.5 How will the project monitor performance in terms of social development outcomes?

The project will use the findings of the Social Assessment to design and implement a comprehensive baseline survey which will form the basis for measuring changes in perception, welfare, and incomes associated with the project interventions. A participatory monitoring and evaluation program will be developed to keep track of the project's overall social development outcomes. An independent M&E program will be initiated to keep track of the safeguards issues.

## 7. Safeguard Policies:

### 7.1 Are any of the following safeguard policies triggered by the project?

Policy	Triggered
Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Natural Habitats (OP 4.04, BP 4.04, GP 4.04)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Forestry (OP 4.36, GP 4.36)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Pest Management (OP 4.09)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Cultural Property (OPN 11.03)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Indigenous Peoples (OD 4.20)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Involuntary Resettlement (OP/BP 4.12)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Safety of Dams (OP 4.37, BP 4.37)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*	<input type="radio"/> Yes <input checked="" type="radio"/> No

### 7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

*Environmental Assessment (Operational Policy 4.01):* A Regional Environmental Assessment (REA) to address the potential environmental impacts of the project was prepared and reviewed by the Bank prior to appraisal. The REA includes a review of national laws and regulations relevant to the project. The project comprises a series of sub-projects, which are to be defined during project implementation as a result of the participatory microcatchment planning process. The REA describes a methodology for screening MC plans for environmental impacts, and for proposing and introducing mitigating steps, which will be handled as part of the regular criteria-based MC selection process. When microcatchment plans are prepared, particular mitigating steps may be triggered. The project will support the establishment of capacity within the implementing agencies to ensure that subprojects are assessed for their potential impacts, and environmental management plans are prepared and implemented in compliance with the national requirements as well as Bank policy on environmental assessment (OP 4.01). The REA describes the procedures and arrangements between the implementing agency, the environmental authority and the borrower entities for subproject environmental screening, assessment, consultations and disclosure. Generic EMPs for investments in different subsectors (farm ponds, feeder roads etc.) are provided as examples. EMP recommendations are incorporated into the Project Implementation Plan and describe screening standards, mechanisms, examples, and procedures related to Safeguards issues.

*Pest Management (Operational Policy 4.09):* The only sub-component which may involve the use (but not the purchase with IBRD or GEF funds) of abiotic pesticides is the component which results in the production of tree seedlings. The project will not be directly financing the purchase of pesticides, but the agents contracted for nursery production may use pesticides in conjunction with tree seedling production. The Regional EA reviewed current practice in the use of pesticides for tree seedling production in Turkey. The REA describes 'best practice' pesticide handling in tree seedling production, and recommends that these practices are incorporated into the contracts of sub-contracted agents. Farmers in microcatchments will be encouraged to reduce the use of pesticides and to adopt Integrated Pest Management approaches.

*Forestry (Operational Policy 4.36):* The project fully complies with OP 4.36 on Forests as it aims to “reduce deforestation, enhance the economic contribution of forested areas, promote afforestation, reduce poverty and encourage economic development”. It supports an integrated and participatory approach to MC natural resource management, particularly through activities aimed at rehabilitating degraded forest lands and income generation activities geared towards compensating communities for short term costs associated with afforestation.

*Dam Safety (Operational Policy 4.37):* Under the income generation component, the project will finance small scale irrigation, including construction of concrete ponds, diversion weirs and small dams. Highest priority will be given to irrigation ponds at strategic places throughout the MC areas as this will allow to reach the largest number of beneficiaries. Construction of dams will only occur in MCs with extreme water shortage. Based on the experience with EAWP, these dams are expected to be less than 15 m high. The implementing agency for this component, KHGM, has a long experience with the design, construction and maintenance of over 600 small dams throughout the country. During project preparation and appraisal, it was determined that KHGM has the relevant knowledge and experience to design, construct and maintain small dams and that it has proper design standards to guarantee the safety of small dams. Generic dam safety measures are being designed by qualified engineers. Operation and routine maintenance of irrigation infrastructure will be the responsibility of beneficiary communities under the supervision and guidance of KHGM. Under the project KHGM will provide relevant local communities with training on dam surveillance, operation and management to assure that they can effectively carry out their responsibilities. Although it is unlikely that the project will include construction of dams higher than 15 meters, a panel of independent experts, consisting of a dam engineer and a hydrologist with qualifications satisfactory to the Bank, has been designated who would be called upon to carry out an independent review of the investigation, design, and construction of the dam and the start of operations, as spelled out in OP 4.37. Independent experts shall ensure compliance with the large dams reporting requirements. No private land will be acquired for the construction of dams and resettlement is therefore not an issue.

*Involuntary Resettlement (Operational Policy 4.12):* This OP does not apply to the project because all dams to be built under the project will be very small and be constructed on public land located in the mountainous upper part of watersheds. No private land will be acquired for dam construction and the dam location will be selected such that the reservoirs will only flood rocky, barren land. No grazing or other public land from which communities might derive a livelihood will be affected. The loan agreement will include a covenant to this effect.

*Projects in International Waterways (Operational Policy 7.50):* This OP does not apply because the MCs in which the project will provide for small scale irrigation are located in the upper mountainous areas of the three major watersheds and water for irrigation purposes will be taken from springs or small streams in the MCs. The springs from which water will be diverted into small concrete ponds are not directly linked to the national rivers in the project provinces that flow into the Black Sea or Mediterranean Sea. Furthermore, many of the springs which will be used for diversion are in fact already used by farmers and the project will improve the storage and water use efficiency in these areas. The small streams are third or fourth level tributaries of these national rivers. About 15 diversion schemes, irrigating about 20 ha each, will be constructed along these small streams in each of the three national river catchments. The project's emphasis on extension will result in reduced agriculture-based pollution of ground and surface water.

## **F. Sustainability and Risks**

### **1. Sustainability:**

This project is a follow-up project to the recently completed EAWP and has been prepared at the explicit request of the Government. Preparation was carried out by agencies of the two implementing Ministries (MARA and MEF) with limited support from consultants. This direct engagement of all implementing agencies at the central and at the field level has significantly contributed to project ownership and commitment. To further cement the cooperation of implementing agencies at the local level, the Ministry of Environment and Forestry submitted a law to Parliament (which was subsequently passed) which encourages collaboration between MARA, MEF, and local communities for all watershed-based activities (Statute 6831, Article 58). In May 2003, the new Government merged the Ministries of Environment and Forestry, creating the Ministry of Environment and Forestry. KHGM, which used to be under a State Ministry, was transferred to MARA. These actions not only reduced the number of implementing agencies for the project, but increased the chances of success by making the collaboration much easier. The project's community-based participatory approach leads to the preparation of MC plans which are locally developed and implemented (with the support of implementing agencies) rather than by implementing agencies themselves, is expected to create a sound basis for project sustainability at the MC level. Communities will be fully responsible for operation and maintenance of investments provided for by the project, and they have to agree to do so as a condition of the project proceeding at a particular site. Therefore the Government will not incur substantial additional costs at specific sites upon project completion.

The Project will create conditions for more sustainable land use through increased productivity of non-marginal land, reduced variability in production (through terraces and small scale irrigation) and household income (through income diversification), and improved vegetative covers rendering the land more resistant to drought and erosion. The training and institutional strengthening in support of sustainable natural resource management to be provided to implementing agencies at the central and field level and to local communities under the project are expected to significantly contribute to project sustainability.

In the medium term, the critical challenge for Government will be to take the lessons learned through the AWRP and to mainstream these types of activities into the budget process.

#### **1a. Replicability:**

Replicability is a fundamental feature of project implementation, as the approach to developing MC management plans is replicated over the life of the project, and indeed, builds on lessons of replicability learned in EAWP.

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

<b>Risk</b>	<b>Risk Rating</b>	<b>Risk Mitigation Measure</b>
<p><b>From Outputs to Objective</b> Project agencies do not maintain cooperation and collaboration</p> <p>Target communities do not participate in planning and implementation</p>	<p>N</p> <p>M</p>	<p>The MC planning and budgeting process provides a framework for collaboration by all implementing agencies; All implementing agencies were closely involved in project preparation; The project builds on the successful inter-agency collaboration established during EAWP; Implementing arrangements provide for inter-agency supervisory committees at national and local levels;</p> <p>The MC planning and budgeting process provides a framework for collaboration by all implementing agencies; All implementing agencies were closely involved in project preparation; The project builds on the successful inter-agency collaboration established during EAWP; Implementing arrangements provide for inter-agency supervisory committees at national and local levels; A key criteria for MC selection is confirmed interest and participation by communities; MC plans are only be developed with full participation by communities; Participation in rehabilitation efforts with only long term benefits and/or short term benefits is supported by income generation activities; The project’s flexible approach will allow to tailor interventions to the interests and needs of each community</p>
<p><b>From Components to Outputs</b> Lack or untimely release of counterpart funds</p> <p>High staff turn-over</p>	<p>M</p> <p>M</p>	<p>Project and loan size were downscaled in agreement with SPO to secure availability of counterpart funds;</p> <p>Project teams at the national and local level will be established after appraisal, however, staff turnover has been anticipated by preparation of and provision of training in project methodologies throughout the project period.;</p>

Inputs will not be available on time	N	Input needs are identified at end of MC planning year, allowing for sufficient time for procurement. Procurement of inputs will mostly occur at local level;
Government reorganization. Decentralization is on-going.	S	Government reorganizations occur in many projects. Training has been provided for. The project life is 7 years, which allows for implementation delays due to reorganizations.
<b>Overall Risk Rating</b>	M	

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

### 3. Possible Controversial Aspects:

There are no controversial aspects.

## G. Main Conditions

### 1. Effectiveness Condition

For the Loan: All conditions precedent to the effectiveness of the GEF Grant Agreement or the right of the Borrower to make withdrawals thereunder, except only to the effectiveness of the Loan Agreement have been fulfilled.

For the GEF Trust Fund Grant: All conditions precedent to the effectiveness of the Loan Agreement or the right of the Borrower to make withdrawals thereunder, except only to the effectiveness of the GEF Trust Fund Grant Agreement have been fulfilled.

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

- Not later than April 30, 2005, the OU will hire two independent, professional procurement specialists as consultants to the OU with qualifications, experience and for a term acceptable to the Bank
- The infrastructure facilities under the Project shall be constructed only on public land where no means of livelihood of any communities shall be affected.
- All measures necessary for the carrying out of the Environmental Management Plan shall be taken in a timely manner, ensuring that adequate information on the implementation of the said measures is suitably included in the progress reports.
- The PMG, OU, Provincial Project Management Teams and Micro-catchment Implementation Teams are maintained throughout Project implementation in a manner satisfactory to the Bank.
- The Project Implementation Plan (PIP) shall be maintained throughout the Project and the PIP shall not be amended, repealed or waived without the prior approval of the Bank.
- A mid-term review of the Project shall be carried out by November 30, 2008.

## 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.

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Peter A. Dewees  
**Team Leader**

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Marjory-Anne Bromhead  
**Sector Manager**

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Andrew N. Vorkink  
**Country Director**

## Annex 1: Project Design Summary

### TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
<p><b>Sector-related CAS Goal:</b> Provide support for equitable human and social development</p> <p>Provide support for strong environmental management and disaster prevention</p>	<p><b>Sector Indicators:</b> Reduced poverty in degraded watershed catchments</p> <p>Progress is made in adopting EU environmental standards, and introducing sound practices for water, soil, and forest management</p>	<p><b>Sector/ country reports:</b></p> <ul style="list-style-type: none"> <li>● ESW (occasional);</li> <li>● Government reports and studies</li> </ul>	<p><b>(from Goal to Bank Mission)</b> Turkey maintains its commitment to collaborate with international institutions in its efforts to reduce poverty, improve income disparities while managing its natural resource base in an efficient and environmentally friendly manner</p>
<p><b>GEF Operational Program:</b> The project's objective of reducing nutrient discharge to the water bodies feeding into the Black Sea are consistent with GEF OP No. 8, Water body based Operational Program, and will help restore balance to Black Sea ecosystems.</p>	<p><b>Outcome / Impact Indicators:</b></p> <ul style="list-style-type: none"> <li>● Improvement in water quality and in water receiving bodies in project areas</li> <li>● Adoption and implementation of legislation on EU Nitrate Directive</li> </ul>	<ul style="list-style-type: none"> <li>● Adoption of nutrient-friendly farming practices by project farmers</li> <li>● Water quality monitoring at selected sites</li> </ul>	<ul style="list-style-type: none"> <li>● Turkey maintains its commitment to GEF and the international community in adopting measures to reduce pollution in the Black Sea</li> </ul>

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
<p><b>Project Development Objective:</b>  <b>The Project's Overall Development Objective</b> is to introduce sustainable natural resource management practices in 28 degraded micro-catchments and thereby raise incomes of communities affected by resource degradation.</p> <p><b>The Global Environmental Objective</b> is to introduce farming practices which will reduce the discharge of nutrient and other agricultural pollutants into surface and groundwater in watersheds draining into the Black Sea.</p>	<p><b>Outcome / Impact Indicators:</b></p> <ul style="list-style-type: none"> <li>● Increase in vegetative cover in project MCs above baseline by 20% by the mid term and by 50% by closing</li> <li>● Increase in soil fertility on sloping lands as measured by humous content in project MCs from 10% above the baseline by the midterm and by 20% by closing</li> <li>● Increase in household incomes in participating MC communities by 10% above baseline at midterm and by 40% at closing</li> <li>● Increased public awareness of causes, effects and mitigating measures of natural resource degradation as measured by awareness surveys</li> <li>● Adoption of environment-friendly practices (e.g. crop rotation, crop nutrient management with soil testing, use of organic matter) by 30% of farmers in 4 Black Sea Provinces</li> <li>● Adoption of improved manure handling and storage facilities by 55%-60% of farmers in areas where such practices are piloted</li> </ul>	<p><b>Project reports:</b></p> <p>Baseline, mid-term and final sample surveys of stakeholder practices in targeted microcatchments</p> <p>Baseline and project-end assessment of impact of environmental friendly technologies adopted</p>	<p><b>(from Objective to Goal)</b></p> <p>Successful implementation of this and other related projects, as required</p>

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
<p><b>Output from each Component:</b></p> <p><b>1. Rehabilitation of Degraded Natural Resources:</b> Productivity of forest, rangeland and agricultural land in 28 MC improved.</p> <p>Development and testing of package of investments and practices for reducing nutrient discharge into water-bodies.</p> <p><b>2. Income Generation:</b> Qualifying farmers provided with training and materials to engage in activities to raise and/or diversify farm income</p> <p><b>3. Strengthening Policy and Regulatory Capacity:</b> Policy documents and regulatory provisions drafted.</p>	<p><b>Output Indicators:</b></p> <p>28 MC plans developed and fully implemented 22,700 ha of forestry land rehabilitated 4,150 ha of rangeland rehabilitated 7,000 ha of agricultural land rehabilitated</p> <p>Packages of practices successfully tested, and adopted by at least 65 % of farmers in pilot areas</p> <p>3,900 ha of irrigated land developed</p> <p>495 ha of terraced agriculture</p> <p>At least 60 % of farmers in MCs provided with training in new agriculture based income generation / diversification activities.</p> <p>168 dairy cattle units improved</p> <p>169 dairy sheep units improved</p> <p>10 fishponds constructed</p> <p>80 greenhouses developed</p> <p>Water quality monitoring program developed and implemented</p> <p>Code for good agricultural practices completed</p> <p>TA and training in support of organic farming and marketing of organic products was provided as planned.</p>	<p><b>Project reports:</b></p> <p>Annual Project reports; M&amp;E reports; GIS surveys; Household surveys; Agricultural statistics; EU expert reports</p> <p>Project progress reports</p> <p>Water quality monitoring reports</p> <p>Relevant regulatory documents</p> <p>Project progress reports</p>	<p><b>(from Outputs to Objective)</b></p> <p>Favorable actions by participating institutions regarding adoption of the improved policy framework.</p> <p>Farmers show commitment to using newly introduced environment-friendly agronomic practices</p> <p>Farmers actively participate in income generation/diversification activities and extension staff are adequately equipped to introduce them</p>

<p><b>4. Public Awareness, Capacity Building &amp; Replication Strategy:</b></p> <p>Responsibility of local community enhanced through shared resource planning activities</p> <p>Increased awareness of threats to pollution of national and trans-boundary water bodies from animal waste and agricultural chemicals.</p> <p>Farmers provided with increased access to marketing and technical information.</p> <p><b>5. Project management and support services</b></p> <p>Effective project management system</p> <p>Increased technical and community development capacity of implementing agency staff</p>	<p>Public awareness campaign for project implemented</p> <p>Public awareness campaign for reduction of agriculture based pollution implemented</p> <p>Replication strategy for nutrient discharge reduction developed.</p> <p>Effective M&amp;E system established. Timely monitoring and reporting as planned.</p> <p>Staff trained as planned</p> <p>Applied research projects completed</p>	<p>Awareness strategies and documentation</p> <p>Replication strategy report</p> <p>Project progress reports</p> <p>Research result reports</p>	
<p><b>Project Components / Sub-components:</b></p> <p><b>1. Rehabilitation of Degraded Natural Resources</b></p> <p>a. Forest Land b. Rangeland c. Agricultural Land d. Environment-friendly Agricultural Practices</p> <p><b>2. Income Generating</b></p>	<p><b>Inputs: (budget for each component)</b></p> <p>\$ 23.5 million</p> <p>\$ 17.57 million</p>	<p><b>Project reports:</b></p> <p>Supervision reports;</p> <p>Quarterly and Annual project reports;</p> <p>Financial management reports</p>	<p><b>(from Components to Outputs)</b></p> <ul style="list-style-type: none"> <li>• Counter-part funds are available in a timely manner</li> <li>• Farmers actively participate in planning and implementation</li> <li>• Project agencies maintain active cooperation and collaboration</li> </ul>

<p><b>Activities</b></p> <ul style="list-style-type: none"> <li>a. Small-scale Irrigation</li> <li>b. Agricultural Terraces</li> <li>c. Forest Activities</li> <li>d. Crop &amp; Farm Enterprise Diversification</li> <li>e. Livestock improvement</li> <li>f. Greenhouse development</li> <li>g. Fish pond construction</li> </ul> <p><b>3. Strengthening Policy and Regulatory Capacity:</b></p> <ul style="list-style-type: none"> <li>a. Nitrates directive</li> <li>b. Code for Good Ag. Practices</li> <li>c. Institutional support for organic farming</li> </ul> <p><b>4. Awareness raising, Capacity Building &amp; Replication Strategy</b></p> <ul style="list-style-type: none"> <li>a. Public awareness raising and replication strategy</li> <li>b. Capacity building</li> </ul> <p><b>5. Project management, monitoring, and support services</b></p> <ul style="list-style-type: none"> <li>a. Project administration</li> <li>b. Support services</li> </ul>	<p>US\$ 0.28 million</p> <p>US\$ 1.06 million</p> <p>US\$ 2.50 million</p>		
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## Annex 2: Detailed Project Description

### TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT

Estimated Project Component costs are Indicative Project Costs, and include IBRD, GEF, Government, and Local community inputs.

#### By Component:

##### Project Component 1 - US\$23.50 million

##### Rehabilitation of Degraded Natural Resources

This component consists of a menu of rehabilitative measures to be implemented by village communities under the direction of the Ministry of Environment and Forestry and the Ministry of Agriculture and Rural Affairs. The component's primary objective is to protect degraded areas from further degradation, erosion and pollution. Activities are focused around four sub-components as outlined below and will be implemented in 28 microcatchments in 6 provinces. The activities include a specific program for piloting actions on reducing nutrient discharge to the water bodies that will be implemented in the lower parts of watersheds of four participating Black Sea provinces using GEF funds

***Ia: Regeneration of Forestry Land:*** The objective of the sub-component is to put in place measures to conserve soils and vegetation in watershed catchments, and to introduce mechanical and biological approaches toward catchment conservation, management, and rehabilitation in forestry land. Physical measures will involve the establishment of terraces which will in turn be stabilized by tree planting. Where appropriate, natural regeneration will be encouraged. Riverbanks will be protected by the establishment of gallery plantations. Extensive natural stands of oak will be rehabilitated by enrichment plantings and enhanced coppice management. Silvicultural treatments will be introduced to improve the quality of degraded high forests. To gain a better understanding of the potential contribution of non-timber forest products (NTFPs) to local economic development, the sub-component will also finance an inventory of locally important NTFPs with a view towards developing and introducing locally-derived management plans.

***Ib: Rangeland Rehabilitation.*** This sub-component will provide resources to rehabilitate and improve the carrying capacity of degraded range-lands. This will include the adoption of sustainable rangeland planning and management principles, including limiting the number of animals admitted to a particular grazing area and fencing off areas which need protection. The project would provide for fencing to control grazing access; sward enrichment (seeding and fertilizing); removal of stones and unpalatable plants from rangelands; construction of shelters; water points and salt licks and, land rehabilitation.

***Ic: Rehabilitation of Agricultural Land.*** This sub-component will focus on three main areas, including fallow reduction, improved use of marginal land and, river bank protection. The *fallow reduction program* aims at introducing edible and feed legumes to increase moisture retention and soil fertility, while decreasing erosion and improving land productivity. The project will raise farmers' awareness of the damaging effects of growing annual crops on steeply sloped *marginal land* and promote the adoption of more suitable production techniques for such land, such as contour tilling and replacement of food crops with perennial crops and bushy plants with market potential. *River bank rehabilitation* will seek to halt river bank erosion which result in flooding and destruction of adjacent agricultural lands. The main activity will be river bank strengthening with rocks and gabions. Terracing will be introduced on privately owned arable land where continued agricultural production would result in erosion and where it is difficult to capture soil moisture.

***Id: Environmentally Friendly Agricultural Practices.*** Under this sub-component, MARA would promote the adoption of improved practices including organic farming, crop production practices, appropriate fertilization and Integrated Pest Management, through advice and demonstrations in the 28 microcatchments. In the lower parts of watersheds of the four participating Black Sea provinces, MARA/MEF would promote the following practices, geared to reducing nutrient discharge: (i) manure management; (ii) nutrient management; (iii) organic farming; and (iv) water/soil quality monitoring program to measure the impact of these practices on nutrient discharge. In the area of manure management, the project would initially support the piloting of improved community-level and on-farm livestock manure storage facilities, improved manure collection and application to agricultural land. For poultry units, the project would primarily provide technical assistance to help enforce compliance with existing legislation and to develop a more efficient system for manure collection and utilization. Following an impact evaluation of these pilots, project activities would be extended on a wider scale as of the third project year. In the area of nutrient management, the project provide farmers with technical advice on nutrient management on the basis of laboratory tested soil samples. In the area of organic farming, the project would support production testing, promotion and marketing advice for organic produce. In the area of integrated pest management the project would provide farmers with IPM recommendations for various crops tailored to their specific production area and the establishment of computerized early pest warning systems.

