

An aerial photograph of a rural landscape in Turkey. The foreground and middle ground are dominated by terraced vineyards with rows of green grapevines. A small village with several houses and trees is visible in the center. The background shows a hilly, arid landscape with sparse vegetation. The text is overlaid on a semi-transparent green rectangular box in the center.

# **TURKEY**

## **ANATOLIA WATERSHED REHABILITATION PROJECT**

Ankara  
2008



# **General Problems Of Watersheds**

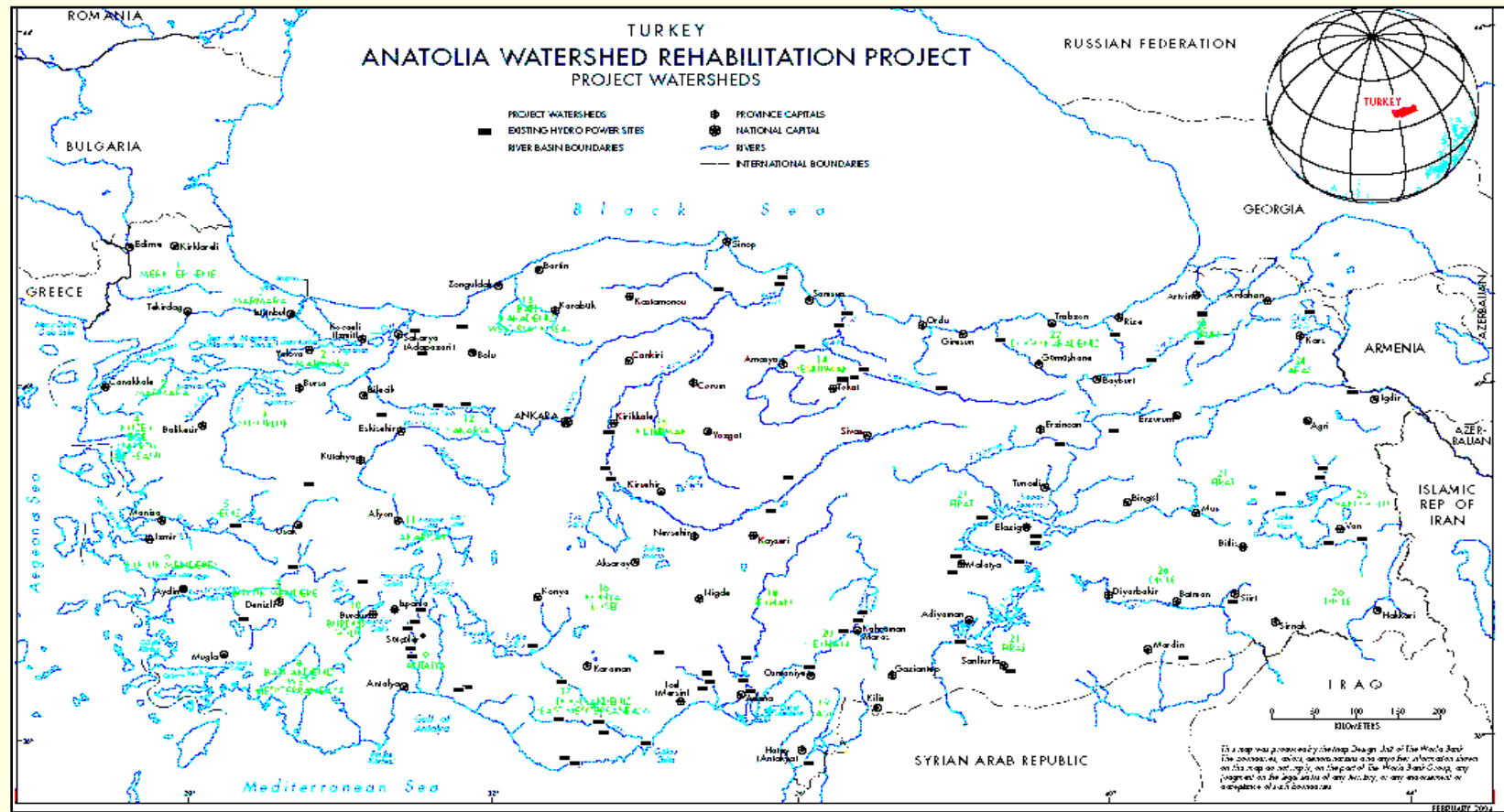
- **Soil erosion**
- **Degradation of natural resources**
- **Over- and irregular pasturage in rangelands**
- **Poor vegetation**
- **Destruction and over-use of forest lands**
- **Herd livestock**
- **Dispersed settlement**
- **Over-population (insufficient labour force due to migration in some watersheds in recent years)**