The project would finance the following investments under Component 1: civil works associated with implementing catchment rehabilitation activities outlined in micro catchment management plans (e.g. terraces, riverbank strengthening works) and manure storage facilities; equipment (e.g. manure handling equipment, laboratory equipment, computers and software) in support of manure and nutrient management, organic farming, water and soil quality monitoring ; agricultural inputs and fencing in support of forest, range and agricultural land rehabilitation, training and technical assistance and operating costs associated with GEF supported activities to reduce nutrient discharge into the Black Sea.

## **Project Component 2 - US\$17.57 million**

### **Income Generation**

Under this component target communities would be offered a menu of activities designed to raise household incomes for those who participate in resource conservation activities supported under Component 1. Income generating activities are designed to provide participating communities with incentives to undertake conservation efforts even if they incur short of medium term costs (e.g. short term closure of range lands; permanent closure of protected forest lands) or if benefits can only be reaped in the long run (afforestation). The menu offered to communities will vary in accordance with agro-ecological and socio-economic conditions of each village, as well as with farmers' resources and needs. The component includes the following sub-components:

***2a: Small Scale Irrigation.*** Small-scale irrigation (which was the most popular activity under EAWP, and is expected to continue to be so) involves development of one or more water sources, a conveyance system to the irrigation area and a distribution system to the boundaries of the farmers plots. With the objective of raising family incomes through production of high value crops, the project will provide for the construction of small scale irrigation facilities including:

- Diversion constructions (weirs) providing controlled diversion from the rivers and varying according to the river bed and resource conditions;
- Concrete irrigation channels where field conditions permit, providing conveyance without pressure with minimum loss of water;
- Piped water conveyance structures in rough ground where open channel construction is not possible or

- where water is conveyed from source under pressure;
- Farm reservoirs comprising small dams between 7.00 – 15.00 m in height and storing winter and spring flows from the watershed.
- Farm ponds where the water flow rates is less than 20 l/s.

Works will include exploitation of as yet unexploited water sources as well as improvement of existing small scale irrigation schemes. During the MC planning phase a thorough investigation of all potential water sources in a given MC will be carried out. First priority will be given to the development of irrigation ponds located at strategic places through the microcatchment areas, so that a larger segment of the village population can benefit. Streams will have second priority. Only in extreme water short catchment areas without springs and only seasonal streams, will the development of small dams be taken into consideration. It is estimated that the total command area in the 28 project MCs will be about 3,000. Where suitable small-scale freshwater fisheries may be developed in selected MCs.

**2b: Agricultural Production on Terraces.** The project would establish terraces on farmland where continued practicing of agriculture would result in erosion and where capturing of soil moisture is problematic. Technical advice and where necessary seeds for demonstrations will be provided for planting alternative irrigated and rainfed crops (e.g. fodder crops, fruits and vegetables) on terraced land.

**2c: Forestry Based Income Diversification:** This Sub-component seeks to help forest communities make better use of forest resources while conserving the resource base and would include participatory tree planting and grafting of wild trees in forest land.

**2d: Farm Enterprise Diversification:** This sub-component seeks to help farmers diversify and raise their agriculture based income through the introduction of high-value non traditional niche and forage crops, grafting of wild trees, tree planting on field boundaries, apiculture and small scale agro-processing. The project would provide for demonstrations, technical support and marketing advice to help farmers shift to the production of non-traditional high value niche crops such as lavender, thyme, raspberry, rosehip, orchid, triticale, organic products, pharmaceutical plants or seedlings for ornamental plants. Grafting of wild fruit and nut trees aims to improve the quality and quantity of fruits and would be supported through the provision of grafting materials, technical organization of and grafting by experienced grafters and farmer training. Greenhouse horticulture may be supported. Apiculture allows to raise farmer incomes without putting additional pressure on the land and is in particular demand by particularly landless farmers and goat keepers. To increase the durability and value added of crops, farmers would be introduced to simple agro-processing methods which meet food safety and quality standards necessary to sell processed products in urban markets. In an effort to reduce household dependence on the natural resource base, improved breeds of cattle and sheep may be provided.

Under project Component 2, the project will finance civil works for irrigation and agricultural terraces; simple agro-processing equipment, farmer training in technical aspects of income raising activities, marketing advice and operating costs associated with implementing agency staffs' operational travel.

### **Project Component 3 - US\$ 0.28 million**

#### **Strengthening Policy and Regulatory Capacity**

This Component aims at strengthening the policy and regulatory capacity towards meeting EU standards in the area of agricultural pollution. It will consist of the following three sub-components:

**3a: Support for Implementation of the EU Nitrates Directive.** The project would support the monitoring of nitrate levels at selected sites in the four Black Sea provinces as a first step in implementing the EU

Nitrates Directive. The objective would be to monitor areas of intensive agriculture in the watersheds of the Kizilirmak and Yesilirmak Rivers and identify “vulnerable zones”.

**3b: Development and Promotion of a Code of Good Agricultural Practices.** The project would provide technical assistance for the preparation of a Code of Good Agricultural Practices in line with EU requirements. The preparation and ultimate application of such a code is a mandatory part of the EU Nitrates Directive program.

**3c: Institutional Support for Organic Farming.** The project would provide technical assistance to support production and marketing of organically produced products.

Under Component 3 the project would finance technical assistance and training in support of these activities, as well as equipment and operating costs to monitor water and soil quality.

#### **Project Component 4 - US\$1.06 million**

##### **Public Awareness, Capacity Building and Replication Strategy**

Under Component 4 the project would finance public relations campaigns and informational materials, training, and technical assistance as well as computer and other equipment for the rural tele-centers. This component will have the following three sub-components:

**4a: Public Awareness in MC Development:** This sub-component is intended to help raise awareness amongst target beneficiaries and other stakeholders about the program approach and terms of participation in MC development. The goal will be to increase transparency in program implementation and to empower beneficiaries to demand program services. With regard to the four Black Sea provinces, the sub-component would provide for public awareness activities at the provincial and national levels, as well as for future replication of similar activities in Turkey and Black Sea riparian countries.

#### **Project Component 5 - US\$2.50 million**

##### **Project Management and Support Services**

Through 4 sub-components, Component 5 would finance technical assistance, training, office equipment and incremental operating costs associated with project management:

**5a: Project Administration.** This sub-component will provide resources for logistical, operational, and support services, as well as financial services necessary to ensure the efficient administration of project activities and resources by central and provincial project management units.

**5b: Support Services:** This sub-component will fund extension, technical assistance and local and regional visits for project managers, technical project staff and farmers, surveys, and technical designs for monitoring and evaluation.

**5c: Monitoring and Evaluation:** The project provides for upgrading the existing M&E system.

**5d: Fund for Applied Research and Technology Dissemination:** The project would finance short-term, small-scale applied research. This would include soil, water, crop, natural resources management, agricultural pollution, livestock and forestry applied research.

#### **Implementation Arrangements**

Project activities will be implemented by the relevant General Directorates of the Ministry of Environment

and Forestry, and the Ministry of Agriculture and Rural Affairs as follows:

	<b>NAME OF AGENCY</b>	<b>RELATED UNITS</b>	<b>PROJECT COMPONENT</b>
Central	Ministry of Environment and Forestry (MEF)	GD of Afforestation and Erosion control (AGM)	<ul style="list-style-type: none"> <li>● overall planning and coordination/budgeting</li> <li>● soil conservation by afforestation</li> <li>● protection and improvement of poor and degraded soil</li> <li>● gallery plantations</li> <li>● rehabilitation of rangelands in the forest area</li> <li>● participatory afforestation</li> </ul>
		GD of Forestry (OGM)	<ul style="list-style-type: none"> <li>● rehabilitation of oak and degraded forest</li> <li>● inventory of non-wood forest products</li> </ul>
		GD of Forest and Village Relations (ORKÖY)	<ul style="list-style-type: none"> <li>● livestock improvement</li> <li>● freshwater fisheries development</li> <li>● greenhouse development</li> </ul>
		GD of Environmental Management (CYGM)	<ul style="list-style-type: none"> <li>● Construction standards for manure handling facilities</li> <li>● stream water quality monitoring</li> <li>● public awareness and replication strategy for nutrient discharge reduction</li> </ul>
	Ministry of Agriculture and Rural Affairs (MARA)	GD of Development and Agricultural Production (TÜGEM)	<ul style="list-style-type: none"> <li>● range land rehabilitation outside the forest area</li> <li>● agricultural land rehabilitation</li> <li>● agricultural based income raising activities</li> <li>● demonstrations</li> </ul>
		GD of Protection and Control (KKGM)	<ul style="list-style-type: none"> <li>● manure management,</li> <li>● nutrient management,</li> <li>● organic farming</li> <li>● water &amp; soil quality monitoring</li> <li>● nitrate level monitoring</li> <li>● code of good ag. practice</li> <li>● public awareness campaign</li> <li>● demonstrations</li> </ul>
		GD of Rural Services (KHGM)	<ul style="list-style-type: none"> <li>● protection and rehabilitation of agricultural land</li> <li>● small scale irrigation and irrigation facilities, including farm ponds</li> <li>● riverbank and creek rehabilitation</li> <li>● wet and dry terracing</li> </ul>

	<b>NAME OF AGENCY</b>	<b>RELATED UNITS</b>	<b>PROJECT COMPONENT</b>
Provincial	Ministry of Environment and Forestry (MEF)	At the time of Appraisal, a reorganization of regional and provincial directorates was underway with the aim of more fully decentralizing implementation responsibilities.	<ul style="list-style-type: none"> <li>● Overall planning and coordination/budgeting</li> <li>● soil conservation by afforestation</li> <li>● protection and improvement of degraded soil</li> <li>● gallery plantations</li> <li>● rehabilitation of range lands in the forest area</li> <li>● participatory afforestation</li> <li>● inventory of non-wood forest products</li> <li>● wild tree grafting</li> <li>● rehabilitation oak and degraded forests</li> <li>● nutrient management</li> <li>● stream water quality monitoring</li> <li>● public awareness and replication strategy for nutrient discharge reduction</li> <li>● livestock improvement</li> <li>● freshwater fisheries development</li> <li>● greenhouse development</li> </ul>
	Ministry of Agriculture and Rural Affairs (MARA)	At the time of Appraisal, a reorganization of regional and provincial directorates was underway with the aim of more fully decentralizing implementation responsibilities.	<ul style="list-style-type: none"> <li>● rehabilitation of rangelands outside of forest areas</li> <li>● rehabilitation of agr. land</li> <li>● ag. based income raising activities</li> <li>● manure management,</li> <li>● nutrient management,</li> <li>● organic farming</li> <li>● MC water &amp; soil quality monitoring</li> <li>● nitrate level monitoring</li> <li>● code of good ag. practice</li> <li>● public awareness campaign</li> <li>● demonstrations</li> <li>● small scale irrigation</li> <li>● riverbank rehab.</li> <li>● terracing</li> </ul>

**Annex 3: Estimated Project Costs**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

<b>Project Cost By Component</b>	<b>Local US \$million</b>	<b>Foreign US \$million</b>	<b>Total US \$million</b>
Component 1: Rehabilitation of Degraded Natural Resources	18.55	1.73	20.28
Component 2: Income Generating Activities	13.80	1.04	14.84
Component 3: Strengthening Policy and Regulatory Capacity towards Meeting EU Standards	0.18	0.07	0.25
Component 4: Awareness Raising, Capacity Building, and Replication Strategy	0.78	0.23	1.01
Component 5: Project Management and Support Services	2.16	0.29	2.45
<b>Total Baseline Cost</b>	35.47	3.36	38.83
<b>Physical Contingencies</b>	3.10	0.20	3.30
<b>Price Contingencies</b>	2.58	0.20	2.78
<b>Total Project Costs<sup>1</sup></b>	41.15	3.76	44.91
Front-end fee		0.20	0.20
<b>Total Financing Required</b>	41.15	3.96	45.11

<sup>1</sup> Identifiable taxes and duties are 3.58 (US\$m) and the total project cost, net of taxes, is 34.53 (US\$m). Therefore, the project cost sharing ratio is 57.92% of total project cost net of taxes.

## Annex 4: Cost Benefit Analysis Summary

### TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT

#### *Summary of Benefits and Costs:*

The analysis takes a holistic view of the project impacts and interventions. While some interventions may have higher or lower internal rates of return (IRR) when considered in isolation, they complement each other and will yield full benefits within the context of integrated microcatchment MC rehabilitation. Accordingly, the present cost benefit analysis has been carried out in four stages: (i) estimation of net financial benefits of project activities aiming at natural resource rehabilitation and erosion control, intensification and diversification of farming systems, and employment generation; (ii) construction of representative MC models (financial); (iii) economic analysis at the project level (28 MCs); and (iv) sensitivity analysis to test the robustness of the results. This analysis indicates that the proposed combination of interventions should be attractive from the financial point of view to target communities in MCs at various altitudes, but that the financial performance of MC development plans largely depends on the balance between rehabilitative and income generating interventions. Details of this last analysis are not presented in this annex, but are available in the project files.

#### *Net Financial Benefits of Project Activities*

#### **Natural Resource Rehabilitation and Erosion Control**

The benefits of rehabilitation and conservations measures have been measured in two steps: (i) income streams from rehabilitative investments (e.g. additional wood production) and, (ii) benefits from reduced erosion as measured by reduced soil loss, higher agricultural yields and reduced flood damage.

**Direct Income from Rehabilitative Investments:** Among the protective project interventions, only participatory planting, range land management and range land rehabilitation are expected to yield tangible benefits to the communities, with the benefits in most cases only accruing after 5-10 years. Given their costs to participating communities, it is essential that these protective activities be complemented by income generating activities which will allow MC communities, in particular those persons who will lose from protective interventions, to derive and increase their household income from alternative sources. Table 1 below summarizes financial benefits of rehabilitative measures. It must be noted, however, that while the main benefits of these rehabilitative measures can not be captured by measuring direct incremental income generated from these investments, the main benefit of these investments is the rehabilitation and restoration of the resource base in the MC area. This is a pre-condition for the generation of benefits of essentially all other project benefits and furthermore has significant additional environmental benefits some of which are difficult to quantify, while others will be quantified in the next section.

**Table 1: Summary of Benefits from Forestry and Range Land Rehabilitation**

	First year in which positive net benefits occur	Year in which full benefits are reaped	Incremental benefits/ha at full maturity (TL mil/ha)	IRR 25 yrs
Participatory planting	5	20	5,231	
Range land management	5	6	19	-0.2%
Range land rehabilitation	6	8	19	-2.9%

**Benefits from Erosion Control:** The main expected benefits from erosion control activities are (i) reduction in surface erosion induced soil loss; (ii) progressive restoration of higher quality vegetative cover with sustained higher productivity of treated areas (both in rangeland and forest areas) as well downstream agricultural areas; (iii) reduced flood risk in the MCs and downstream and reduced impact of remaining floods on villages and agricultural areas; (iv) reduced sedimentation in canals and dam reservoirs; (v)

increased infiltration of rain water and thus water content of forestry and agricultural land leading to greater availability of water for animal and human consumption and higher soil moisture; (vi) improved environmental conditions due to increased vegetative cover leading to better conditions for wildlife, carbon sequestration and more humid local microclimates; (vii) reduced cost of water treatment for human consumption downstream as a result of reduced water turbidity.

Methodological difficulties and absence of data, prevent the quantification of all benefits. The present cost-benefit analysis includes a quantification of the benefits from reduced soil loss, progressive improvement of soil quality and thus agricultural yields and of reduced flood control costs. The quantification of benefits from reduced siltation of dams was not included, as the project area only affects less than 1 percent of the catchment area of concerned dams.

A conservative estimate is that about 1.5 million tons of sediments are lost to erosion annually in the 28 project MCs<sup>1</sup>. Results elsewhere in Turkey showed that erosion decreases from 16,000 tons per km<sup>2</sup> of fallow (nude soils) to 1,360 tons on pastures and to negligible values on forest land. Therefore afforestation activities could reduce erosion by up to 100 percent. Under the project, the combination of forestry and rangeland management and improvement activities has been assumed to reduce erosion by 80 percent. However, this will be slow to materialize and this result is assumed to materialize progressively after 5 years and to reach full potential after 10 years. Then, an estimated 1.5 million tons of soil which would have been eroded without project will be “saved” from erosion. To quantify the value of this reduction in soil loss, soil losses in tons were translated into soil losses in area, with one 1 ton of soil loss translating into 3m<sup>2</sup> of lost soil<sup>3</sup>. The cost of this loss was valued at the average net return of land subject to erosion in the project area, which is about US\$ 68/ha per year. As a consequence, one ton of sediment lost, corresponding to a permanent loss of 3 m<sup>2</sup>, would lead to an annual productivity loss of US\$ 0.021. A loss of 1.5 million tons of sediments corresponds to an annual loss of about US\$ 31,000. However, the loss of soil being permanent, these productivity losses would cumulate over time and reach US\$ 310,000 per year after 10 years. Under the project, erosion would progressively be reduced by 80 percent and it is estimated that in PY 20, annual savings would reach 400 billion TL, or US\$ 300,000 per year.

**Effects on yields:** Both farmers and technical services recognize that erosion is negatively affecting agricultural yields in the project area. However, no reliable data exists for Turkey which would allow to document this impact. In the absence of specific data related to the project area or Turkey, the following very conservative assumption has been applied: productivity would decrease by 1 percent every year without project as a result of continuing erosion; these losses would progressively be reduced and yields would stabilize after 5 years as a result of erosion control activities. This very conservative assumption would lead to an annual saving of about 380 billion TL (US\$ 280 thousand) after 10 years.

**Flood Control.** Damage caused by floods averages about US\$ 1.12 million per year in the three major watersheds concerned by the project. Reduced erosion has a great impact on the frequency and scope of floods by sharply reducing the peaks of water flow both through increased infiltration and slowing down the flow where vegetation cover is restored. However, at an average area of 40km<sup>2</sup>, the 28 MCs covered by the project account for only about 2.4 percent of the area of these watersheds. Therefore the reduction of erosion resulting from project implementation has been assumed to progressively reach 50 percent of 2.4 percent of these damages which can be attributed to the 28 MCs forming the project area. After 10 years, annual savings would reach about US\$ 30,000.

### **Benefits of Agricultural Intensification and Diversification**

**Crop Budgets:** Crop budgets were developed for each of the main income generation activities to be promoted under the project. The following assumptions underlie these budgets: (i) budgets were prepared in TL and farm gate prices were used; (ii) for perennial crops, a projection over 20 years was done, with full production assumed to gradually occur between year 3 and year 10, depending on the crop; (iii) family labor was considered as a financial cost, hired labor (assumed to represent 10 percent in the case of annual crops and 30 percent for perennial crops) was valued at TL 6 million per labor day. Net annual benefits per hectare were calculated for annual crops and average annual incomes (over 20 years) and financial rates of return (FRR) for the perennial crops. Detailed results of these crop budgets are available in the Financial and Economic Analysis Project Preparation Report in the project files.

**Fallow Reduction:** An activity model for fallow reduction shows that the average net annual income per ha from agriculture would more than double from a very low 213 million TL to 461 million TL. It is estimated that the incremental availability of fodder for animal feeding could reach a total of 4,585 tons at full development, if fallow reduction is implemented on 1,834 ha, leading to incremental annual benefits of TL 334 billion as of year seven.

**Small Scale Irrigation:** The project would provide for the development of about 3,940 ha of newly irrigated land which would allow to convert from the current extensive production of cereals to a more intensive cultivation of higher value crops. Cost-benefit models for two typical irrigation schemes were prepared (irrigation pond covering 5 ha or irrigated land, irrigation dam covering 30 ha). Financial rates of return (calculated over 20 years) are estimated at 30 percent and 27 percent for irrigation pond and irrigation dam respectively. From the farmers' viewpoint, the investment is even more profitable as they would have to bare only a small share of the investment cost estimated at 20 percent. The financial rates of return from their viewpoint are estimated at respectively 92 percent and 81 percent. Further details are available in the project file.

**Impact On Animal Husbandry:** The project will provide grant financing for dairy cow and sheep keeping activities by inhabitants of project MCs who agree to arrangements for improved range management, to compensate them for their losses from reduced goat flock sizes. The support will include the provision of two improved cows in calf or of 30 sheep and one ram, and support towards the construction or improvement of a 5-animal stall or sheep pens. Experience suggests that former goat keepers prefer to first switch to sheep keeping rather than shifting to cow keeping which may require more skills. Nevertheless the project will make sure that the number of sheep introduced through this activity will not lead to overgrazing. Furthermore, in line with the spirit of coordinated MC planning, the project will require that the farmers it supports will also be engaged in fodder crop production supported by TÜGEM to ensure that their livestock does not pose a threat to rangeland. Support is envisaged for 168 dairy cow units (i.e. 2 improved cows per unit) and 169 dairy sheep units (i.e. 30 sheep and 1 ram per unit). The average support per investment will be about USD 7,850 for dairy sheep and USD 10,800 for dairy cows. ORKÖY envisages about 50% in-cash or in-kind (or some combination thereof) co-funding from beneficiaries.

### **Summary of Benefits and Costs:**

For purposes of the project's overall cost benefit analysis the entire project area (28 MCs) has been considered and treated as a giant MC in which all project activities are implemented over a 7 year period. The phasing of physical activities was multiplied by net economic returns per unit as calculated in the economic activity models and crop budgets. The costs of all other activities for which no benefits were estimated were included in the calculations. Financial prices were replaced by economic values in the crop budgets and activity models. Another major difference between financial and economic models is that the latter attribute a value to the economic cost of family labour -- not the case in the financial models.

The economic rate of return (ERR) was calculated over a 25 years period (as most of the activities are expected to have a long term impact) . The ERR including all project benefits is 18.6 percent and the net present value (NPV) calculated with an annual discount rate of 12 percent is 20.7 trillion TL, or US\$ 15.3 million. Benefits from irrigation activities make up a large part of the IRR and NPV. In Project Year 20, they account for about 60 percent of the entire economic benefits, while benefits from agricultural activities account for about 18 percent and benefits from erosion reduction for about 22 percent.

### **Main Assumptions:**

1. This estimate is based on an observed annual average sedimentation of 453 tons/km<sup>2</sup> in the rivers of the three major watersheds to which the participating 28 MCs belong and the assumption that the project MCs contribute to these sediments in proportion to their area (average area of 40 km<sup>2</sup> per MC). This is a conservative estimate, as erosion is above average in the selected MCs and the observed sediments are averages over 30 years which do not take into account recent increases in erosion levels.
2. Status Report: “Erosion in Turkey” prepared in Feb 1998 in the context of a Forestry Sector Review jointly undertaken by the MoF and the WB<sup>2</sup>.
3. Estimates are based on average soil depth of 20cm and average soil density of 1 m<sup>3</sup>=1.665tons, see Financial and Economic Analysis Project Preparation Report (in project files) for details.

### **Sensitivity analysis / Switching values of critical items:**

The sensitivity analysis is summarized in Table 2 and shows that the economic performance is solid with respect to possible variation in the benefits and costs materialized.

**Table 2.**

	ERR	NPV (US\$ million)
Base Case	18.6%	15.3
Costs increased by 20%	16.7%	12.0
Benefits decreased by 20%	16.3%	7.6
Cost +20% and Benefits – 20%	14.4%	5.7
Benefits delayed by 2 years	18.3%	13.7

The sensitivity of the net project benefits to the materialization of two key project benefits was also tested. First, an estimation of economic benefits if the impact from conservation activities on erosion would not materialize. The results indicate that the project would still be economically feasible even in the absence of erosion reduction benefits. Second, to show the importance of irrigation development in the economic viability of the project, the irrigation sub-component was subtracted from the analysis. Without irrigation benefits, the project would just barely be economically viable. Results are summarized in Table 3.

**Table 3.**

	ERR	NPV (US\$ million)
Base Case	18.6%	15.3
Erosion Control Benefits not Materializing	18.1%	13.7
No Irrigation Sub-component	12.3%	0.4

**Annex 5: Financial Summary**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

Years Ending  
December 31

	IMPLEMENTATION PERIOD						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>Total Financing Required</b>							
<b>Project Costs</b>							
<b>Investment Costs</b>	2.7	6.9	8.0	8.1	6.6	4.1	1.8
<b>Recurrent Costs</b>	0.4	0.6	0.8	1.0	1.2	1.4	1.4
<b>Total Project Costs</b>	3.1	7.5	8.8	9.1	7.8	5.5	3.2
<b>Front-end fee</b>	0.2						
<b>Total Financing</b>	3.3	7.5	8.8	9.1	7.8	5.5	3.2
<b>Financing</b>							
<b>IBRD/IDA</b>	1.0	3.6	4.0	4.1	3.6	2.5	1.1
<b>Government</b>	0.8	1.7	1.8	1.8	1.6	1.1	0.7
<b>Central</b>	0.6	1.6	1.7	1.7	1.5	1.0	0.5
<b>Provincial</b>	0.2	0.1	0.1	0.1	0.1	0.1	0.2
<b>Co-financiers</b>							
<b>Local Communities</b>	0.2	0.9	1.4	1.7	1.7	1.6	1.2
<b>Global Environment Facility</b>	1.3	1.3	1.6	1.5	0.9	0.3	0.2
<b>Total Project Financing</b>	3.3	7.5	8.8	9.1	7.8	5.5	3.2

**Main assumptions:**

**Annex 6(A): Procurement Arrangements**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

**Procurement**

Procurement of goods, works and technical services financed by the World Bank and GEF will be done in accordance with the World Bank Guidelines: *Procurement under IBRD Loans and IDA Credits* (issued in January 1995, Revised January and August 1996, September 1997 and January 1999).

Consulting services and technical assistance financed by the World Bank and GEF will be done in accordance with the World Bank Guidelines: *Selection and Employment of Consultants by the World Bank Borrowers* (issued in January 1997, revised September 1997, January 1999 and May 2002).

The Bank's Standard Bidding Documents and Request for Proposals will be used. Works, goods and services which are not financed by the Bank would be procured in accordance with the arrangements agreed between the financier and the Government. A General Procurement Notice will be published in the Development Business of the United Nations after the Loan negotiations completed.

**II. Implementation:**

There will be two Ministries responsible for the implementation of this project, which are namely:

1. Ministry of Environment and Forestry (MEF)
  - General Directorate of Afforestation and Erosion Control (AGM)
  - General Directorate of Forestry (OGM)
  - General Directorate of Environmental Management (CYGM)
  - General Directorate of Forestry and Village Relations (ORKOY)
2. Ministry of Agriculture and Rural Affairs (MARA)
  - General Directorate of Agricultural Production and Development (TUGEM)
  - General Directorate of Protection and Control (KKGM)
  - General Directorate of Rural Services (KHGM)

Ministry of Environment and Forestry (MEF) will be the coordinating agency for the proposed project and play key role in the implementation of the project.

Project Management Group (PMG) will be responsible for overall project management. A Project Coordinator will head the PMG and membership will comprise representatives of all Ministries/central agencies (implementing agencies) listed above having project activities. The PMG will be responsible for: i) overall project coordination; ii) review and approval of microcatchments plans; and iii) annual budget proposals for all project activities. An Operations Unit (OU) will serve the PMG. Within each implementing agency, a Project Management Unit (PMU) at the central level will oversee project activities. At the provincial level, Provincial Project Management Team made up of line agencies will be responsible for managing project implementation. The OU will be located at the premises of MEF-AGM and will have 3 sub-units to the satisfaction of the Bank: i) Financial Management; ii) Procurement; and iii) Monitoring and Evaluation.

Procurement Sub-Unit (PSU): will have four procurement specialists (including one primarily for handling

GEF expenditures) and will be responsible from coordinating all procurement activities of the project, one of them being the leader of the procurement team.

Financial Management Sub-Unit (FMSU): will have a financial manager, an accountant and a disbursement officer and will be responsible from all project financial management activities.

Monitoring and Evaluation Sub-Unit (MESU): will have two M&E specialists, employed for at least four months a year (one of whom will focus on GEF activities), and a secretary/interpreter.

All procurement activities within the scope of Project will be under the responsibility of OU-PSU, where at least two professional (individual consultant/one of them will primarily work for GEF) procurement specialists will be employed. It was agreed that procurement related decisions that will be taken at the related implementing agency will be discussed at the Project Management Group (PMG) and implemented by the Bidding Committees which will comprise of experienced technical staff from related implementing agency as well as procurement staff from OU. If needed, update(s) in the procurement plan will be proposed by the implementing agencies, and after the approval of the PMG/OU the updated procurement plans will be send to the Bank's clearance. Any revision in the procurement plans shall not be valid without Bank's prior concurrence and no-objection (please see paragraph IV below). Procurement activities that will be managed at the provincial level will be closely supervised by relevant central agency and OU, and the field offices will take no procurement action, unless the decision is approved by OU.

The implementing agencies listed above will be primarily responsible in preparation of the procurement documents such as advertisements, scope of works, terms of references, technical specifications, delivery sites, drawings, bill of quantities etc..In order to apply the Bank procurement procedures and rules properly, Implementing Agencies will obtain the participation of the PSU procurement experts when they prepare the bidding documents. The PSU procurement experts will also help the implementing agencies during the evaluation stage of the expression of interests and bids/proposals, establishing short lists, contract negotiations (consultants services only) and contract preparations in terms of Bank's procurement procedures.

All the Bank financed procurement activities will be performed under the management of the OU-PSU, and without the clearance of the OU-PSU on the procurement activities no procurement will be performed. The procurement documents which are subject to prior review of the Bank will be send to the Bank through OU-PSU (please see paragraph IV below).

The contracts will be signed by the relevant Implementing Agencies after all clearances from the OU-PSU and the Bank are obtained. The cop(ies)y of the contracts will be send to the OU-PSU for their records and payment purposes. The contracts will be executed by the relevant Implementing Agencies. The contract payments will be done by OU against evidences and invoices submitted by the Implementing Agencies.

MEF and MARA have field units in all of the 81 provinces. The project area includes 6 provinces in the Central Anatolia and Black Sea Regions of Turkey and the field units of these ministries will be responsible for tendering small construction works and procuring small size of locally available goods. However, they have a limited experience and no training in the Bank's procurement procedures. Whenever required, the provincial project staff will be trained by OU-PSU specialists regarding the procurement activities.

All bidding documents for the procurement of Bank financed goods, works and services shall be prepared by the implementing agencies with the participation of OU-PSU experts. At the provincial level the responsible team of the line agencies will prepare the small size procurement documents under the

supervision of central management of the relevant agencies and PSU. All the procurement documents will be cleared by OU-PSU before any action.

A Project Launch Workshop shall be held after the effective date of the Loan/Trust Fund Agreement to reaffirm the PSU's and implementation units' understanding of the procurement procedures under the Anatolia Watershed Rehabilitation Project.

### **III. Procurement Arrangements:**

The following procurement methods will be applicable for the procurement of goods, works and services.

#### **(a) Procurement of Goods:**

The goods to be financed by the Bank include the following: agricultural seeds; fruit tree seedlings; seeds for forest trees; forest tree seedlings; greenhouses; fishponds; dairying; breeding; fertilizer; bees; beehives and kits laboratory; field, office, survey equipment and machinery.

International Competitive Bidding (ICB): These contracts will be procured through ICB in accordance with the Bank's Procurement Guidelines.

National Competitive Bidding (NCB): The contracts for the procurement of locally available goods estimated to cost less than US\$300,000 per contract will be procured through NCB in accordance with the Bank's Procurement Guidelines.

International Shopping (IS): The contracts for the procurement of readily available off-shelf goods estimated to cost less than US\$ 100,000 per contract will be procured through IS on the basis of at least three quotations obtained from suppliers from two eligible source countries in accordance with the Bank's Procurement Guidelines.

National Shopping (NS): The contracts for the procurement of locally available off-shelf goods estimated to cost less than US\$ 50,000 per contract will be procured through NS on the basis of at least three quotations obtained from domestic suppliers in accordance with the Bank's Procurement Guidelines.

Direct Contracting (DC): The procurement of goods, which (i) would be an extension of an existing contract, (ii) must be purchased from the original supplier to be compatible with the existing equipment, (iii) are of a proprietary nature, (iv) must be procured from a particular supplier as a condition of a performance guarantee, (v) must be purchased from the only available source, with the Bank's prior agreement, will be done through DC in accordance with the Bank's Procurement Guidelines.

#### **(b) Procurement of Works and Technical Services:**

The works to be financed by the Bank include the following;

- afforestation services for soil conservation,
- protection and improvement services for degraded soils,
- plantation and rehabilitation services for forestry areas,
- construction of small scale irrigation works,
- riverbed rehabilitation,
- construction of agricultural terraces,
- construction of central and farm stores for manure management,

- construction of green houses,
- construction of fishponds.

International Competitive Bidding (ICB): These contracts will be procured through ICB in accordance with the Bank's Procurement Guidelines.

National Competitive Bidding (NCB): The contracts for the procurement of technical services and construction works estimated to cost less than US\$ 3 million per contract will be procured through NCB in accordance with the procedures acceptable to the Bank and also in accordance with the Bank's Procurement Guidelines.

Minor Works (MW): The contracts for the procurement of small scale rehabilitation, plantation and construction works estimated to cost less than US\$ 100,000 per contract will be procured through MW based on at least three quotations obtained from qualified domestic contractors in response to written requests.

**(c) Procurement of Consulting Services:**

The consulting services to be financed by the Bank include the following: monitoring and evaluation, agricultural marketing, soil and water pollution monitoring, livestock waste management, simple agro-processing, code of good agricultural practices, organic agriculture, public awareness, communication specialist.

Quality and Cost Based Selection (QCBS): The consulting services to be contracted to consulting firms will be procured on the basis of QCBS procedure in accordance with the Bank's Consultants Guidelines.

Selection Based on Consultants' Qualifications (CQ): The consulting services to be contracted to consulting firms estimated to cost less than US\$ 100,000 will be procured on the basis of CQ procedure in accordance with the Bank's Consultants Guidelines.

Individual Consultants (IC): The consulting services for strengthening project management and implementation to be contracted to individual consultants will be procured on the basis of Individual Consultants in accordance with the Bank's Consultants Guidelines. For the individual consultants to be hired for more than six months duration, the positions will be advertised for expressions of interest in international and/or national media depending on the expertise required and selection will be based on comparison of qualifications of those expressing interest.

Single Source Selection (SS): The consulting services, which (i) would be a natural continuation of previous work carried out by the firm, (ii) must be selected rapidly due to an emergency need, (iii) has an exceptional nature where only one firm is qualified or has experience of exceptional worth for the assignment, (iv) is estimated to cost less than US\$ 100,000, with the Bank's prior agreement, will be done procured through SS in accordance with the Bank's Consultants Guidelines.

**(d) Procurement from Government Owned Enterprises:**

It is recognized that the agricultural inputs such as forestry seedlings, fruit bearing forest seedlings, fruit tree seedlings, forest tree seeds, agricultural seeds, bee hives etc. to be provided under the project have unique characteristics (such as sensitivity to local soil conditions, topography, climate) which would render competitive bidding as goods through ICB or even NCB procedures impractical. Nevertheless, it is

recognized that at least some of this type of material may be available from private sources on the localized marketplace and in some instances could be purchased through local competitive bidding when suitable items meet the quality standards (including disease free condition) specified. It is only when suitable agricultural inputs are not available on the open market or suitable sources on the open market have been exhausted, that purchases from Government Owned Enterprises (GOEs) would be allowed. Furthermore, when more than one GOE source is available, the project authorities should insure that the purchases would be made from GOE that would be the most economical while still satisfying the quality aspects of the project. In categorical terms, the procurement of these agricultural inputs would follow the following steps:

When the suitable agricultural input is available from private sources on localized marketplace; it will be procured:

- (i) through national shopping procedures for contracts less than US\$50,000 equivalent,
- (ii) through local competitive bidding procedures satisfactory to the Bank for all other contracts.

When the suitable agricultural input is only available from GOEs, it will be procured:

- (i) from the most economical source when more than one GOE source with suitable agricultural input is available,
- (ii) by direct contracting with a GOE when it is the only source of suitable agricultural input.

As result, the Bank (OPCPR) agrees, on an exceptional basis, with the procurement of above listed agricultural inputs and services from government owned enterprises under the scope of the project, if and when they can not be procured from private sources in local market. The subject agencies are the Government agencies and they are not eligible according to paragraph 1.8 (c) of the Bank's Procurement Guidelines. More specifically, they are not legally and financially autonomous; they do not operate under commercial law; they are the dependent agencies of the Borrower or the Sub-Borrower i.e. implementing Ministries. However, because of specific nature of the project and when there is no private sector alternatives for these agricultural inputs and services, the direct procurement from government owned enterprises will be considered. Therefore, the implementing agencies shall procure some agricultural inputs and services (e.g. digitized maps) from government owned enterprises under the scope of this project through the above-explained methodology. The details of these procurements are explained under Annex 14 to this Project Appraisal Document.

#### **(e) Training and Study Tour Expenditures:**

The PMG shall prepare detailed training programs for every six months in consultation with the implementing agencies. The Training Programs shall contain time schedules for workshops, seminars, study tours and travels etc. including detailed information on the content, itinerary, location, number of beneficiaries, cost estimates for each activity etc. These training programs shall be submitted to the Bank for review and clearance before implementation. After the Bank's clearance, the program shall be implemented in accordance with the agreed procedures without requiring the Bank's clearance of each component of the training program. The status of the training program will be included as part of progress reports and will be updated and/or modified as may be mutually agreed between the related Ministries and the Bank.

The training services expenditures consist of subsistence and travel (local and/or international) costs incurred by trainees, training fees, provision of training materials and handouts, trainers' fees etc. These expenditures will be directly reimbursed subject to the presentation by the PMG of Statement of Expenditures.

**(f) Operating Costs of OU (Recurrent Costs):**

The incremental operating costs associated with the project include OU, PMG and PMU staff salaries, bank charges and to maintain Special Account. All incremental operating costs will be financed by the Government.

The other operating costs including operating and maintenance cost of office equipment, stationary and cost of advertisement for procurements under the project shall be financed through Loan proceeds.

**IV. Procurement Review By The Bank:**

The PSU shall use the latest versions of the Bank's Standard Bidding Documents (SBD) for the procurements financed by the Bank.

**Scheduling of Procurement.** Procurement of goods, works and services for the project will be carried out in accordance with the agreed procurement plan, which will be updated as necessary and included in the progress reports for Bank review and approval. The Bank will review the procurement arrangements proposed by the Borrower, including contract packaging, applicable procedures, and the scheduling of the procurement processes, for its conformity with Bank Procurement and Consultant Guidelines, the proposed implementation program and disbursement schedule.

**(a) Prior Review:** The following procurement action and documentation would be subject to Prior Review by the Bank.

**Goods, Works and Technical Services:** Prior review of Bidding Document (including, Invitation to Bid, Instructions to Bidders and Bid Data Sheet, General and Special Conditions of Contract, Bid Forms, Schedule of Requirements, Technical Specifications, Bill of Quantities), Bid Evaluation Reports; Recommendations of Contract award.

**Consultant Services:** Prior review of procurement documents and actions which will include:

**QCBS:** Prior review of (1) short listing criteria for consulting assignments; (2) Consultants Short Lists; (3) complete Request for Proposal (RFP) package (including Invitation, Information to Consultants and Data Sheet, General and Special Conditions of Contract, Technical Proposal standard forms, Financial Proposal standard forms, and Form of Contract); (4) Terms of Reference, including description of services, consultants' reporting requirements, and required qualifications of consultants' key personnel; (5) Technical and Financial Evaluation Reports (including official minutes) and Recommendations for contract award; and (6) Negotiated Draft Contract.

**Individual Consultant (IND) contracts of US\$ 50,000 and above:** Prior review of : (1) Consultants Short Lists; (2) Draft Contract Agreement; (3) Terms of Reference, including description of services and consultants' reporting requirements; and (4) Agreed Draft Contract.

**IND contracts of below US\$ 50,000:** Prior review of: (1) criteria for short listing consultants; and (2) Terms of Reference will be conducted.

The Bank's prior review of procurement action would cover the following;

- i. All ICB contracts for goods and works

- ii. First three NCB contracts for goods and works
- iii. First three Minor Works contracts
- iv. First three IS and NS contracts
- v. All contracts awarded under Direct Contracting Procedures
- vi. All contracts awarded to Government Owned Enterprises
- vii. All contracts with consulting firms estimated to US\$ 100,000 or more each
- viii. All contracts with individual consultants estimated to US\$ 50,000 or more each
- ix. All contracts awarded under Single Source Selection
- x. The Terms of Reference for all consultant contracts with consulting firms and individuals

A complete set of procurement documentation, as specified above, for contracts which require prior review, shall be submitted to the Bank before taking any action for review and clearance by the Bank's Procurement Specialist and the relevant technical staff.

**(b) Post Review:** The procurement documents for all other contracts shall be subject to the Bank's post review on a random basis, one in five contracts. Post review of the procurement documents will normally be undertaken during the Bank supervision mission or as the Bank may request to review any particular contracts at any time. In such cases, the PMG shall provide the Bank for its review the relevant documentation including bidding documents issued to the bidders, letter of invitation to quote, minutes of bid opening, bid evaluation reports, copies of bid proposals, signed contracts etc. The periodic post reviews shall be conducted by the Bank's Procurement Specialist. The outcome of the post review will be communicated by the Bank to the PMG at the earliest time.

#### **V. Procurement Monitoring and Reporting:**

The PSU will keep a complete and up-to-date record of all procurement documentation and relevant correspondence in its files, which will be reviewed by the Bank staff during supervision missions. The Procurement Plan for the project shall be prepared/consolidated by the PSU and furnished to the Bank for its review and approval in accordance with the provisions of the Bank's Procurement Guidelines. The Procurement Plan, which indicates the procurement arrangements, contract packaging, applicable procurement method, scheduling of procurement process, estimated cost etc. will be updated annually by the PSU. All procurements shall be undertaken in accordance with the Procurement Plan.

Monitoring reports on procurement progress will be submitted as part of progress reports on program implementation. The report shall include all information related with the completed, on-going and planned contracts.

#### **VI. Action Plan To Build Up The Agency's Capacity:**

**Tasks Completed:** The procurement file containing the up to date procurement documents such as guidelines, templates of procurement notices, standard bidding documents for the procurement of works and goods under ICB, NCB, MW and IS/NS methods, Standard Request for Proposal document for the consultants services, standard consultants contracts for large and small assignments and for time based and lumps-sum payments, evaluation report formats have been prepared in hard copy and in electronic versions on diskettes and provided to the implementing agencies staff during the preparation of the capacity assessment. Although they are familiar with the Bank's documents, the latest versions of the documents shall be used in the new project. The OU has arranged for translating the related procurement documents, into Turkish such as National Competitive Bidding, Minor Works, National Shopping and will provide the translations to the Implementing Agencies and their provincial directorates.

**April 2004-May 2004:** OU shall appoint at least 2 persons who will be working full-time for the procurement activities under the scope of the project. The qualifications of the procurement staff shall be reviewed by and agreed with the Bank. Since the project activities require close coordination among various agencies together with provincial/regional directorates, these 2 persons shall work very closely with the other agencies too. Each implementing agency shall also appoint at least 1 person for the procurement activities under the scope of the project. The assigned persons will participate the training course which will be arranged by the Bank for the Borrower's staff in April 2004.

At least two experienced procurement consultants shall be recruited before the Loan/Grant effectiveness (January 2005). These positions will be advertised after the Loan/Grant signing (November 2004) to get these consultants in place immediately after the loan effectiveness date. The procurement consultants shall have at least 3 years experience with Bank financed projects and shall work very closely with the staff of OU and all implementing agencies mainly for the preparation of bidding documents primarily for large procurements. The TOR and CV of the procurement consultants shall be reviewed and approved by the Bank before signing the contract.

**January 2005:** The former PAS has already organized two-days procurement familiarization seminar in early 2002, for project related staff from related departments of the implementing Ministries who would be potentially involved in different aspects such as technical, financial, legal aspects of the project. This seminar served as both introduction of Bank's procurement procedures and updating their previous knowledge. Another similar seminar shall be scheduled during the Project Launch Workshop to be held in January 2005 after the Loan effectiveness date for the whole project staff again.

**Within one year after the Loan Effectiveness:** None of the staff has any formal training on the Bank's procurement except that they gained experience while working in the Bank financed projects. At least 2 staff of OU shall attend procurement training offered by ILO Turin in the early stages of the project.

**In the lifetime of the project:**

- In order to overcome the problems at the bid evaluation stage; qualified and experienced technical staff of implementing agencies, especially those who have some knowledge of the Bank's procurement and evaluation procedures should be appointed as evaluation committee members. At the beginning of each procurement, just after the finalization of the bidding documents, evaluation committee members should be appointed and they should start reviewing and being familiar with the bidding document and evaluation methodology stipulated in the bidding document. Then, before the receipt of bids, procurement staff should meet with the evaluation committee members to explain the Bank's evaluation methodology.
- The Ministries' internal approval procedures should be reconsidered to avoid long delays and if possible, delegation of approval authority up to certain monetary values should be taken into consideration.
- The OU should start using electronic filing and electronic communication as early as possible to improve its capacity.
- Each Bank Supervision Mission shall include the procurement specialist assigned to this project to assist the OU staff for updating the procurement plan and resolving pending procurement issues to overcome delays.

Procurement methods (Table A)

**Turkey - Anatolia Watershed Rehabilitation Project-Loan Financed Components**  
**Table A: Project Costs by Procurement Arrangements (US\$ million equivalent)**

Expenditure Category	Procurement Method				Total Cost
	ICB	NCB	Other	NBF	
A. Works	-	5.00 (3.50)	13.30 (9.31)		18.30 (12.81)
B. Goods	-	-	6.30 (5.47)		6.30 (5.47)
C. Consulting Services	-	-	0.72 (0.56)	-	0.72 (0.56)
D. Training	-	-	0.21 (0.16)	-	0.21 (0.16)
D. Incremental Operating Costs	-	-	1.60 (0.80)		1.60 (0.80)
E. Front End Fee	-	-	0.20 (0.20)	-	0.20 (0.20)
<b>TOTAL</b>		5.00 (3.50)	22.33 (16.50)	0.00 0.00	27.33 <b>(20.00)</b>

**Turkey - Anatolia Watershed Rehabilitation Project - GEF Financed Components**  
**Table A: Project Costs by Procurement Arrangements (US\$ million equivalent)**

Expenditure Category	Procurement Method				Total Cost
	ICB	NCB	Other	NBF	
A. Works	-	3.54 (2.06)	1.85 (1.70)	-	5.39 (3.76)
B. Goods	-	-	1.58 (1.35)	-	1.58 (1.35)
C. Consulting Services	-	-	1.53 (1.20)	-	1.53 (1.20)
D. Training	-	-	0.33 (0.28)	-	0.33 (0.28)
E. Incremental Operating Costs	-	-	0.82 (0.41)	-	0.82 (0.41)
E. Front End Fee	-	-	-	-	-
<b>TOTAL</b>	-	3.54 (2.06)	6.11 (4.94)	-	9.65 (7.00)

**Table B: Thresholds for Procurement Methods and Prior Review-Loan**

<b>Expenditure Category</b>	<b>Contract Value Threshold (US\$ thousands)</b>	<b>Procurement Method</b>	<b>Contracts Subject to Prior Review (US\$ million)</b>
1. Works	> or equal 100	NCB	0.50
	<100	MW	0.20
2. Goods	<50	NS	0.15
3. Consultants' Services	<100	CQ	0.21
	<50	IND	0.72
4. Training	Subject to provision of approved training plan		

**Table B: Thresholds for Procurement Methods and Prior Review- GEF**

<b>Expenditure Category</b>	<b>Contract Value Threshold (US\$ thousands)</b>	<b>Procurement Method</b>	<b>Contracts Subject to Prior Review (US\$ million)</b>
1. Works	> or equal 100	NCB	0.90
	<100	MW	0.25
2. Goods	<50	NS	0.12
3. Consultants' Services	> or equal 100	QCBS	1.00
	<100	CQ	0.10
	<50	IND	0.25
4. Training	Subject to provision of approved training plan		

NCB: National Competitive Bidding

MW : Minor Works

NS : National Shopping

QCBS: Quality and Cost Based Selection

CQ : Selection Based on Consultants' Qualifications

IND : Individual Consultants

Overall Procurement Risk Assessment :High

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

**Overall Procurement Risk Assessment**

<b>Section 1: Capacity of the Implementing Agency in Procurement and Technical Assistance requirements</b>				
The capacity of the implementing agency to conduct procurement has been assessed. The overall procurement assessment is high-risk. The following action plan is recommended as a result of this assessment: (1) The procurement file containing all the up-to-date Bank procurement documents such as guidelines, SBDs, RFP, etc. is to be provided to the Project Management Group both in hard copy and electronically. This had been completed by Appraisal.; (2). The PAS shall organize two-days procurement training during the project launch workshop for PMG staff and the other staff who may be involved in the review of procurement-related documents, to familiarize themselves with the Bank's procurement procedures; (3) The PMG shall hire two experienced procurement specialists before April 30, 2005.				
Country Procurement Assessment Report or Country Procurement Strategy Paper status: <b>The CPAR was finalized in June 2001</b>			Are the bidding documents for the procurement actions of the first year ready by negotiations <b>Yes No X</b>	
<b>Section 2: Training, Information and Development on Procurement</b>				
Estimated date of Project Launch Workshop <b>January 2005</b>	Estimated date of publication of General Procurement Notice <b>November 2005</b>	Indicate if there is procurement subject to mandatory SPN in Development Business <b>Yes X No</b>	Domestic Preference for Goods <b>Yes X No</b>	Domestic Preference for Works, if applicable <b>Yes No X</b>
Explain briefly the Procurement Monitoring System: Procurement implementation progress will be monitored through progress reports and supervision missions. Each supervision mission will include the project procurement specialist for updating the procurement plan and for conducting post-review.				
Co-financing: <b>None</b>				
<b>Section 3: Procurement Staffing</b>				
Indicate name of Procurement Staff or Bank's staff part of Task Team responsible for the procurement in the Project: <b>Salih K. Kalyoncu (ECSPS)</b>				
Explain briefly the expected role of the Field Office in procurement: There are two procurement specialists in the Country Office. One of them will be responsible for this project and the other will provide back-up service in the absence of assigned staff.				

## **Annex 6(B): Financial Management and Disbursement Arrangements TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

### **Financial Management**

#### **1. Summary of the Financial Management Assessment**

##### **Financial Management**

#### **1. Summary of the Financial Management Assessment**

*Financial Management Assessment:* An assessment of the financial management arrangements for the project was undertaken in October 2003, and updated in January and March 2004. These assessments concluded that current financial management arrangements for the project are not satisfactory. Therefore, an action plan was agreed upon with the Ministry of Environment and Forestry to bring project financial management capacity up to Bank required standards as a condition of Board Presentation. This action plan was completed in a timely manner.

*Country Issues:* A Country Financial Accountability Assessment for Turkey was carried out in 2001. The CFAA report identified major weaknesses in the Turkish financial accountability, in both the public and the private sector. In view of this the CFAA concludes that to ensure Bank funds are used for the purposes intended ring fenced financial management arrangements are more appropriate for the implementation of Bank financed investment projects rather than relying upon government systems.

Audits of most Bank-financed projects in Turkey are carried out by the Treasury Controllers (TCs). The regular work of the TCs focuses primarily on compliance auditing, and their financial statement audit skills are limited. This has led to problems with the quality of their reports submitted to the World Bank. However during last year various bank-financed programs are carried out to enhance the capacity of the TCs, including training with private sector audit firms and a two months training program held by the Scottish Institute of Chartered Accountants. The quality of the audit reports submitted for the 2001 year end audits of the projects have improved a lot compared to the previous years. Of more fundamental concern as specified in the CFAA is the independence of the TCs, given their subordination to the Treasury, which is responsible for the implementation of Bank financed projects. There are no mitigating measures within this project for this as this is considered a macro level issue to be addressed through reforms in the government auditing.

*Strengths and Weaknesses:* The significant strengths that provide the basis of reliance on the project financial management system include (a) centralization of all payments and their accounting at the OU; (b) requirement of a fully functioning financial management unit at the OU before Board Approval, staffed by personnel with CVs satisfactory to the Bank (c) preparation of a financial management manual for the project satisfactory to the Bank before Board Approval. The significant weakness in the project financial management system is due to the organizational changes at the ministries involved.

*Implementing Entity:* The OU Financial Management Sub-Unit (FMSU) will be responsible for all project financial management activities. All payments will be centralized at the OU. Relevant line agencies will prepare the technical specifications or Terms of References (TORs) for the goods, works, services required and will be responsible for the procurement process with help from the procurement sub unit of the OU. The acceptance and overseeing the related item procured and obtaining the approval of the Ministry of Finance Budget and Payment offices will also be the responsibility of the relevant implementing agency. The OU/FMSU will make the payment from the special accounts (there will be two special accounts) based on the payment order of the related implementing entity. The OU will document the format and the contents of the information required from each line agency to make payments in the project financial management

manual.

**Funds Flow:** There will be two special accounts for the project one for disbursements from the World Bank loan and one for the disbursements from GEF. Both of these special accounts will be in US Dollars and will be at the Central Bank of Turkey. All payments to the contractors, suppliers and consultants will be made from these special accounts with the authorization of the Head of PMG and the Financial Manager of the OU/FMSU. Payments will be made directly from the loan account for amounts over 20% of the authorized special account allocation.

The World Bank and the GEF financed portions of the project will be in the annual budgets of each implementing entity and the responsibility for ensuring that the counterpart funds are allocated in the annual budget belongs to each implementing entity. In the preparation of the following year's budget, the implementing entity staff will work together with the FMSU to determine the amount of project funds required to complete the planned activities in that particular year. Then the implementing entities will make sure that this amount is included in the entity's budget when they apply to the State Planning Organization (SPO) and the Ministry of Finance. The payments for the counterpart funds will be made directly by the Ministry of Finance's payment office at the implementing entity. The OU/FMSU will get a copy of the payment document relating to the counterpart funds so that they are included and documented in the overall project accounting. The payments for the IBRD/GEF funds will be made by the FMSU from the special accounts. The implementing entities will be responsible for receiving approval from the Ministry of Finance payment and budget offices to facilitate this payment.

There will also be contributions from the local communities in the project. Local community contributions (individual beneficiaries, cooperatives, municipalities) will be in kind value of labor and existing equipment used on the project and land donations. At the time of appraisal, the level and type of participation arrangements are under way. The monetary values of these contributions together with their recording arrangements will be considered after the arrangements are finalized and will be documented in the project financial management manual.

**Staffing:** The OU under the direct responsibility of the PMG will work as a specialized organizational unit of MEF and will act as a "service provider" to the implementing entities. The OU will have three sub-units; (i) procurement sub-unit, (ii) financial management sub-unit and (iii) M&E sub-unit. The financial management sub-unit will be staffed by a financial manager, an accountant and a disbursement officer with qualifications satisfactory to the Bank. Full staffing of the OU was a condition of Board presentation.

**Accounting Policies and Procedures:** The project accounting will be maintained separately within the OU. The project accounting will be on a cash basis. The MOF is in the process of purchasing a computerized accounting system according to technical specifications agreed upon with the Bank. A functioning accounting system, that allows for proper recording of project financial transactions, including the allocation of expenditures in accordance with respective components, disbursement categories and sources of funds was established as a condition of Board Presentation. Accounting procedures have been set out in the financial management manual for the project. The financial management manual covers (a) the financial and accounting policies and procedures for the project (b) organization of the financial management (FMSU staff responsibilities) (c) the financial management information system (d) disbursements (e) budgeting and financial forecasting (f) project reporting and (g) project planning procedures to be finalized.

**Reporting and Monitoring:** The OU will maintain records and will ensure appropriate accounting for the funds provided. Financial statements for the project will be prepared by the OU. The Financial Monitoring

Reports (FMR) will be prepared quarterly and will be submitted to the Bank no later than 45 days after the end of the quarterly period. The format and the contents of the FMR have been agreed upon with the Bank. The financial management manual of the project will include a section on the FMR. The FMR will include financial reports, output monitoring reports and procurement reports.

**Information Systems:** The OU has purchased a computerized financial management system which will produce the project financial reports. The technical specifications for the system were agreed upon with the Bank. Software has been installed and staff have been trained.

**Supervision Plan:** During project implementation, the Bank will supervise the project's financial management arrangements in two main ways: (i) review the project's quarterly financial management reports as well as the project's annual audited financial statements and auditor's management letter; and (ii) during the Bank's supervision missions, review the project's financial management and disbursement arrangements (including a review of a sample of SOEs and movements on the Special Accounts) to ensure compliance with the Bank's minimum requirements. As required, a Bank-accredited Financial Management Specialist will assist in the supervision process.

## **2. Audit Arrangements**

### ***Internal Audit.***

There is no internal control department which carries regular audits of the departments within Ministry of Environment and Forestry and therefore no reliance will be placed on internal audit.

### ***External Audit.***

Annual project financial statements for the project will be audited by the Treasury Controllers in accordance with International Standards on Auditing (ISA) and under TOR that will be cleared by the Bank before negotiations.

## **3. Disbursement Arrangements**

### **Use of statements of expenditures (SOEs):**

Disbursements will be made against Statements of Expenditures for: (i) works under contracts costing less than US\$3,000,000 equivalent each, but excluding the contracts which are subject to prior review; (ii) goods, under contracts costing less than US\$300,000 equivalent each, but excluding the contracts which are subject to prior review; (iii) services of consulting firms under contracts costing less than US\$ 100,000 equivalent each; (iv) services of individual consultants under contracts costing less than US\$ 50,000 equivalent each; (v) training and (vi) incremental operating costs. Full documentation in support of SOEs would be retained by the PMU for at least one year after the Bank has received the audit report for the fiscal year in which the last withdrawal from the Loan Account was made. This information will be made available for review during supervision by Bank staff and for annual audits which will be required to specifically comment on the propriety of SOE disbursements and the quality of the associated record-keeping.

### **Special Account:**

The GoT will open and maintain two Special Accounts in US dollars at the Central Bank of Turkey. The Special Account will be used following procedures to be agreed with the Bank, and will have an authorized allocation of US\$2,000,000 for the IBRD loan and US\$700,000 for the GEF grant. The Project Coordinator and the Financial Manager will be authorized to sign the withdrawal applications, with two signatures required. At the start of the project, the initial deposit will be limited to US\$1,000,000 for the IBRD loan and to US\$350,000 for the GEF, and the remaining portions of the authorized allocations will

be requested only after cumulative disbursements from the loan reach a level of US\$4,000,000 and \$1,200,000 from the grant. The minimum application size for payments directly from the Loan Account for issuance of Special Commitments is 20 percent of the Special Account authorized allocation.

Applications for replenishment of the Special Account will be submitted to the Bank on a monthly basis, or when the balance of the Special Account is equal to about half of the initial deposit or the authorized allocation, whichever comes first, and will include a reconciled bank statement as well as other appropriate supporting documents.

Allocation of loan/grant proceeds (Table C)

**Table C: Allocation of Loan/Grant Proceeds**

<b>Expenditure Category</b>	<b>Amount in US\$million</b>	<b>Financing Percentage</b>
Civil Works	11.30	70% of all expenditures
Goods	5.10	100% of foreign expenditures; 100% of local expenditures (ex-factory costs) and 85% of local expenditures for other items procured locally
Consultant Services	0.60	78%
Training	0.20	100%
Incremental Operating Costs	0.80	50%
Unallocated	1.80	
<b>Total Project Costs with Bank Financing</b>	19.80	
<b>Front-end fee</b>	0.20	100%
<b>Total</b>	20.00	

**Table C: Allocation of GEF Proceeds**

<b>Expenditure Category</b>	<b>Amount in US\$</b>	<b>Financing Percentage</b>
Civil Works	3.4	70 %
Goods	1.3	100% of foreign expenditures; 100% of local expenditures (ex-factory costs) and 85% of local expenditures for other items procured locally
Consultant Services	0.8	78 %
Training	0.4	100 %
Incremental Operating Costs	0.6	50 %
Unallocated	0.5	
<b>Total</b>	7.0	

**Annex 7: Project Processing Schedule**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

<b>Project Schedule</b>	<b>Planned</b>	<b>Actual</b>
<b>Time taken to prepare the project (months)</b>	12	26
<b>First Bank mission (identification)</b>	09/15/2000	
<b>Appraisal mission departure</b>	06/20/2003	06/20/2003
<b>Negotiations</b>	11/05/2003	04/11/2004
<b>Planned Date of Effectiveness</b>	02/15/2005	

**Prepared by:**

The Anatolia Watershed Rehabilitation Project was prepared by the Government of Turkey. The Project Preparation Team was led by Ismail Kucukkaya and Hanifi Avci (AGM).

**Project Preparation Team:**

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**Consultants to the Project Preparation Team:**

Philip Metcalf (Waste Management Specialist); Ramesh Kanwar (Soil and Water Quality Monitoring Specialist); Frank Anderson (M&E Specialist); Keith Openshaw (Environmental Assessment Specialist); Sema Alpan (Environmental Assessment Specialist); Akin Atauz (Social Assessment Specialist); Surkal Co. (Household Questionnaire for GEF component); Nazif Kolankaya (Soil and Water Quality Assessment); Peter Brul (Organic Farming Specialist); Ferko Bodnar (Nutrient Management Specialist); Suha Satana (Financial Analyst)

**Preparation assistance:**

Preparation of GEF-related activities was funded in part by a GEF PDF B Grant (US\$300,000).

**Bank staff who worked on the project included:**

<b>Name</b>	<b>Speciality</b>
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Peter Dewees	Team Leader, Forest Economist
Joop Stoutjerdijk	Irrigation Specialist
Rasit Pertev	Senior Agricultural Economist
Jitendra Srivastava	Agriculturalist
Cuneyt Okan	Operations Specialist
Elmas Arisoy	Procurement Specialist
Salih Kalyoncu	Procurement Specialist
Aysa Seda Aroymak	Financial Management Specialist
Julian Lampietti	Social Assessment Specialist
Shahridan Faeiz	Social Assessment Specialist
Tijen Arin	Environmental Economist
Dilek Barlas	Lawyer
Ulker Karamullaoglu	Program Assistant
Consultants to the World Bank:	
John Cole	Agriculturalist
Meeta Sehgal	Economist
Benoist Veillerette	Economist
Raffaele Suppa	Economist

**Annex 8: Documents in the Project File\***  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

**A. Project Implementation Plan**

**B. Bank Staff Assessments**

Anatolia Watershed Management Project, Social Assessment, January 12, 2003  
Anatolia Watershed Management Project, Procurement Assessment, January 2003  
Anatolia Watershed Management Project, Financial Management Assessment, October 2003  
Eastern Anatolia Watershed Management Project: Implementation Completion Report, May 20, 2002  
Eastern Anatolia Watershed Management Project: Project Performance Assessment Report (OED draft, November 18, 2003)

**C. Other**

**Project Preparation Reports and Working Papers**

Working Paper 1: Basic Data for Thirteen Provinces  
Working Paper 2: Baseline Household Survey in four Provinces  
Working Paper 3: Menu of Project Activities for Micro-catchment Rehabilitation & Income Generation  
Working Paper 4: Manure Management System  
Working Paper 5: Pollution from Agro-Industry  
Working Paper 6: Water and Soil Quality Monitoring Program  
Working Paper 7: National Level Strengthening of Policy & Regulatory Capacity  
Working Paper 8: Design of Public Awareness Campaign, Capacity Building and Replication Strategy  
Working Paper 9: Project Organization and Management  
Working Paper 10: Regional Environmental Assessment  
Working Paper 11: Operational Manual for Micro-catchment Rehabilitation  
Working Paper 12: Project Cost Tables  
Working Paper 13: Project Benefits, Financial & Economic Evaluation, plus Incremental Cost Analysis for GEF  
Working Paper 14: Project Monitoring & Evaluation System  
Working Paper 15: Project Procurement Plan  
Working Paper 16: Financial Management System  
Working Paper 17: Operational Manual for Manure Management System  
Working Paper 18: Operational Manual for Water & Soil Quality Monitoring System  
Working Paper 19: Nutrient Management & Demonstration Program for Conservation Tillage  
*\*Including electronic files*

**Annex 9: Statement of Loans and Credits**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**  
**30-Mar-2004**

Project ID	FY	Purpose	Original Amount in US\$ Millions			Cancel.	Undisb.	Difference between expected and actual disbursements <sup>a</sup>	
			IBRD	IDA	GEF			Orig	Frm Rev'd
P082801	2004	EXP FIN 2	303.10	0.00	0.00	0.00	300.07	-3.03	0.00
P059872	2003	BASIC ED 2 (APL #2)	300.00	0.00	0.00	0.00	292.96	149.83	0.00
P070286	2002	ARIP	600.00	0.00	0.00	0.00	398.79	332.12	0.00
P074408	2002	SRMP	500.00	0.00	0.00	0.00	378.58	219.37	0.00
P069894	2001	PRIV SOC SUPPRT	250.00	0.00	0.00	0.00	131.65	107.32	0.00
P044175	2000	BIODIV/NTRL RES MGMT (GEF)	0.00	0.00	8.19	0.00	5.72	3.51	0.00
P068368	2000	MARMARA EARTHQUAKE EMG RECON	505.00	0.00	0.00	0.00	300.13	300.00	66.04
P068792	2000	ERL	759.60	0.00	0.00	0.00	375.00	375.00	375.00
P009073	1999	INDUSTRIAL TECH	155.00	0.00	0.00	0.00	51.39	51.39	0.00
P009072	1998	PRIV OF IRRIGATION	20.00	0.00	0.00	0.00	1.38	1.38	1.38
P048852	1998	NAT'L TRNSM GRID	270.00	0.00	0.00	27.79	173.43	201.22	-9.44
P008985	1998	CESME WS & SEWER	13.10	0.00	0.00	2.70	5.56	8.26	0.82
P009076	1995	HEALTH 2	150.00	0.00	0.00	20.17	24.00	50.67	50.67
<b>Total:</b>			<b>3825.80</b>	<b>0.00</b>	<b>8.19</b>	<b>50.66</b>	<b>2438.65</b>	<b>1797.03</b>	<b>484.46</b>

TURKEY  
STATEMENT OF IFC's  
Held and Disbursed Portfolio  
Feb 29 - 2004  
In Millions US Dollars

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1995/96	CBS Boya Kimya	0.00	0.65	0.00	0.00	0.00	0.65	0.00	0.00
1994	CBS Holding	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
1996/01	CBS Printas	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
1992	Cayeli Bakir	2.10	0.00	0.00	0.00	2.10	0.00	0.00	0.00
1990/02	Conrad	3.50	0.00	0.00	0.00	3.50	0.00	0.00	0.00
1998	Demir Leasing	0.56	0.00	0.00	0.00	0.56	0.00	0.00	0.00
2002	EKS	13.40	0.00	0.00	0.00	13.40	0.00	0.00	0.00
1995	Entek	20.50	0.00	0.00	13.25	20.50	0.00	0.00	13.25
1998	Finans Leasing	0.56	0.00	0.00	0.00	0.56	0.00	0.00	0.00
1999	Finansbank	5.56	0.00	0.00	5.18	5.56	0.00	0.00	5.18
1998	Garanti Leasing	0.56	0.00	0.00	0.00	0.56	0.00	0.00	0.00
1999	Gumussuyu Kap	4.00	0.00	3.58	0.00	4.00	0.00	3.58	0.00
2001	Gunkol	7.38	0.00	7.38	0.00	7.38	0.00	7.38	0.00
1998	Indorama Iplik	5.63	0.00	0.00	0.00	5.63	0.00	0.00	0.00
1998/00/02	Ipek Paper	17.70	0.00	0.00	0.00	17.70	0.00	0.00	0.00
1990	Kepez Elektrik	4.05	0.00	0.00	0.00	4.05	0.00	0.00	0.00
1988/90	Kiris	10.87	0.00	0.00	0.00	10.87	0.00	0.00	0.00
1991	Kula	5.15	0.00	0.00	0.00	5.15	0.00	0.00	0.00
2003	MESA Group	11.00	0.00	0.00	0.00	5.50	0.00	0.00	0.00
2002	Milli Re	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1998/02	Modern Karton	10.00	0.00	0.00	0.00	10.00	0.00	0.00	0.00
1991	NASCO	10.18	0.00	0.00	3.55	10.18	0.00	0.00	3.55
2004	Oyak Bank	50.00	0.00	0.00	0.00	50.00	0.00	0.00	0.00
2002	Pasabahce	7.50	0.00	0.00	0.00	7.50	0.00	0.00	0.00
1998	Pinar ET	5.50	0.00	0.00	0.00	5.50	0.00	0.00	0.00
2000	Pinar SUT	15.55	0.00	0.00	0.00	11.95	0.00	0.00	0.00
1999	SAKoSa	20.04	0.00	0.00	12.77	20.04	0.00	0.00	12.77
1990	Silkar Turizm	2.74	0.00	0.00	3.12	2.74	0.00	0.00	3.12
2002/03	Sise Ve Cam	67.31	0.00	0.00	42.07	67.31	0.00	0.00	42.07
1998/02	Soktas	3.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00
1999	TEB Finansal	1.67	0.00	0.00	0.00	1.67	0.00	0.00	0.00
1982/83/89/91/96/99	Trakya Cam	0.00	0.61	0.00	0.00	0.00	0.61	0.00	0.00
1999/02	Turk Ekon Bank	17.78	0.00	15.00	0.00	17.78	0.00	15.00	0.00
2001	Turkish PEF	0.00	10.00	0.00	0.00	0.00	1.37	0.00	0.00
1999	Unye Cement	13.40	0.00	0.00	0.00	13.40	0.00	0.00	0.00
1999	Uzel	9.48	0.00	0.00	5.69	9.48	0.00	0.00	5.69
1998	Viking	8.60	0.00	0.00	0.00	8.60	0.00	0.00	0.00
1995	Yalova Acrylic	2.50	0.00	0.00	1.33	2.50	0.00	0.00	1.33
1998	Yapi Kredi Lease	0.53	0.00	0.00	0.00	0.53	0.00	0.00	0.00
1998	ALease	0.56	0.00	0.00	0.00	0.56	0.00	0.00	0.00
2001/03	Adana Cement	2.50	0.00	0.00	0.00	2.50	0.00	0.00	0.00
1998	Akbank	25.00	0.00	0.00	0.00	25.00	0.00	0.00	0.00
1996/01/03	Alternatif Bank	4.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
	Arcelik	18.97	0.00	0.00	0.00	18.97	0.00	0.00	0.00
	<b>Total Portfolio:</b>	<b>620.89</b>	<b>19.48</b>	<b>25.96</b>	<b>122.48</b>	<b>517.78</b>	<b>10.85</b>	<b>25.96</b>	<b>122.48</b>

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic
2001	Akbank	0.03	0.00	0.00	0.00
2004	Akbank BLoan Inc	0.00	0.00	0.00	0.02
2003	Cayeli Expan 2	0.02	0.00	0.00	0.00
2004	Meteksan Sistem	0.01	0.00	0.00	0.00
2002	Milli Reasurans	0.00	0.00	0.01	0.00
2004	OPET Petrolculuk	0.03	0.00	0.00	0.05
2003	Sisecam Exp.	0.00	0.00	0.00	0.01
2002	TEB III	0.00	0.00	0.00	0.05
2004	Turkish Leasing	0.04	0.00	0.00	0.00
Total Pending Commitment:		0.12	0.00	0.01	0.13

## Annex 10: Country at a Glance

### TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT

	Turkey	Europe & Central Asia	Lower-middle-income		
<b>POVERTY and SOCIAL</b>					
<b>2002</b>					
Population, mid-year (millions)	69.6	476	2,411		
GNI per capita (Atlas method, US\$)	2,500	2,160	1,390		
GNI (Atlas method, US\$ billions)	174.0	1,030	3,352		
<b>Average annual growth, 1996-02</b>					
Population (%)	1.7	0.1	1.0		
Labor force (%)	2.2	0.4	1.2		
<b>Most recent estimate (latest year available, 1996-02)</b>					
Poverty (% of population below national poverty line)	..	..	..		
Urban population (% of total population)	67	63	49		
Life expectancy at birth (years)	70	69	69		
Infant mortality (per 1,000 live births)	33	25	30		
Child malnutrition (% of children under 5)	8	..	11		
Access to an improved water source (% of population)	82	91	81		
Illiteracy (% of population age 15+)	14	3	13		
Gross primary enrollment (% of school-age population)	101	102	111		
Male	105	103	111		
Female	96	101	110		
<b>KEY ECONOMIC RATIOS and LONG-TERM TRENDS</b>					
	<b>1982</b>	<b>1992</b>	<b>2001</b>	<b>2002</b>	
GDP (US\$ billions)	64.4	158.9	145.2	182.8	
Gross domestic investment/GDP	17.0	23.9	16.8	21.3	
Exports of goods and services/GDP	11.9	14.4	33.7	28.8	
Gross domestic savings/GDP	13.8	20.9	19.2	19.6	
Gross national savings/GDP	18.5	24.4	20.7	20.7	
Current account balance/GDP	-1.5	-0.6	2.3	-0.8	
Interest payments/GDP	1.8	2.0	3.6	3.4	
Total debt/GDP	30.6	35.6	78.4	71.9	
Total debt service/exports	29.4	32.1	44.0	49.0	
Present value of debt/GDP	..	..	..	..	
Present value of debt/exports	..	..	..	..	
	<b>1982-92</b>	<b>1992-02</b>	<b>2001</b>	<b>2002</b>	<b>2002-06</b>
<i>(average annual growth)</i>					
GDP	5.1	2.8	-7.5	7.8	4.7
GDP per capita	2.7	1.0	-9.0	6.1	3.6

**Development diamond\***

Life expectancy

GNI per capita

Gross primary enrollment

Access to improved water source

Turkey

Lower-middle-income group

**Economic ratios\***

Trade

Domestic savings

Investment

Indebtedness

Turkey

Lower-middle-income group

	1982	1992	2001	2002
<b>STRUCTURE of the ECONOMY</b>				
<i>(% of GDP)</i>				
Agriculture	22.7	15.3	12.8	13.0
Industry	25.1	29.9	26.1	25.4
Manufacturing	17.7	18.9	15.8	16.0
Services	52.2	54.7	61.1	61.6
Private consumption	76.3	66.2	66.6	66.3
General government consumption	9.9	12.9	14.2	14.0
Imports of goods and services	15.0	17.3	31.3	30.5
	<b>1982-92</b>	<b>1992-02</b>	<b>2001</b>	<b>2002</b>
<i>(average annual growth)</i>				
Agriculture	1.4	1.1	-6.0	7.6
Industry	7.2	2.6	-7.2	5.7
Manufacturing	7.2	3.3	-8.0	8.2
Services	4.2	3.1	-6.2	7.0
Private consumption	4.3	2.2	-9.2	2.6
General government consumption	3.4	4.4	-8.5	5.4
Gross domestic investment	5.0	1.1	-42.0	35.7
Imports of goods and services	8.8	8.3	-24.8	15.7

**Growth of investment and GDP (%)**

50

0

-50

97 98 99 00 01 02

GDI

GDP

**Growth of exports and imports (%)**

40

20

0

-20

-40

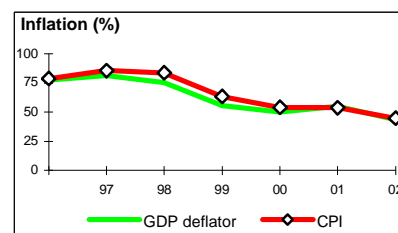
97 98 99 00 01 02

Exports

Imports

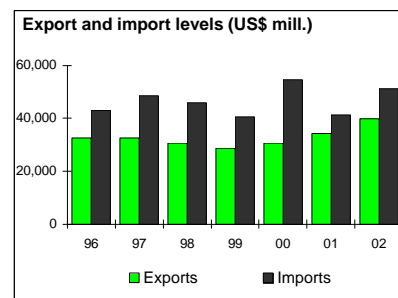
## PRICES and GOVERNMENT FINANCE

	1982	1992	2001	2002
<b>Domestic prices</b>				
<i>(% change)</i>				
Consumer prices	..	70.1	53.9	44.8
Implicit GDP deflator	28.2	63.7	54.8	43.5
<b>Government finance</b>				
<i>(% of GDP, includes current grants)</i>				
Current revenue	..	19.0	29.3	28.2
Current budget balance	..	-1.3	-14.7	-4.7
Overall surplus/deficit	..	-10.7	-20.9	-12.3



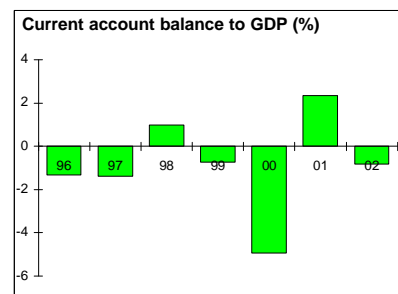
## TRADE

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Total exports (fob)	5,890	14,891	34,373	39,827
Textiles	1,145	5,603	10,344	12,066
Processed agricultural products	1,571	2,293	1,876	1,705
Manufactures	4,655	13,440	28,695	32,673
Total imports (cif)	8,843	22,871	41,399	51,270
Food	123	1,398	848	1,211
Fuel and energy	3,943	3,903	8,316	8,955
Capital goods	2,214	7,970	7,344	8,949
Export price index (1995=100)	..	95	76	75
Import price index (1995=100)	..	90	81	80
Terms of trade (1995=100)	..	105	94	93



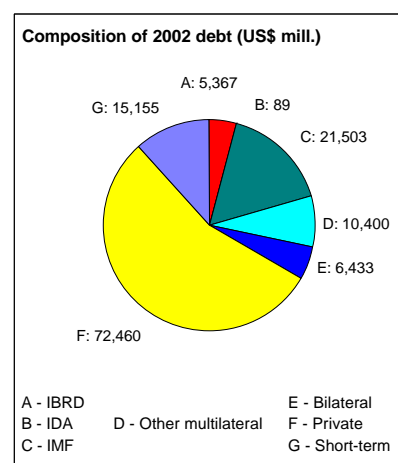
## BALANCE of PAYMENTS 1/

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Exports of goods and services	7,818	23,343	50,403	54,608
Imports of goods and services	9,592	26,706	45,816	55,095
Resource balance	-1,774	-3,363	4,587	-487
Net income	-1,455	-1,670	-5,000	-4,549
Net current transfers	2,277	4,059	3,803	3,496
Current account balance	-952	-974	3,390	-1,540
Financing items (net)	1,120	2,458	-16,314	1,328
Changes in net reserves	-168	-1,484	12,924	212
<b>Memo:</b>				
Reserves including gold (US\$ millions)	2,027	15,252	30,192	38,067
Conversion rate (DEC, local/US\$)	162.9	6,881.3	1,228,367	#####



## EXTERNAL DEBT and RESOURCE FLOWS

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	19,716	56,554	113,806	131,407
IBRD	1,962	5,564	4,707	5,367
IDA	187	148	95	89
Total debt service	2,968	9,086	24,623	28,632
IBRD	209	1,207	723	708
IDA	3	6	7	7
Composition of net resource flows				
Official grants	307	506	0	334
Official creditors	762	-509	74	797
Private creditors	146	3,604	-2,187	3,811
Foreign direct investment	55	779	2,769	862
Portfolio equity	0	-1,194	-4,611	-1,180
World Bank program				
Commitments	648	686	2,200	1,650
Disbursements	500	286	1,537	1,031
Principal repayments	86	733	437	442
Net flows	415	-447	1,100	588
Interest payments	127	480	292	272
Net transfers	288	-928	808	316



## **Annex 11: GEF Incremental Cost Analysis TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

### **Introduction**

1. The Turkey Black Sea Agricultural Pollution Control Project (APCP) (to be funded under the GEF WB Partnership Investment Fund for Nutrient Reduction in the Black Sea/Danube Basin) has been fully blended with the Turkey Anatolia Watershed Rehabilitation Project (AWRP). The global environmental benefit expected from APCP is the reduction of nutrients from agricultural sources flowing into the Black Sea, which would contribute to the alleviation of eutrophication of the Black Sea. This annex presents the baseline and GEF alternative scenarios, and analyses the incremental cost of achieving the global benefits under the GEF Alternative.

### **Background**

2. Over the past three decades, the Black Sea has experienced significant losses in aquatic biodiversity, fisheries, public health and tourism due, in part, to eutrophication caused by extensive flows of nutrients (nitrogen and phosphorus) from point (industrial and municipal wastewater) and non-point (agricultural) sources. Background diagnostic analyses have identified that upstream Danube riparian countries (including Bulgaria, Georgia, Romania, Ukraine, Turkey and Russia) contribute to the nutrient pollution. Nutrient flows into the Black Sea and its tributaries decreased in the 1990s, mainly due to the economic downturn in the transition countries, but are expected to increase in the near future as a result of resumption of industrial activities and renewed intensification of agriculture. A GEF Partnership on the Black Sea and Danube Basin was established in May 2001 to take coordinated actions for the rehabilitation of the Black Sea/Danube environment. The Partnership is led by the GEF and its implementing agencies, the World Bank, UNDP and UNEP, and funded through a US\$95 million GEF grant over several tranches. The WB executed, US\$70 million Investment Fund for Nutrient Reduction in the Black Sea/Danube Basin is financing investments in improved agricultural practices, wastewater treatment and restoration of wetlands, as well as policy and legal revisions, and capacity building for enhanced monitoring and enforcement. The UNDP and UNEP are implementing two regional projects aimed at regulatory reform and capacity building in a basin-wide integrated fashion.

3. With a Black Sea coastline of approximately 1,700 km and with three large rivers, Sakarya, Kizilirmak, Yesilirmak, originating in Central Anatolia and emptying into the Black Sea, Turkey is one of the contributors of pollutants to the Black Sea. According to the Black Sea Transboundary Diagnostic Analysis (1996), Turkey's annual discharges of N and P to the Black Sea are estimated at 38,000 t/y and 5,800 t/y, respectively. These amounts make up about 20 percent and 12 percent, of the total N and P, respectively, produced in the non-Danube Black Sea Basin.

4. The Nutrient Reduction Action Plan for Turkey prepared with GEF assistance identified agricultural non-point source pollution as a very important source of nutrient loads in Yesilirmak and Kizilirmak. The main causes of river pollution from agricultural non-point sources were identified as (i) poor agricultural practices, including inappropriate and excessive application of agricultural chemicals, such as fertilizers; (ii) inappropriate management, storage and disposal of animal manure and waste; (iii) soil erosion resulting from unsustainable land use and (iv) poor drainage. There is indication that excessive application of agricultural chemicals has also led to widespread contamination of wells which provide

drinking water to rural communities, thus threatening public health. The Action Plan calls for the development of sound agricultural management and participatory integrated river basin management.

5. The Kizilirmak and Yesilirmak basins are intensively cultivated and home to agro-processing enterprises. Kizilirmak, Turkey’s longest river with 1,151km, and Yesilirmak originate in the Central Anatolian Plateau and empty into the Black Sea at the Bafra and Carsamba Deltas in the Samsun Province. In both deltas, intensive horticultural and small-scale livestock production is carried out. Along Yesilirmak to the south of Samsun, Amasya and Tokat are also significantly engaged in intensive cultivation of fruits, vegetables and crops, and in as small-scale livestock production. In the upper regions of Kizilirmak, to the southwest of Samsun, the land is under intensive rice cultivation in addition to crop production. Large-scale poultry production is prevalent in Corum while plastic house or green house vegetable production (with high levels of chemical use) is becoming popular in the Bafra Delta.

6. *Nutrient Loads from Yesilirmak and Kizilirmak.* The Turkey – Black Sea Environmental Priorities Study (1998) funded by the GEF Black Sea Environmental Programme estimated nutrient discharges for Yesilirmak and Kizilirmak (Table 1). Intensive crop cultivation, livestock production and agro-processing which is dominant in the Kizilirmak and Yesilirmak Basins and believed to be the most important source of nutrient flow into these rivers. In particular, the Bafra and Carsamba Deltas, where intensive horticulture is practiced, are nutrient hotspots.

**Table 1.**

	Kizilirmak	Yesilirmak
Total N	4,730	7,768
Total P	278	414

Source: Turkey – Black Sea Environmental Priorities Study (1998)

### **Baseline Scenario**

7. In the baseline scenario, the Government of Turkey and the NGOs community would continue their ongoing and planned activities in the agriculture and environment sector. These include activities aiming at water pollution control in the Black Sea region as well as related policy and capacity building measures, namely (i) annual Government expenditures in monitoring and control activities in the 14 provinces of the Yesilirmak and Kizilirmak Basins; (ii) AWRP, but excluding the Black Sea region; (iii) the EU – funded Water Quality Analysis Project, (iv) a GTZ funded erosion control project in the eastern Black Sea region, and (v) Dutch-funded activities to align environmental regulations with those of the EU.

8. The General Directorate for Protection and Control (KKGM) of the Ministry of Agriculture and Rural Affairs (MARA) would continue its water quality monitoring and control activities in the 14 provinces of the Yesilirmak and Kizilirmak basins. In 2002, Government funding allocated to GDGP’s provincial directorates for their work in water quality control amounted to approximately US\$17,000. Additionally, approximately US\$20,000 were allocated to Provincial Control Laboratories in Samsun, Amasya, Tokat, Ankara and Kayseri. Assuming that the same amount would be allocated for these purposes during the project period, 2004-2010, the total amount is estimated at US\$259,000.

9. AWRP which is a follow-up to the successful Eastern Anatolia Watershed Rehabilitation Project, would be implemented in the Seyhan, Ceyhan and Goksu Basins which drain into the Mediterranean Sea. The objective of the project is to support sustainable natural resource management and raise income of the communities in degraded watersheds in Anatolia. In the baseline scenario, there would be no incentive to extend AWRP’s effective integrated and participatory microcatchment management approach to the

introduction and popularization of environmentally friendly agricultural practices in the Black Sea basin. Furthermore, without APCP, original AWRP provinces would not benefit from the emphasis on proper manure management and fertilizer use methods. The total cost of AWRP, without APCP, is estimated at US\$57.05 million, of which US\$36.62 million will be covered from a World Bank loan and the rest by the Government and project beneficiaries.

10. MEF is carrying out a program to monitor land-based sources of pollution to the Black Sea Region. The project cost of \$500,000 has been allocated by Government to MEF for 2004 to finance implementation.

11. Furthermore, the EU-funded Water Quality Analysis Project of approximately US\$9 million has supported capacity building, notably equipment and training, in 10 laboratories in Turkey. In the absence of concrete data, we conservatively assume that approximately US\$0.5 million has been spent on upgrading the Samsun Water Analysis Laboratory.

12. Another related project in the Black Sea region focuses on erosion control and natural resources management in Bayburt, Coruh Valley. Funded by the German bilateral cooperation agency, GTZ, the project has been implemented by the NGO TEMA since 2000 and will continue through 2007. The total project cost is approximately US\$4 million.

13. It should also be mentioned that the MEF, in its capacity as the coordinating agency for efforts to harmonize environmental legislation with the EU acquis, is cooperating with the Government of Netherlands to align Turkish regulations with EC Water Framework and Environmental Impact Assessment Directives. Both activities will last two years at a cost of €800,000. An agreement has also been signed between the Turkish and Dutch governments, in the framework of which MEF's priority areas of Black Sea water quality improvement and construction of wastewater treatment infrastructure in the Black Sea region will be addressed. Finally, while not directly part of the baseline scenario for APCP, it is also worth mentioning that the Turkish Government is also beneficiary of the Dutch MATRA project "Implementation of Water Framework Directive in Turkey". The main aim of the project is to implement the Water Framework Directive and to analyze water use arrangements in Turkey with a focus on the Buyuk Menderes Watershed located in the Western part of the Turkey.

14. The Yesilirmak Basin Development Project which was carried out between 1996 and 2001 under the support of the Governor's Offices of the provinces Samsun, Amasya, Tokat, Corum and Yozgat, should also be mentioned as it helped put in place capacity that will be very useful in the implementation of APCP. The project aimed at land use planning taking into account ecological concerns, modern natural resource management, erosion prevention, identification of water pollution sources and their monitoring, rangeland rehabilitation, identification of forest areas and their monitoring, monitoring of urbanization and industrialization, and resolving issues in planned development. In 1998, satellite images and data on climate, soil, settlement areas and roads were collected. In 1999, data needed for a GIS infrastructure were completed. This GIS capability will contribute significantly to the implementation of APCP.

15. Turkey has also carried out two consecutive Local Agenda 21 projects with UNDP funding. The projects have coordinated by IULA-EMME International Union of Local Authorities Section for Eastern Mediterranean and the Middle East and designed and executed by local committees made up of local authorities, NGOs and educational institutions. The purpose of the projects was to have local authorities, via their commitment to *Local Agenda 21*, foster a participatory, multi-sectoral process to achieve the goals of *Agenda 21* at the local level through the preparation and implementation of long-term, strategic action plans that address priority local sustainable development concerns. To this end, city-wide

consultative mechanisms (City Councils and other platforms), as well as working groups and special task forces have been constituted from amongst different types of local actors and citizens in a significant number of cities. In the Black Sea region, the provinces of Samsun, Kastamonu, Bolu, Carum, Trabzon and Zonguldak have been part of the these projects and some of them elected to form working groups focusing on environment and sustainable agriculture issues. These formations provide a good civil society basis for the implementation of the APCP project. A cost estimate for this part of the project is not available.

16. Finally, Turkey has played a prominent role in efforts to rehabilitate the Black Sea. In particular, since the early 1990s Turkey has hosted the Black Sea Environment Programme based in Istanbul and has contributed about 40 percent of the operating costs of this organization.

17. The total cost of these baseline activities are US\$ 61.66 million over the period 2004 – 2010. Of these, US\$37.92 million are baseline activities specifically associated with AWRP.

### **GEF Alternative Scenario**

18. GEF Alternative will aim at reducing nutrient discharges from agricultural sources into the Yesilirmak and Kizilirmak rivers. Project activities to achieve this benefit are (i) promoting environmentally-friendly farming practices, including proper animal waste management; (ii) strengthening policy and regulatory capacity for meeting EU standards in agricultural pollution control; (iii) raising public awareness to disseminate the benefits of the proposed project activities and developing a replication strategy to promote project activities in other similar areas in Turkey as well as in Black Sea riparian countries; and (iv) applied research. These activities will be fully blended in the components of the Anatolia Watershed Rehabilitation Project.

19. Under the “Environment-friendly Practices” component, the project will construct storage and provide handling facilities for livestock waste management. It will also provide training to farmers. Such activities are a first in Turkey and would not have happened without the project’s financial and technical contribution. Advice on crop nutrient management will also be made an integral part of extension advice to farmers, supported by provision of simple field equipment for soils analysis and part payment of KHGM soil analysis services used by farmers. The project will train MARA and MEF staff on crop nutrient management. The outcome of these activities will be more judicious application and partial replacement by manure of synthetic fertilizers which will lower the run-off of excessive nutrients. Demonstration of financial gains from more rational use of fertilizers will help convert farmers to such practices and ensure sustainability and replication by farmers in other parts of the region. The project will also support the development of organic farming in the project area which by definition will contribute to nutrient reduction.

20. The implementation of the EU Nitrates Directive and adoption of a Code of Good Agricultural Practices will provide the regulatory backing for the above activities and help ensure sustainability and replicability. The project will support institutional development in MARA and MEF. Awareness raising campaigns at the provincial and national levels will further support the dissemination of knowledge about environmentally friendly activities.

21. Applied research will concentrate on conservation tillage and its potential to reduce nutrient leakages. Annually up to 20-40 percent decreases in N and P flows have been recorded on demonstration plots in other parts of Turkey and other countries. The component will aim to achieve wider application of the practice in the Black Sea region of Turkey by emphasizing the financial gains conservation tillage holds

for farmers.

22. As the above project description demonstrates, the GEF Alternative will provide the Government of Turkey with capacity to systematically control agricultural nutrient pollution which does not currently exist in Turkey. It will foster collaboration of agencies involved which is also lacking. Furthermore, by adopting AWRP's integrated participatory micro-catchment (MC) management approach the project will ensure that project interventions reflect MC preferences and that villagers are committed to sustainable resource management. The MCs will also serve as basic water quality monitoring units.

23. The project activities described above will result in estimated reduction of nutrient flows of 20 kg/ha N and 2.5kg/ha P annually. These estimates are transferred from the case of the Romania Agricultural Pollution Control Project. It is believed that per hectare savings would be the same in both countries. Project activities will be carried out on about 50,000ha (4 MC s and one irrigation perimeter of approximately 10,000 ha each). Of this agricultural area is estimated at 20,000 ha. Assuming that by the end of the project, 50 percent of the farmers adopt environmentally friendly agricultural practices supported by the project, the reduction of annual N and P run-off at the farm level would be 200 tons N and 25 tons P. Furthermore, conservatively assuming that in 10 years such practices are adopted on 30 percent of the 1.7 million ha of agricultural area in the four project provinces, annual reductions of N and P run-off at the farm level would reach 11,000tons N and 1,300 tons P, respectively, by 2003. In the long run , the effect will be multiplied as nutrient saving practices will be more widely adopted in Turkey's Black Sea Basin.

The incremental costs of these benefits is estimated at US\$7.00 million, which will be requested from the GEF.

Table 1: Incremental Cost Matrix (USD million)

Component	Cost Category	Cost* (US\$ million)	Local Benefits	Global Benefits
1. Rehabilitation of degraded natural resources	Baseline	17.38	Reduction of resource degradation	
	With GEF Alternative (Introduction of environment-friendly practices, incl. manure management, nutrient management, organic farming and water/soil quality monitoring.)	23.51	Financial gains from rational nutrient management; reduced health risks from ground and surface water contamination.	Reduction of nutrient run-off to the Black Sea.
	Increment	6.13		
2. Income raising activities	Baseline	17.57	Increased household incomes in rural areas.	
	With GEF Alternative	17.57		
	Increment	0		
3. Strengthening policy and regulatory capacity towards meeting EU standards	Baseline	0.10	Limited harmonization with EU directives.	
	With GEF Alternative (Policy and regulatory capacity building, incl. implementation of the Nitrates Directive, preparation of a Code of Good Agricultural Practices and support for institutional development for organic farming.)	0.18	Enhanced capacity of regulatory agencies to monitor and enforce water quality regulations. Improved quality of agricultural produce and more secure access to European agricultural markets. Possibility of capturing local and international niche markets for organic produce and associated incomes.	Enhanced sustainability and replicability of nutrient reducing activities in Turkey's Black Sea Basin.
	Increment	0.18		
4. Awareness raising, capacity building and replication strategy	Baseline	0.68	Farmers become aware of sustainable resource management practices and are more likely to adopt them.	
	With GEF Alternative (Farmer training on environment friendly agricultural practices, public awareness raising at the national level, and	1.06	In addition to the above, farmers understand financial benefits from proper manure and nutrient management practices as a result of	Replication and sustainability of environment friendly agricultural practices in the project region and

	creation of a replication strategy.)		which they more likely to adopt them.	across the country.
	Increment	0.38		
5. Project Management	Baseline	2.19	Project implementation with financial, fiduciary, environmental and social due diligence.	
	With GEF Alternative	2.50		Project implementation with financial, fiduciary, environmental and social due diligence.
	Increment	0.31		
Total	Baseline	37.92		
	With GEF Alternative	44.92		
	Increment	7.00		

\* Includes price and physical contingencies

## **Annex 12: GEF Scientific and Technical Advisory Panel (STAP) Review TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

### Scientific and technical soundness

The scientific and technical basis of the project is sound. It addresses the critical issue of reducing nutrient pollution of the Kizilirmak, Yesilirmak Rivers flowing into the Black Sea. It builds upon and is linked with the “Strategic Action Plan for the Protection and Rehabilitation of the Black Sea” (BSSAP), formulated with the assistance of the Global Environment Facility (GEF).

The proposal builds upon and extends the practical demonstration of implementation and benefits of pollution reduction projects Eastern Anatolia Watershed Management Project (EAWP). It seeks, with reasonable recognition of the social constraints of patriarchal “elder” decision making, to build understanding and acceptance of and commitment to identifying and operating within the constraints of the ecological systems that underlie agricultural production.

### Global environment benefits and costs

Nutrient pollution of the Black sea has been identified as an environmental issue of global significance. If this project achieves its objectives it will have clear benefits in addressing a significant source of nutrient pollution of the Black Sea from Turkey. With similar success in comparable projects being undertaken in other country catchments draining into the Black Sea this project will contribute substantially to the global goals of reduced agricultural pollution of the Black Sea

### The context of GEF goals and guidelines

The project clearly addresses the objectives of the integrated land and water and water quality within the context of watershed agricultural and environmental management. It addresses the objectives of providing a basis for achieving sustainability and it applies the guidelines with respect to incremental costs and the log-frame. GEF Operational Program Number 8, “*Waterbody Based Operational Program*”, which focuses “on seriously threatened water-bodies and the most important trans-boundary threats to their ecosystems”. The Project is also consistent with GEF Operational Programs 12 “*Integrated Ecosystem Management*” and 9 “*Integrated Land and Water Multiple Focal Areas Operational Program*”.

### Regional Context

Discussed above. The project is important in the context of the rehabilitation of the ***Black Sea***.

### Replicability

This project builds on experience of projects addressing agricultural pollution and watershed rehabilitation of major river systems draining into the Baltic Black and Mediterranean Seas. It is replicating and extending this experience in the socioeconomic context of the EAWP by addressing 3 Mediterranean watersheds from EAWP and 2 additional Black Sea watersheds. The clearly stated intention in the design concept is that this extension will consolidate and further develop experience and capacity to replicate similar practices in other catchments.

### Sustainability

This is a key element of project design. It has been developed in the light of experience of local participation and conditions in EAWP. The ongoing sustainability will depend on demonstration of benefits and on community and particularly appreciation by decision-makers of the economic, environmental and social benefits of alternative agricultural methods and on a reasonable flow-on of those benefits from landowners to others in the communities.

### Contribution to future strategies and policies

Success with this project should contribute to the broader adoption of pollution minimizing agricultural practices in the catchments of the Black and Mediterranean Seas.

### Involvement of stakeholders

The project proposal recognizes stakeholder involvement as a critical issue. It discusses the issues of patriarchal elder decision making, the capture of benefits by elites and the vulnerability of younger men to exclusion from decision making concerning land and resources for which they will eventually be responsible. The discussion on extension addresses demonstration sites and public awareness programs. It can be inferred that the demonstration sites are targeted largely at the decision makers.

There is no specific mention of a role for school based education in this process. Inclusion of a school based curriculum element would have to be addressed sensitively but other environmental projects have demonstrated the benefits of accelerating the acceptance of information into communities through school children having good information and discussing it within family groups. A further stakeholder issue that is perhaps understated relates to the human health benefits of improved water quality. This is an issue often of particular interest to women as caregivers of the sick and sickly and explicit treatment of that issue in the public awareness strategy could provide another avenue of persuasion to customary decision makers.

### Risk assessments

To the extent that I can judge, being unfamiliar with the field operating situation, the risks seem to be reasonably discussed and I concur with the assessments

### Costs

I have insufficient operational experience in the target area to make substantial comment on the detail of funding allocations. However in the light of comments above on replication and community education I would suggest that the design team consider the adequacy of the budget components for Component 4 (a) Public Awareness and Replication Strategy. Unless there is some other source of provision for development and delivery of school and community education materials a total expenditure USDM 0.39 from a total budget of USDM69.70 appears insufficient. I make this comparison in the light of my experience in other projects seeking to develop community involvement and “ownership” and my understanding of the scale of the areas being addressed. The allocation for component 4 (b) Capacity Building seems reasonable and I would not suggest reducing that.

### Conclusion

This is a soundly designed project drawing on the experience of similar projects to tackle critical issues of agricultural pollution in ways that appear to be appropriate to the socio-economic situation described for Anatolia. Subject to specific consideration of the targeting, resourcing and budget adequacy of provisions for Component 4 (a) Public Awareness and Replication Strategy I recommend that it should proceed.



R A Kenchington  
RAC Marine Pty Ltd  
17 February 2003

## **Bank Response to STAP Reviewer's Comments**

(i) Stakeholder Involvement. *“...there is no specific mention of a role for school based education in this process... A further stakeholder issue that is perhaps understated relates to the human health benefits of improved water quality. This is an issue often of particular interest to women as carers of the sick and sickly and explicit treatment of that issue in the public awareness strategy could provide another avenue of persuasion to customary decision makers”.*

The project team concurs with the STAP reviewer that school-based education would be a useful tool to inform and train potential beneficiaries in resource management and conservation techniques, including environmentally friendly agricultural practices as proposed under the Project. It is expected that as a result of the participatory approach of the project, whereby communities will actively determine and evaluate public awareness activities during project implementation, school-based programs will become a significant avenue for dissemination of knowledge and provision of training in natural resources management. Towards this, the Project Management Unit will design an appropriate school-based program and allocate necessary funds for its implementation.

The public awareness campaign designed under the Project to disseminate information on project benefits, includes the importance of clean drinking water and its implications for human health. The project will encourage the participation of women so as to assure that gender issues are mainstreamed into MC development, planning and implementation.

(ii) *The design team consider the adequacy of the budget components for Component 4 (a) Public Awareness and Replication Strategy. Unless there is some other source of provision for development and delivery of school and community education materials a total expenditure USDM 0.39 from a total budget of USDM69.70 appears insufficient.*

Project costs were revised and finalized during the appraisal mission in January 2004, in part to take account of this concern. The allocation for the component on *Public Awareness and Replication Strategy* is US\$1.06 million, of a total project cost of USD 45.11 million.

## **Annex 13: Environmental Management Framework TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

### **Introduction**

On balance, the Anatolia Watershed Rehabilitation Project is expected to have significant positive environmental impacts. It is expected to contribute to reduced erosion, increased vegetative and forest cover, improved land management, and will reduce the discharge of polluting nutrients into waterways. Wider positive environmental impacts will be an outcome of institutional measures implemented by the project to support application of the EU nitrates directive and public awareness building in this regard. The project was screened by Bank Safeguards staff who concluded that it should be rated as a Category B project, with potential adverse environmental impacts on human populations or environmentally important areas. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigatory measures can be readily designed and implemented.

In order more closely to consider the project's potential negative environmental impacts, Government commissioned a Regional Environmental Assessment to provide the analytical framework better to address environmental concerns in the design, implementation, and monitoring of project interventions. The Regional Environmental Assessment confirmed that the project is not expected to result in any significant environmental risks or negative environmental impacts, but indicated that a range of potential, minor negative impacts are, however, possible. The Regional Environmental Assessment identified these impacts, and mitigation measures have been incorporated into the project's design. Potential negative environmental impacts include,

- impacts resulting from poorly designed soil erosion control measures such as terracing;
- impacts resulting from the rehabilitation or construction of access roads;
- impacts on forest villages which may find traditional access to forests restricted;
- impacts associated with the possible use of abiotic pesticides during the establishment and operation of tree nurseries which are to provide seedlings for afforestation and for microcatchment rehabilitation;
- impacts associated with dam safety, resulting from the construction of numerous small farm ponds and irrigation tanks.

Project investments are to be made on the basis of priorities identified through a participatory and community-based planning process in each of the 28 microcatchments where the project is to be operating. The project itself will be supporting this planning and priority setting process, and so the project's likely environmental impacts can only be described in the abstract *ex-ante*, on the basis of the technologies which are likely to be supported in project microcatchments. In this respect, the project comprises a series of 28 microcatchment sub-projects, each with their own potential environmental impacts.

The project's Environmental Management Framework seeks to balance the need for screening new microcatchment management plans for their potential environmental impacts, for putting in place mitigation measures which are consistent with prevailing best-practice technical standards and which will be triggered depending on the mix of activities which are adopted in each microcatchment, for monitoring environmental performance in each microcatchment, and for making further corrections as monitoring and evaluation activities identify environmental concerns and the need for further mitigation during implementation.

The Regional Environmental Assessment was reviewed by Government and by the Bank, and was

subsequently revised. The revised Regional Environmental Assessment was translated into Turkish, and was made widely available. A consultation on the revised draft was held on February 20, 2003 and involved a range of civil society organizations and government agencies. The REA describes a methodology for screening microcatchment plans for environmental impacts, and for proposing and introducing mitigating steps, which will be handled as part of the regular criteria-based microcatchment selection process. The project will support the establishment of capacity within the implementing agencies to ensure that subprojects are assessed for their potential impacts, and environmental management plans are prepared and implemented in compliance with the national requirements as well as Bank policy on environmental assessment (OP 4.01). The REA describes the procedures and arrangements between the implementing agency, the environmental authority and the borrower entities for subproject environmental screening, assessment, consultations and disclosure. Generic EMPs for investments in different subsectors (farm ponds, feeder roads etc.) are provided as examples. EMP recommendations are incorporated into the Project Implementation Plan and describe screening standards, mechanisms, examples, and procedures related to Safeguards issues.

## **Screening**

A screening exercise, which reviewed 38 sets of project activities, was carried out as part of the REA to determine the extent of possible negative environmental impacts. A screening matrix was developed which assessed these likely impacts of these activities, and was completed in conjunction with a detailed review of 6 microcatchment plans which had been completed prior to Appraisal. The objective of preparing the screening matrix was both to ensure that potential impacts are adequately identified upstream and that these can be mitigated as part of the project, but also to provide guidance to project staff for the implementation of microcatchment management plan environmental screening during project implementation. The screening process identified a range of possible negative environmental impacts.

## **Possible negative environmental impacts**

### *Potential for increased soil erosion*

Ground preparation in forest areas, both with machines and by hand, and the manual construction of terraces will be undertaken, as required, in some forest areas. In some agricultural areas, the prevailing land-use practice has been to plough perpendicular to the contour, rather than with the contour. Where these practices are widespread, erosion could clearly be worsened by the introduction of various cropping measures through the project. On balance, when poorly implemented, a range of practices to be supported by the project could actually lead to increased erosion rather than to erosion control and in the absence of various mitigation measures, ground preparation activities can lead to soil compaction.

### *Access road rehabilitation or construction*

There are three types of roads to be constructed under the project. Provisions have been made for the construction of around 80 km of service roads by AGM in project microcatchments, primarily along ridges. Another 60 km of B-type secondary forest roads are to be constructed by GDF. Finally, the project is expected to build around 30 km of service roads in microcatchments to provide access to irrigation channels and pipes by KHGM for their operation and maintenance.

Generally speaking, the primary potential negative environmental impacts related to the construction of roads include habitat loss/fragmentation (associated with the footprint of the road); alteration of drainage/natural hydrologic regime; stream erosion; soil erosion and downstream sedimentation; slope

instability and landslides; and resultant secondary impacts (e.g., increased access to formerly remote areas, increased resource extraction and resultant impacts to biodiversity and physical environment, economic impacts such as employment – both temporary (road construction impacts) and permanent (ongoing maintenance and resource extraction impacts)).

### Traditional access to forests

It is conceivable that the community-based participatory planning process may identify degraded forested areas within microcatchments which would benefit from protection, or from otherwise restricting access to traditional use. This determination will be made on a microcatchment-by-microcatchment basis.

Restrictions in access may affect household access to common grazing resources or to fuelwood, but likely not to Non-timber Forest Products (which can largely be extracted with minimal negative impacts).

### Pesticide use

The only sub-component which may involve the use of abiotic pesticides (but not their purchase with IBRD funds) is the component which results in the production of tree seedlings. The project will not be directly financing the purchase of pesticides, but the agents contracted for nursery production may use pesticides in conjunction with tree seedling production. More generally, farmers who are involved with the project may use pesticides as part of their on-going farming practices, but their use is neither advocated nor financed by the project.

### Dam safety

Under the income generation component, the project will finance small scale irrigation, including construction of concrete ponds, diversion weirs and small dams. Highest priority will be given to irrigation ponds at strategic places throughout the MC areas as this will allow to reach the largest number of beneficiaries. Construction of dams will only occur in MCs with extreme water shortage. Based on the experience with EAWP, these dams are expected to be less than 15 high. Dam safety concerns are issues where poor design and construction standards may result in dam failure. No land acquisition or resettlement is expected to be required, as dams will be constructed on public lands.

## **Mitigation measures**

### Potential for increased soil erosion

All terracing is to be carried out manually. Mechanical terracing was abolished by the MoF after bad experiences during the early stages of the EAWRP. When undertaking ground preparation, including terracing, to reduce erosion, to improve degraded forest and range areas, and for reforestation, care must be taken not to exacerbate erosion and to increase flash flooding. This will be done by first undertaking a classification of soil types depth, slope and rainfall and then adhering to prescriptions for terracing according to internationally acceptable criteria, as outlined the instructions published by AGM. (*Issues to be Taken into Account in the Erosion Control Activities*, Instruction No: 14, Ankara, 1999; Instructions No. 6, 7 and 8 regarding erosion control activities, in-forest rangeland rehabilitation activities and reforestation activities respectively; *Guidelines for Terracing*, TOPRAKSU, Ankara; and *Technical Specifications for Bidding for Terracing KHGM* (Ankara-2000)). These Instructions conform to international best-practice standards.

On agricultural land, where fields are narrow and contour ploughing may not be practical, alternatives to

'slope' ploughing include minimum tillage. Terracing and the planting of perennial crops will be introduced. It was observed in Malatya that, by planting fruit trees and vegetables on terraces, while planting either fodder or vines on slopes, agricultural benefits to farmers are increased and environmental benefits are improved. The demonstration of alternatives to slope ploughing with the appropriate agronomic package, including drip irrigation on terraces, is essential as is farmer participation in the planning and execution of alternatives. Early commitment of farmers should be sought for re-vegetation of terraces, including perennials, immediately after they have been prepared.

With respect to the potential for soil compaction, deep ripping will only be applied where the soil will benefit from infiltration. It should be confined to where trees are to be planted or sown, or on a limited basis where rangeland areas are to be re-seeded. Building on experience gained through EAWRP, most rangelands will be improved through enclosure. When soils are disturbed, exposed ground will be re-vegetated quickly to prevent erosion and to improve water retention. Water harvesting will be considered on rangelands to be rehabilitated in order to sustain the vegetative cover and to improve the soil-water balance.

Gully plugging, especially at an early stage will prevent loss of topsoil and fertility. The number and frequency of gullies will be assessed in each microcatchment in order to optimise environmental benefits and to minimize costs. The lessons learnt from the EAWRP in gully plugging must be transferred and implemented in the AWRP. Gullies can be prevented through appropriate and sufficient vegetation cover, correct land preparation practices (especially for arable farming), reduction of fallow and the use of suitable harvesting methods and equipment.

#### Access road rehabilitation or construction

Access road construction standards have been developed by GDF in various Instructions which describe technical and administrative specifications and conditions for road construction bidding, including a format for special provisions and a sample contract (*Forest Roads, Road Construction Works*, Gen. Dir. of Forestry, Ankara, 1988). Roads are to be constructed with the specifications of 4 m platform width plus 1 m ditch width (5 m. in total) and 0.5 m sub-grade width, a minimum curve radius of 10-12 m and maximum slope of 10%. These standards should be updated to more fully incorporate more recent environmental best practice standards in road construction.

When undertaking road construction, maximum slopes should not exceed standards set for the soil type and terrain. Culverts should be installed to prevent erosion and bridges built across streams or rivers of a specified width. Where the soil is disturbed through cut and fill, the exposed ground should be re-vegetated quickly to prevent erosion. There will be clauses in the road building contract concerning environmental protection such as no cutting of trees without approval, replacing cut trees with appropriate species, where to dump excavated soil, no use of explosives without approval from MoE, how to maintain a temporary camp etc. Maintenance of roads is important to prevent erosion, rutting and water logging etc. Planting vegetation along the roadside should stabilize the soil and improve the microclimate.

#### Traditional access to forests

With respect to forestry activities, communities and individuals with interests in the use and management of forest resources will be identified and consulted during the participatory preparation of microcatchment plans. The project is not expected to limit to any significant extent communities' traditional use of forested areas. The project fully complies with OP 4.36 on Forestry as it aims to "reduce deforestation, enhance the economic contribution of forested areas, promote afforestation, reduce poverty and encourage economic

development,” through an integrated and participatory approach to microcatchment natural resource management, particularly through activities aimed at rehabilitating degraded forest lands and income generation activities geared towards compensating communities for short term costs associated with land management and protection.

### Pesticide use

All farmers that use or will use permitted herbicides, insecticides and pesticides on their arable and horticultural crops will be trained in the storage, handling and use of these chemicals as well as with respect to the careful disposal of the containers in a manner consistent with the *Directive on the Method and Principles of Registration of Pesticides and Similar Agents used for Plant Protection* as well as other regulations and directives. The use of appropriate clothing will be encouraged through demonstration. It is not envisaged that the any pesticides will be procured with project funds. Alternatives to chemicals, such as disease resistant strains (from local wild varieties) and integrated pest management will be demonstrated. Local people may know of natural predators and plants with naturally occurring insecticide properties: such indigenous knowledge should be tapped. The control of ticks and other parasites is important in animal husbandry; therefore, pastoralists will be trained in the handling and use of control agents. The procurement of any abiotic pesticides, including those on WHO 1A and 1B lists will not be allowed through the project.

More generally, Turkey has signed the Rotterdam Convention covering the use of chemical control agents. Pesticides are differentiated according to their toxicity with the eventual goal of phasing out the use of pesticides which are hazardous for the environment and human beings. The use of following pesticides is banned in Turkey: 2,4,5-T, Aldrin, Binapacryl, Captafol, Chlordane, Chlordimeform, Chlorobenzilate, DDT, Dieldrin, Dinoseb and its salts, HCH (mixed isomers), Heptachlor, Hexachlorobenzane, Lindane, Pentachlorophenol, Hg (Mercury) compounds, Endrin, Leptephos, As (Arsenic) compounds, Fluorodifen, Chlorpropylate, Daminozide (Alar 85), Taxophane, Zineb, Azinphos ethyl, Dibromochloropropan (DBCP), Methylarsenic (MSMA). From the list of pesticides, which are subject to PIC (Prior Informed Consent) according to the international legislation only the following preparatives which are in compliance with PIC limitations are not banned, and the rest are either banned or not registered licensed at all: Monocrotophos, Methamidophos, Phosphamidon, Methyl parathion, Parathion. The Aqua Products Law (No. 1380 of 1995) lists pesticide concentrations allowed in inland water bodies, and there are guidelines on products which can be used for phyto-sanitation published by the MARA General Directorate of Protection and Control (Plant Protection Products 2002, MARA, TISIT, Istanbul, 2002).

### Dam safety

The implementing agency for this component, KHGM, has long experience with the design, construction and maintenance of over 600 small dams throughout the country. During project preparation and appraisal, it was determined that KHGM has the relevant knowledge and experience to design, construct and maintain small dams and that it has proper design standards to guarantee the safety of small dams. Operation and routine maintenance of irrigation infrastructure will be the responsibility of beneficiary communities under the supervision and guidance of KHGM. Under the project KHGM will provide relevant local communities with training on dam surveillance, operation and management to assure that they can effectively carry out their responsibilities. Although it is unlikely that the project will include construction of dams higher than 15 meters, a panel of independent experts, consisting of a dam engineer and a hydrologist with qualifications satisfactory to the Bank, has been designated who would be called upon to carry out an independent review of the investigation, design, and construction of the dam and the start of operations, as spelled out in OP 4.37. No private land will be acquired for the construction of dams and resettlement is

therefore not an issue.

There should be no major negative environmental effects when building irrigation channels, ponds, small reservoirs and realigning water courses. Reservoir construction is mainly to regulate water flow and provide water balance to the soil since rainfall is very irregular between the seasons. Flooding is expected to be reduced by roughly 40-60%. There may be some initial erosion, but this can be quickly stopped through re-vegetation. Some of the irrigation and pond work etc. will be put out to tender. There are internationally acceptable technical specifications published by KHGM (Ankara-2000) for small irrigation dams (up to 15 m high). During the tendering process, provisions will be made to ensure that environmental standards are adhered (i.e. limited tree cutting, replacing cut trees, re-vegetation of bare soil, dumping of excavated soil).

### **Monitoring environmental performance**

Environmental monitoring standards are to be incorporated into the project's Monitoring and Evaluation system, which is to be undertaken by staff in the Project Operations Unit. Monitoring of environmental performance will focus both on a range of environmental indicators (areas reforested, pastures rehabilitated, sediment load, etc.) as well as on implementation of mitigation measures (compliance with roads construction standards, compliance with terrace construction standards, etc.)

### **Institutional responsibilities and capacity building**

It was agreed during Appraisal that a mechanism would be established within the Project Operations Unit formally to screen Microcatchment Management Plans, once these have been prepared, in a manner which is consistent with the guidance provided in the REA. The Project Operations Unit will also be responsible for ensuring that mitigation measures described in the REA are fully incorporated in these plans. Environmental performance will be monitored as part of the M&E system, and will be supervised by the Bank during project implementation.

Capacity to undertake these tasks is weak. The project will provide resources to train project staff in the development and implementation of environmentally-sound microcatchment management methods and approaches, including screening and mitigation of possible negative environmental impacts.

### **Other issues**

*Involuntary Resettlement (OP4.12):* A review of possible issues surrounding resettlement concluded that this OP does not apply to the project. No land acquisition is involved. In particular, this review concluded that all dams to be built under the project will be very small and be constructed on public land located in the mountainous upper part of watersheds. No private land will be acquired for dam construction and the dam location will be selected such that the reservoirs will only flood rocky, barren land. No grazing or other public land from which communities might derive a livelihood will be affected. The loan agreement will include a covenant to this effect.

*Projects in International Waterways (OP7.50):* Various concerns were raised during project preparation that the OP on Projects in International Waterways might be triggered because of the small scale irrigation component. The matter was thoroughly reviewed by Bank legal staff who concluded that the OP does not apply because their impact on abstraction of water flowing into the Mediterranean and Black Seas would be negligible. The small streams (many of which are already intensively used by local farmers) are third or fourth level tributaries of these five national rivers. A number of diversion schemes, irrigating about 20 ha

each, will be constructed along these small streams in each of the five national river catchments. Considering the annual flow of these large rivers, the total annual abstraction is negligible (less than 0.1% in the river with the smallest annual flow). The project's emphasis on extension will result in reduced agriculture based pollution of ground and surface water.

## **Annex 14: Summary of Social Assessment**

### **TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

#### **1.0 Social Development Outcomes**

This Annex summarizes the key social issues relevant to the project objectives. The detailed social assessment is available in the project documents. The project will contribute to the following social development outcomes:

- **Equity.** Labor intensive project interventions such as tree planting and construction works will offer poor villagers income-earning opportunities. Improvements in agricultural and forest productivity and new employment opportunities will enrich the livelihood strategies of poor villagers.
- **Empowerment.** The project emphasises people's participation in the conservation of particular natural resources essential for their livelihood strategies. Local communities will be empowered to organize and mobilize themselves and be fully involved in the planning and management of their natural resource base.
- **Social Inclusion.** Project intervention at the MC level will be demand driven primarily through the involvement of local communities in developing their own micro-catchment management plans. In addition, the application of the farmer-centred-problem-census-problem-solving (FCPCPS) approach has helped strengthen inter-agency collaboration and will further improve access of local communities to goods and services generated by the project.

#### **2.0 Method**

A social survey using both qualitative and quantitative methods was conducted in July-August 2002 in five MCs located in five different provinces. The MCs were selected based on their location in each of the five catchments (Kýzýlýrmak, Yeşilyrmak, Seyhan, Ceyhan, East Mediterranean- Göksu) and reflecting different climatic and vegetation conditions. In general, there are two types of MCs corresponding to the two different categories of intervention in the project: Type I refers to the MCs where erosion control and land management is the main concern and forms the bulk of the MCs covered under the project. Type II refers to the MCs where interventions are targeted at controlling agricultural pollution and corresponds with the GEF financed sub-component of the project. In the social survey, the MCs studied were the Gogden, Orcan and Kabaktepe MCs under Type I, and Kazova and Ilyasli under Type II. The surveys included in-depth interviews with village *muhtars* (village heads), and focus group discussions particularly with women and livestock producers. The quantitative household survey (QHS) was undertaken in 25 villages representing 566 households in the project area.

#### **3.0 Description of Project Beneficiaries**

The population of the five project provinces total 10 million where more than half the number live in rural space. Within the project sites (28 MCs encompassing an estimated 200 villages) the estimated number of project beneficiaries are 98,000. The majority of the population depend on agricultural-based activity as the primary livelihood strategy. Each watershed, however, have different patterns of cropping, livestock, and non-farm activity. A detailed description of the 5 surveyed MCs is provided in the project files. Table 1 shows the general characteristics of the MCs surveyed.

**Table 1: General characteristics of MCs surveyed**

	GÖGDEN	ILYASLI	KABAKTEPE	KAZOVA	ORCAN
No. of villages	4	8	3	8	7+4
Total population of the MC	1 500	4 313	495	3515	11 864
Total area of the MC (ha)	17 271	7 196	5 780	4 883	8 772
Forest area of the MC (ha)*	6 240	368.2	1 905	180.5	4 871
Total agricultural land (ha)	5 351	3.790	952	2 308	3 402
Rangeland (ha)	5 034	N/a	2 057	n/a	40
No. of cattle	132	2 170	1 996	4 499	1 325
No of sheep and goats	13 350	1 220	2 300	3 700	9 330

\* The forest area includes “productive forest”, “degraded forest” and “former forest”

Non-farm income is a major source of cash for these communities, especially in Type I MCs. There is substantial seasonal movement of labor which varies in intensity between the MCs. Most of the migration are to cities and tourist centers and take place during the construction and tourism seasons. Most of the migration are done by the young men of the villages. In some MCs, such as Gödden, Orçan and Kabaktepe, there have been net outmigration of the population.

#### 4.0 Poverty

The project has been designed to target the rural poor in the selected watersheds. The provinces of the project are spread across the second, third and fourth quartile of the 1997 Turkey Human Development Index. Within these provinces, the project MCs are located in zones of high poverty. The annual cash income of the families in the surveyed MCs is between 1,500 million TL and 6,000 million TL - the lowest being in Orçan and the highest is in Kazova. The annual income of the lowest group of family (in Orçan and Kabaktepe) in dollar equivalent is about USD 920.24. The average daily income of the family is USD2.52 with a per-capita income (assuming a family of 5) at USD 0.50. This is half of the level defining absolute poverty in Turkey which is USD 1.0 a day per-capita. The better off households (in Kazova) have a daily income of USD10.08 per family and a per-capita income of USD 2.017. This stands at only two times above the absolute poverty line, which is suggestive of the very low incomes in the project area.

In Type I MCs, the poorest families do not generally make cash expenditures on housing, most food items, heating in winter, and for most of the agricultural /livestock input and labor expenditures. Families practice subsistence agriculture (producing mainly cereals, vegetables, fruits, dairy products) to avoid cash payments for food items. Barter is used to obtain greater variety in their diet. Very little cash expenditure is made for agricultural inputs (seed, animal fertilizer etc). During the harvest season, labor is obtained through exchange among families. In dry agriculture areas very little machinery and chemicals are used. In general, the daily cash expenditure items of the poor families are: sugar, tea, oil, cigarettes, fuel for cooking and transportation. The monthly and annual cash expenditures include electricity, telephone, clothing and school expenditures. Health expenditures are met through the use of the green cards which allows access to free state health care. For families in the Type II MCs, there is greater use of cash in the economy. Cash expenditures are made on all spheres of life. However, the practice of purchasing chemical inputs for agriculture on credit has created a serious debt problem for many families. In the past, obtaining credit to purchase inputs from farmer cooperatives was a livelihood strategy to defer payment until the harvest was

sold. The recent removal of agricultural subsidies by the government, however, accompanied by rapid inflation has inflated the cost of inputs and pushed the farmers into a debilitating debt cycle.

The QHS found significant variation in the distribution of land ownership of irrigated and dry agricultural land. While some households may have little or no irrigated land they may own large holdings of dry agricultural land. The distribution of agricultural and dry land size within the survey area can be seen in the detailed social assessment. The QHS also found that there is a class of households who do not own any land at all. These households can constitute as low as 3.4% of the population (in Ilyasli) and as high as 16.4 % of the population (in Orcan). The 2002 Turkey poverty assessment found a strong correlation between land ownership and poverty. In this regard, the social assessment identified households with little or no land as a particular vulnerable group in the project. Table 2 shows the distribution of landless households in the MCs surveyed.

**Table 2: Distribution of landless households in survey area.**

	<b>Gödden</b>	<b>Orçan</b>	<b>Kabaktepe</b>	<b>Kazova</b>	<b>Ilyasli</b>
% of land owners	96.7	83.6	95.7	92.0	96.6
% without any land	3.3	16.4	4.3	8.0	3.4
Total	100.0	100.0	100.0	100.0	100.0

## **5.0 Beneficiary Priorities**

*Land-owning farmers.* Their main priority is to increase cash income through increased agricultural efficiency and yields. Specific expectations include development of water resources, advanced/new seeds for agricultural production, fruit tree saplings, grafts. In addition, there was also interest in training on techniques for improving agricultural efficiency and on entrepreneurial skills for market oriented production.

*Landless poor.* This includes owners of small land-holdings, women and young men. Their main priority is to have greater short-term employment opportunities and training in non-asset based income generating activities.

*Livestock owners.* This group has similar priorities with the landless poor. In addition, they require compensation for giving up their goats and for funds to help start-up new businesses. In the long run, they expect the project to assist them in cattle grazing through improved rangeland management.

*Middle-income to poor farmers in Type II MC.* Their main priority is assistance to switch to alternative agricultural production including moving to environment-friendly agriculture.

*Better-off farmers in Type II MC.* Assistance from project to decrease input expenditure and new approaches and techniques to improve their profit margin.

## **6.0 Vulnerable groups**

The SA identified poor families, women, young males and livestock owners as groups who are vulnerable to risks arising from the project.

Poor families. This group includes families with little or no land. The basic socio-economic characteristic of the family is its dependence on paid labor. Commonly children above 8 years are already included in the wage-earning category. The family is usually large with a high number of children in the younger age groups. The family lives on subsistence farming and the combination of different livelihood activities of different family members. This group will be left out should the project place emphasis only on improving agricultural productivity. Recognizing this the project has incorporated labor intensive project interventions such as tree planting and construction works that will offer poor villagers income-earning opportunities. Improvements in agricultural and forest productivity and new employment opportunities will enrich the livelihood strategies of poor villagers.

Women. Women are engaged in agricultural activities, livestock management, and as wage labor. They receive relatively less formal education. After the age of 12-13 school attendance decreases markedly for girls in some MCs (especially in poorer MCs like Orçan). The survey found that women were excluded from the development of the MC plans even though these plans had an impact on their economic and social life. During focus group discussions with women groups, the SA found a strong demand for more information about the project. Women expressed a high interest to participate in alternative income generating activities promoted by the project. This includes training for new income-generating activities. Recognizing this the project has incorporated training for women officials to achieve greater access to the women of the villages and ensure participation of women in the project implementation.

Young men. Young men are a vulnerable category in the project because of their subordinate status in the village structure. The households in the project area can be described as patriarchal and extended with brides moving to the household of their husband's family. The married couple and unmarried children live within the same extended family house or land belonging to the family. Income of all family members are pooled into one household budget which is controlled by the male head of the household (usually the father). Land is owned exclusively by the head of the family. Because of the leading position of the patriarch in the household, village level decisions are made largely between the patriarchs (referred to as the old men of the village). While this is not by itself a problem, the young men are concerned that the project brings a unique risk in introducing rapid changes to the village. In this context, they worry that their voice will not be heard in any decision-making process. In particular, they are concerned that issues of land use, which they will inherit at a later time, will be decided without their input and consideration.

## **7.0 Social Risks**

The potential social risks associated with the project are summarized below:

Capture of benefits by elites. Within the villages there are uneven power relations between the rich landed farmers and poor and landless farmers. Rich and powerful families are called *zengin*. The *muhtar* (village head) tends to come from the *zengin* class and is a man of considerable influence in the village. There is a risk that the project emphasis on improving land productivity may be manipulated by the elite to their benefit while neglecting the poor who tend to be landless. The project addresses this potential risk by ensuring effective participation of stakeholders through the FCPCPS approach and by targeting the most vulnerable groups in the village. This includes designing activities that don't require land ownership such as bee-keeping. The project has learnt from the EAWRP that simply giving out bee hives to farmers is insufficient. Most of the farmers are involved in multiple livelihood activities and do not have the time to rotate their hives during different seasons. Recognising this, the project will provide special training on bee keeping and facilitate village-level organization of bee keeping. This may involve identifying individuals dedicated to managing the hives for the other farmers on a profit-sharing basis. , providing greater wage-earning opportunities such as tree-planting and construction, and offering vocational training such as

wild tree grafting, pruning and simple agro-processing.

Administrative capacity. This is a complex project involving many different interventions and the participation of many different stakeholders. While the project aims to institute protection measures to rehabilitate degraded lands, it also offers a suite of benefits to the villages for accepting the changes to their traditional mode of practice. In this context, coordination between agencies becomes an important requirement to ensure timeliness of project interventions. Livestock owners, for example, should not be fenced out of their grazing ground before being offered a substitute or benefits to switch to alternative activities. The risk arises during implementation because of the multiple agencies involved whose different internal processes and procedures may result in some agencies lagging behind the others and failing to deliver the project benefits in a timely manner. At the same time, the sequencing of interventions is also dependent on the particular circumstances of the MC. The project addresses this risk by ensuring closer and effective collaboration between the agencies especially at the provincial level. The project will also provide training to the provincial level agencies on community mobilization and communication to ensure effective local participation and be able to respond effectively to the demands of individual MCs.

Village cultivation of forest lands. In the southeastern part of the project area, significant portions of land that fall officially under the jurisdiction of the Ministry of Forestry are either occupied by human settlements or are being cultivated under usufructary and other tenure claims. The most common activity is the production of pistachio (through the grafting of wild pistachio trees) which forms an important source of cash for the local communities. There is anecdotal evidence that lands under such claims are better managed than those without. In some MCs, villagers pay a collection tariff (a very small symbolic amount) to the Ministry to collect the harvests. Notwithstanding this, there are grave concerns among local communities that the conservation focus of the project will strengthen the Ministry's claim over these lands and result in the acquisition of their lands and pistachio groves. In MCs where such contested land claims occur, the project will work together with local communities to transfer long term management responsibility to community member and strengthen the role of community in protecting the forest. To better inform the project about potential conflicts and develop conflict resolution mechanisms, the PIU will ensure that a social scientist be on its team.

Different priority of beneficiaries. This applies to Type II MCs. The project beneficiaries, especially in tobacco growing areas, have voiced concern that their main concern is their worsening economic condition. The project emphasis on pollution reduction measures, in this light, may not be adopted by all the beneficiaries. The social assessment identified that the beneficiaries would like assistance to switch to alternative crops as a response to the crisis within the tobacco economy. The project recognizes that there is an opportunity to encourage the farmers to switch not just to different crops but to more sustainable agricultural practices. The project addresses this by providing training and extension services as well as facilitate the beneficiaries' access to the direct income support for cushioning the impact of the subsidy removal under the WB financed Agricultural reform Implementation project (ARIP).

*Livestock Owners.* Livestock owners, particularly those involved in sheep and goat management, are at the focus of behavioral change in the project. Within the villages there is already pressure from crop producers on the livestock owners to reduce their sheep and goat holdings. The project will help alleviate some of this tension by providing incentives to livestock owners to switch away from livestock or to adopt sustainable livestock management practices. The project operational manual will specify conflict resolution measures to ensure that potential conflict situations are resolved up-front and that livestock owners will participate effectively in the development of Microcatchment management plans. The PIU social scientist will take the lead in managing this issue and will emplace an independent monitoring and evaluation system. In some areas, the reinstatement of pasture leases to nomadic shepherds from provinces outside the project have come under protest by crop producers who allege that their land resources are being degraded by the seasonal movement of these animals. The project will ensure that nomadic shepherds are not deprived of their legal access to pasture grounds.

## **8.0 Participation**

This project builds on the success of the previous EAWRP which emphasized the strong participation of all stakeholders especially at the MC level. The EAWRP has also bred a greater appreciation and understanding of participation among the implementing agencies which had traditionally been used to a top-down culture of doing business. The project will build on this new awareness among government officials, especially at the provincial level, to provide training on community mobilization and other PRA techniques. This will make the agencies much more effective in ensuring participation at the local level and engaging with the communities in a more constructive manner. In addition, training will be provided for women officials to achieve greater access to the women of the villages and ensure participation of women in the project implementation. The project will also create at the local level MC Resource Management Associations (MRMA) that will mobilize the community to participate in project implementation and to take up responsibility for post-project operation and maintenance to ensure sustainability.

## **9.0 Safeguard Issues**

The construction of small dams in the Type I MCs may trigger the Bank's operational policy on involuntary resettlement (OP 4.12) through two possible scenarios:

1. Possible acquisition of private lands for small dam construction. The Type I MCs are located in areas with limited water resources. It is anticipated that there will be a high demand by the project beneficiaries for the project to develop their water resources. The project will do this largely through the development of irrigation ponds and streams. Only in extreme water-scarce catchment areas without springs and only seasonal streams, would the development of a small dam be accepted. These dams have a body height of 7.0-20.0 m and cover a surface area of between 0.3 - 4.0 ha. The Government of Turkey has given a guarantee that private lands will not be acquired for the construction of small dams under the project. A covenant will be included in the legal agreement to reflect this. The project will also incorporate this restriction into the operational manual and put in place a monitoring and evaluation program to ensure compliance.

2. Possible restriction of access to grazing grounds on public lands. The small dams mentioned above will be built on the upper sections of the participating microcatchments. These dams will be built mostly in steep gullies and flood infertile lands which are not used by local communities for agricultural or grazing purposes. Since the exact location of these small dams will only be known during the implementation of the project, there is a small possibility that some traditional grazing grounds on public lands may be flooded resulting in the changing of land use and, therefore, restricting access to livelihood resources. The Government of Turkey gives an assurance that the small dams will only be constructed in public lands that

are not used for grazing purposes. A covenant will be included in the legal agreement to reflect this commitment. The project will also incorporate this restriction into the operational manual and put in place a monitoring and evaluation program to ensure compliance.

**Annex 15: Procurement of Goods, Works and Services from Government-owned Enterprises**  
**TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

The implementing agencies are proposing to procure materials, some agricultural inputs and services from government owned enterprises under the scope of the proposed project. Below is the brief information about the procurements in this nature:

**1. Forestry Seedlings:**

Under the scope of project; forestry seedlings (i.e. pine, cedar, acacia, fur) shall be planted under the supervision of General Directorate of Forestation (AGM) in each year for a period of 7 years in 5 provinces. The total quantity of the seedlings to be used will be about 22 million.

The forestry seedlings are available in the market for very small quantities where maximum few thousands of seedlings are available at once, but with a questionable quality (mostly contaminated with diseases). However, significant amounts of disease free seedlings can only be supplied by the Forestry Nurseries that are specialized in seedling production. These nurseries are operating under Provincial Directorates of the Ministry of Forestry and they are the only available and reliable source of supply.

**2. Fruit Bearing Forest Seedlings:**

Under the scope of project; fruit bearing forest seedlings (i.e almond, walnut, wild cherry) shall be planted by the General Directorate of Forestation (AGM) in each year for a period of 7 years in 5 provinces. The total quantity of the seedlings to be used will be about 200,000.

The fruit bearing forest seedlings are available in the market for very small quantities where maximum few thousands of seedlings are available at once, but with a questionable quality (mostly contaminated with diseases). Or, the required type and/or species may not be available at all in the market. However, significant amounts of disease free seedlings can only be supplied by the Forestry Nurseries that are specialized in seedling production. These nurseries are operating under Provincial Directorates of the Ministry of Forestry and they are the only available and reliable source of supply.

**3. Fruit Tree Seedlings:**

Under the scope of project; fruit tree seedlings shall be provided to the farmers in each year during a period of 7 years in 6 provinces.

These seedlings are generally available in the market but in small quantities where maximum few hundreds seedlings can be available at once. First, Ministry of Agriculture and Rural Affairs (MARA) will try to procure the needs from the local market through National Shopping and Local Competitive Bidding procedures. If the required amount and type/varieties of seedlings can not be procured from the market, then remaining need will be supplied by the Agricultural Seedling Production Directorates, whose primary responsibility is production of good quality, disease free seedlings, under Provincial Directorates of the Ministry of Agriculture. This seems to be the main source of available and reliable supply.

**4. Forest Tree Seeds:**

Under the scope of project; forest tree seeds shall be planted under the supervision of General Directorate of Forestation (AGM) in each year during a period of 7 years in 5 provinces. The total quantity of the seedlings to be used will be about 100 tones.

These seeds are generally available in the market for small quantities where maximum few hundreds kilos of seeds can be available at once. First, General Directorate of Forestation (AGM) will try to procure the needs from the local market through National Shopping and Local Competitive Bidding procedures. If the required type/variety of seeds can not be procured from the market, then remaining need will be supplied by the Forestry Nurseries under Provincial Directorates of the Ministry of Forestry. This seems to be the main source of available and reliable supply.

On the other hand, sufficient amount of seeds, sometimes, may not be available in the Forestry Nurseries. In such cases, villagers or workers will be hired to collect the seeds from forest lands.

#### **5. Agricultural Seeds:**

Under the scope of project; agricultural seeds shall be provided to the farmers in each year during a period of 7 years in 6 provinces.

These seeds are generally available in the market for small quantities where maximum few hundreds kilos of seeds can be available at once. First, Ministry of Agriculture and Rural Affairs (MARA) will try to procure the needs from the local market through National Shopping and Local Competitive Bidding procedures. If the required type/patterns of seeds can not be procured from the market, then remaining need will be supplied by the Agricultural Production Directorates located under each Provincial Directorate of the Ministry of Agriculture. This seems to be the main source of available and reliable supply.

#### **6. Bee Hives:**

Under the scope of project; bee hives shall be made available for villagers in each year during a period of 7 years in 5 provinces. The total quantity of the beehives to be used will be about 360 units, where 1 unit contains 15 hives.

These bee hives are generally available in the market for small quantities where few units can be available at once. First, Ministry of Agriculture and Rural Affairs (MARA) will try to procure the needs from the market through National Shopping and Local Competitive Bidding procedures. If the required amount and type or race of bees can not be procured from the market, then the remaining need will be supplied by Bee Production Stations located in some regions under the Ministry of Agriculture. This seems to be the main source of available and reliable supply.

#### **7. Digitized 1/25000 Scale Maps:**

The digitized maps for the selected micro-catchments will be required to prepare implementation plans for the micro-catchments. These maps have to be procured in the early stages of the project, let's say in the first three years. This type of 1/25000 scale maps are available only at the General Headquarters of Cartography. This is the only source of digitized maps in Turkey.

The total estimated cost of digitized maps is about US\$ 50,000

#### **Conclusion and Recommendation:**

Based on the above given reasons and justifications, the Bank (OPCPR) agrees, on an exceptional basis, with the procurement of above listed agricultural inputs and services from government owned enterprises under the scope of the project, if and when they can not be procured from private sources in local market. The above underlined agencies are the Government agencies and they are not eligible according to paragraph 1.8 (c) of the Bank's Procurement Guidelines. More specifically, they are not legally and financially autonomous; they do not operate under commercial law; they are the dependent agencies of the

Borrower or the Sub-Borrower i.e. implementing Ministries. However, because of specific nature of the project and when there is no private sector alternatives for these agricultural inputs and services, the Bank (OPCPR) agrees the direct procurement from government owned enterprises for the concerned agricultural inputs.

There are several reasons why ICB is not an appropriate method for supplying inputs (seeds and seedlings) for agricultural and forestry interventions and why government agencies have to be used as suppliers in addition to the private sector companies. The reasons are given below under 3 categories: i) forest seedlings for afforestation and erosion control activities on the state land, ii) fruit tree seedlings for agricultural activities on the farmers' land, and iii) seeds for agricultural activities on the farmers' land.

#### **A. Forest seedlings for afforestation and erosion control activities on the state land**

These seedling can only be provided from the Nurseries under the Ministry of Forestry.

Turkey wants to conserve its biodiversity. Turkey has a very rich biodiversity and homes a number of endemic (means only grown in Turkey) species. The country is making serious effort to conserve this richness and wants to use its own species in forestry activities instead of bringing new and foreign species from outside.

Genetic pollution is not desired. Turkey is also rich in genetic diversity and committed to protect this. In fact, successfully implemented a GEF project (which was the first one in the world at this size) to conserve this diversity *in-situ*. Bringing seedlings even for the same species means new genetic material that results in genetic pollution that is not desired at all.

Origin of the seedling material is extremely important. Research indicates that success of the plantations depends on several factors that include the origin of the material and the quality of the seedlings. Therefore, 125 nurseries were established in Turkey by the General Directorate of Afforestation and Erosion Control under Ministry of Forestry to improve the success of the plantations. Each nursery serves an area of 200 km diameter and 100-150 m elevation range between location of planting and the nursery. For each planting are, the field staff inform the appropriate nurseries about the seedling needs a season in advance. Nurseries collect seeds from the selected species from their service area, produce the seedlings, make them ready for the planting season and wait for the request for the transportation date. Supplying seedlings from one region to another region even in Turkey cause failures in plantations due to inappropriate origin.

Buying in bulk is not appropriate. There will be 6 provinces in the Project and a total of about 28 micro-catchments (MCs) will be included where forestry activities will be conducted. MCs that are scattered in a province have their unique features in terms of climate, soil, and topography that dictate the planting time. During spring and fall, in a MC when soil is in appropriate condition, terraces are made and as soon as favorable conditions occur, seedlings are planted. In case of delays due to a variety of reasons i.e. late arrival of seedlings, problems in providing labor, there is a substantial risk of losing soil moisture. In this case, another rainy season has to be waited. While in MC A, the soil moisture is suitable for planting in March, in MC B, conditions occur only in April. This could happen within the same province. On the other hand, provinces also differ widely in terms of ecological conditions where planting times show great variation. Planting time is site-specific and seedlings are made ready for planting according to these local conditions. Therefore, buying in bulk (millions) and making them survive until the right conditions occur for planting is not possible. When the Nurseries are informed about the exact planting dates by the field people, seedlings are transferred to the MCs. The seedling reach to the planting area within 1-2 days following the request.

Completion planting is needed in the following years. Despite all the efforts, survival rates for the planted seedlings are not 100%. There are factors beyond the control of the project staff that effects the survival rate: conditions in the MCs are harsh mainly due to the elevation; quality is not perfect for every single seedling, imperfect operation always occur in manual planting and in that season weather conditions could be unfavorable, mainly drought hits the plantation. Therefore, after the first planting year, dead seedlings need to be replaced with new ones. Same genetic material needs to be supplied timely for this operation.

Private sector in Turkey is not developed enough to seedlings for forestry activities. There are number of private nurseries in Turkey selling forest species but as ornamental plants for parks and gardens. They do not have the infrastructure to supply the species in demand timely, with the right origin, and in large quantities.

## **B. Fruit Tree Seedlings for Agricultural Activities**

Depending on the scale of the need, availability, quality, and timeliness of the delivery, procurement can be done from: i) nurseries under Ministry of Agriculture and Rural Affairs (MARA), ii) agricultural research institutes (MARA), iii) TIGEM; a state economic enterprise that produces seedlings for fruit tree species and multiplies seeds for farmers mainly for some field crops that are not usually supplied by the private sectors due to low profitability; and iv) private companies.

Buying in bulk is not appropriate. There will be 6 provinces in the Project and a total of about 28 micro-catchments (MCs) will be included where agricultural activities will be conducted. This is a participatory project where the decisions for the private land are made by individuals living in the MCs. During spring and fall, in a MC when soil is in appropriate condition and weather temperatures are favorable, farmer arranges his labor, prepares his land and plants the seedlings. For fruit trees, temperatures have particularly important, early and late frosts need to be taken into consideration. All these characteristics show great variation with elevation and topography. As mentioned above, MCs that are scattered in a province have their unique features in terms of climate, soil, and topography that dictate the planting time. In other words, planting time is site-specific and seedlings need to be made ready for planting according to these local conditions. Buying in very large quantities and keeping them until the right conditions occur for planting is not possible. Government nurseries and or private sector are informed about the exact planting dates by the local agricultural people and seedlings are transferred to the MCs in a short period of time and delivered to the farmers. It should be noted that, in this participatory project, relationships depend on the trust.

Private sector nurseries in Turkey is not developed enough to provide good quality, disease free seedlings. There is number of small private nurseries in Turkey providing fruit tree seedlings but these are not certified. It means one should depend on the verbal guarantee of the seller, since it is not always possible to detect diseases and identify varieties visually. In many cases, hundreds of seedlings that were planted turned out to be diseased, a mixture of different varieties, different ages and the result was a total failure. In such cases the cost of this failure is very high, farmers lose their confidence in the project staff.

Private sector nurseries in Turkey do not have the infrastructure to supply good quality, disease free seedlings in bulk. In some cases, the private nurseries are trustworthy but they do not have the infrastructure to provide the demanded species and varieties in bulk. In such cases, whatever is available is procured from these nurseries and the remaining needs are supplied by the government nurseries.

### **C. Procurement of Seeds for Agricultural Activities**

Depending on the scale of the demand, availability, quality, and timeliness of the delivery, procurement has to be done from: i) agricultural research institutes under MARA, iii) TIGEM; a state economic enterprise that produces seedlings for fruit tree species and multiplies seeds for farmers mainly for wheat, barley, forage crops and pulses that are not usually supplied by the private sectors due to low profitability; and iv) private companies.

Varieties that are adapted to local conditions have to be used. In most of the MCs, agricultural production is made under rainfed conditions since irrigation is very limited. This means cereals (wheat and barley); pulses (lentil and chickpea) and forage crops (vetch, sainfoin) are the major crops for these conditions. Turkish agricultural research institutes developed a number of varieties for these crops that are adapted to local conditions (elevation, climate, soil and local quality preferences). In fact, Turkey is the gene center for these crops. Therefore, the varieties developed by the agricultural research system need to be supplied to the MC farmers and these are produced by the government agencies.

Private seed sector has limited interest in cereals, forage crops and pulses. Private sector in Turkey is the major actor in vegetable, maize, soybean, and sunflower hybrid seed (every year new seed needs to be purchased) production. These are mostly the distributors of the international big companies. However, the interest by these companies for wheat, barley, forage crops and legumes is very limited. Since these are produced with standard/conventional seeds (same seed could be used for about 5 years), the profitability is comparatively very low. Therefore, for these crops, the main seed supplier is the government. However, if the companies can provide certified seed in the amount requested, seed purchase is also made from them. For project purposes, the seeds for vegetables, maize and sunflower are mostly purchased from the private sector companies.

## **Annex 16: Identification and Selection Criteria for Microcatchments TURKEY: ANATOLIA WATERSHED REHABILITATION PROJECT**

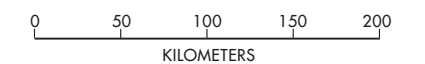
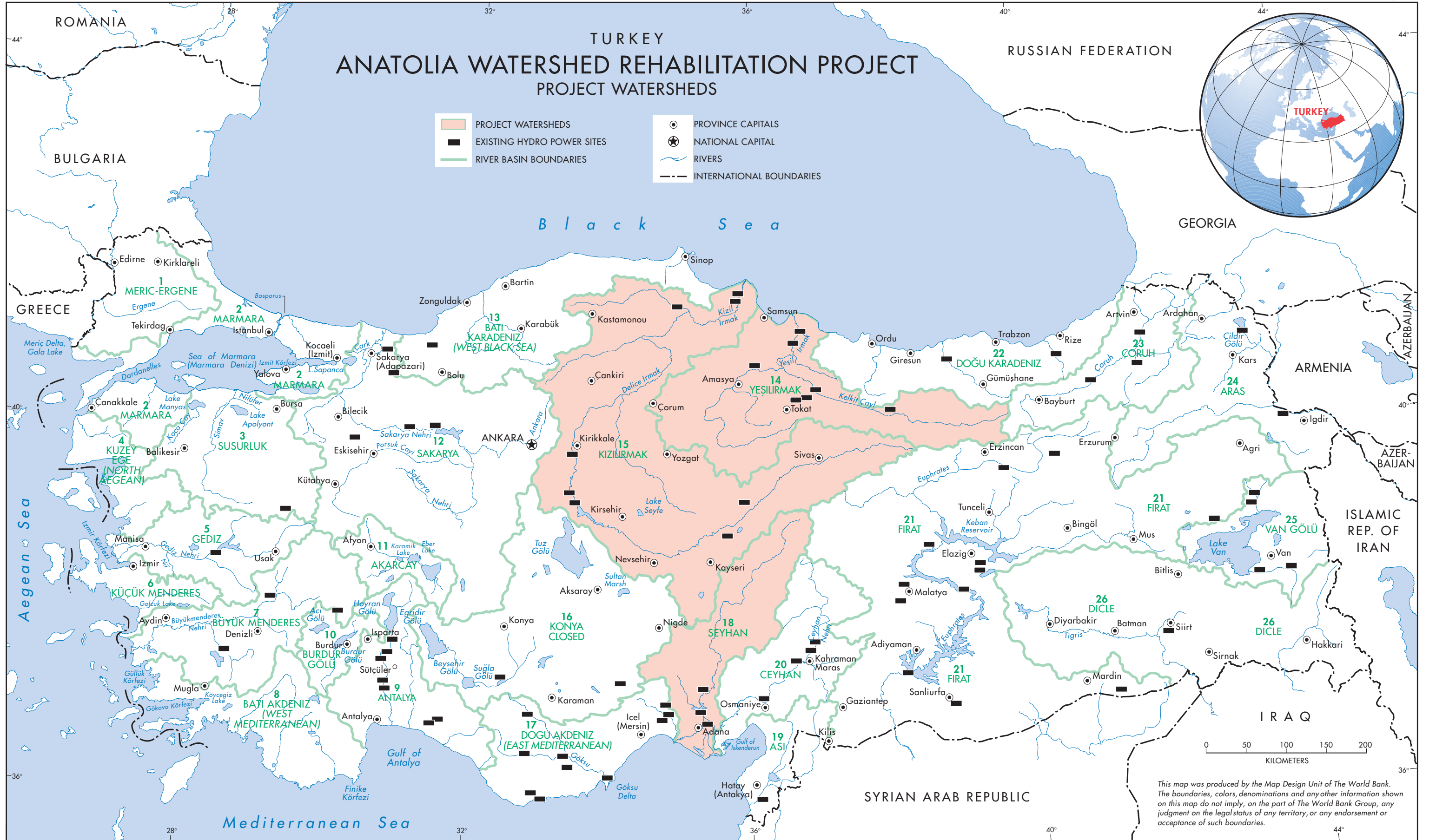
This Annex describes the process used in selecting microcatchment areas for intervention. This process, which involves three levels of selection at the level of the watershed, the province, and the microcatchment, has been well developed and successfully implemented in the course of the Eastern Anatolia Watershed project.

(a) ***Selection of watershed for project funding:*** The main criterion is whether or not the river can be classified as an international waterway. If so classified, it can not be included in the project. In the event that a watershed is not classified as an international waterway, then selection would be on the basis of severity of natural resource degradation. The proximity of a watershed to an area that had already benefited from microcatchment rehabilitation would be taken into account to achieve a broader impact.

(b) ***Selection of Province:*** The main criterion is location in relation to untreated pockets of degradation within a watershed. The watershed could be either one that has already benefited from microcatchment rehabilitation, or an unimproved watershed where the objective would be to capture the synergies from dealing with several sub-catchments. The overall objective would be to avoid rehabilitation works being too widely scattered over the country leading to excessive unit costs and reduced impact. In addition, the capacity of the implementing agencies at the field level would be taken into account in selecting a Province. All agencies should be sufficiently staffed to carry out the planning and implementation simultaneously in several microcatchments.

(c) ***Selection of Microcatchments:*** The criteria used for the selection of microcatchments are as follows:

- Severity or magnitude of natural resource degradation: has to be rated as severe, a cause of poverty and already subject to flooding and landslides;
- Size of microcatchment: 5,000 to 10,000 hectares;
- Location: adjacent to another microcatchment either one that has already benefited from microcatchment rehabilitation, or an unimproved microcatchment where the objective would be to capture the synergies from dealing with several microcatchments. The overall objective would be to avoid rehabilitation works being too widely scattered over a watershed leading to excessive unit costs and reduced impact.
- Accessibility of microcatchment: adequate degree of access for contractors/transporters;
- Level of rural poverty: as demonstrated by rural out-migration and measured through estimated annual incomes;
- Risk of natural disaster through flood and/or landslides: risk to be rated high;
- Possibility of reversing the natural resource degradation in a sustainable and economic way: investments should lead to sustainable rehabilitation of degraded natural resources;
- Willingness of microcatchment community to participate in the project: prepared to make in-kind and/or cash contributions and take responsibility for specific activities (e.g. rangeland management, conservation of new plantations and use of irrigation water); and
- Level of potential for introducing income raising activities: sufficient agricultural resource base to be used as leverage for better natural resource management.

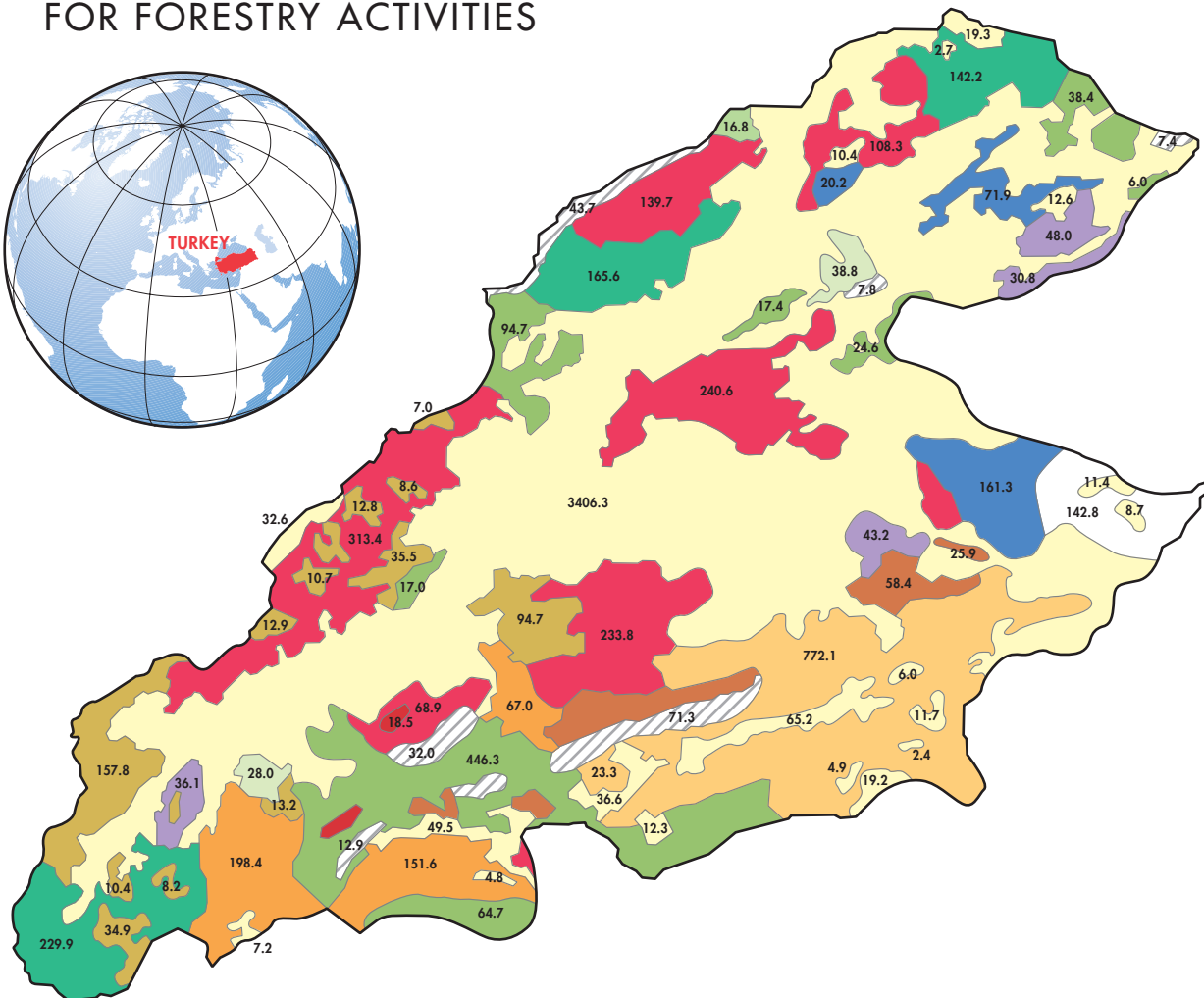


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# TURKEY ANATOLIA WATERSHED REHABILITATION PROJECT SAMPLE MICROCATCHMENT PLAN FOR FORESTRY ACTIVITIES

0 1 2 3 4 5 Kilometers

*This map was produced by the Map Design Unit of The World Bank. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of The World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.*



Area in hectares:

- REHABILITATION OF DEGRADED AND HIGH FOREST WITH 10% CANOPY CLOSURE (BBK)-423.0
- LITHOZOLIC (Ky)-184.6
- OAK COPPICE REHABILITATION (MsR)-537.7
- SOIL CONSERVATION AFFORESTATION\_machinery\_potential (Potansiyel TMA\_Makina)-171.3
- SOIL CONSERVATION AFFORESTATION\_manual\_potential (Potansiyel TMA\_Isçi)-735.0
- SOIL CONSERVATION AFFORESTATION\_machinery (TMA\_Makina)-253.5
- SOIL CONSERVATION AFFORESTATION\_manual\_gully rehabilitation(TMA\_Isçi Oyuntu Tahkimi)-18.5
- SOIL CONSERVATION AFFORESTATION\_manual (TMA\_Isçi)-1136.1
- PRODUCTIVE FOREST (Mb1)-15.8
- WILD TREE GRAFTING\_potential (Potansiyel\_YAs)-158.1
- WILD TREE GRAFTING (YAs)-66.1
- AGRICULTURAL LAND (Z)-3716.8
- PROTECTION AND IMPROVEMENT OF POOR, DEGRADED AND BARE SOIL\_Potential (Potansiyel\_ÇZAs)-795.9
- PROTECTION AND IMPROVEMENT OF POOR, DEGRADED AND BARE SOIL (ÇZAs)-417.0

Total area: 8772 Ha.