- **General Problems of Watersheds**

- **Low level of efficiency in animal production**
- **Misuse of lands and agricultural techniques**
- **Insufficient farmlands**
- **Insufficient water resources**
- **Insufficient modern agricultural techniques**
- **Insufficient organic substance in farmlands**
- **Rural poverty**
- **Lack of training and awareness in the use of natural resources**

**As a result : Poverty and Migration**

# Anatolia Watershed Rehabilitation Project



Project implemented in **Amasya, Çorum, Samsun, Tokat, Sivas and Kayseri** provinces which drain their rivers in the Kızılırmak and Yeşilırmak basins, pour into the Black Sea.

## **Project Development Objective-1**

The project is to support sustainable natural resource management practices in twenty-eight (28) microcatchments in Anatolia and Turkey's Black Sea Region and thereby raise incomes of communities affected by resource degradation.

## **Project Global Objective**

The key global environment objective is to introduce farming practices which will reduce the discharge of nutrients and other agricultural pollutants into surface and ground water in watersheds draining into the Black Sea in four provinces.

# **Project Activities (1)**

## **I – Rehabilitation of Degraded Natural Resources**

- Rehabilitation of forest, range and agricultural lands,
- Improve environmentally-friendly agricultural practices,
- Establishment of the monitoring system for water pollution control

## **II – Income Generation Activities**

- Develop small-scale irrigation,
- Agricultural production on terraces,
- Farm production/income diversification,
- Improvement of livestock, greenhouse, fishing, beekeeping, etc.

## **Project Activities (2)**

### **III – Strengthening Institutional Capacity and Policy for obey EU standarts**

- **Support Implementing EU Nitrate Directive**
- **Implement and Introduce Agricultural Practices Rules**
- **Institutional Support About Organic Farming**

### **IV– Training and Public Awareness Building**

- **Trainings are about protection of natural resources, increase of agricultural productivity, use of inorganic manure by farmers and organic farming technics**

# Project Implementation Units (CENTRE)

Ministry	General Directories
<b>MEF</b> <b>Ministry of Environment and Forestry</b>	<ul style="list-style-type: none"><li>✓ General Directorate for Afforestation and Erosion Control (<b>AGM</b>)</li><li>✓ General Directorate for Forestry (<b>OGM</b>)</li><li>✓ General Directorate of Forest and Village Relations (<b>ORKÖY</b>)</li><li>✓ General Directorate of Environmental Management (<b>ÇYGM</b>)</li></ul>
<b>MARA</b> <b>Ministry of Agriculture and Rural Affairs</b>	<ul style="list-style-type: none"><li>✓ General Directorate of Agricultural Production and Development (<b>TÜGEM</b>)</li><li>✓ General Directorate of Control and Protection (<b>KKGM</b>)</li></ul>



# Project Implementation Units (PROVINCE)

Units	Related Units
Governorship	<ul style="list-style-type: none"><li>✓ Provincial Directorate of Environment and Forestry (AGM,ORKÖY,ÇYGM)</li><li>✓ Regional Directorate of Forestry ( OGM)</li><li>✓ Provincial Directorate of Agriculture</li><li>✓ Special Administrative Board Of Province</li></ul>
Related Institutions In the Project	<ul style="list-style-type: none"><li>✓ Municipalities, Head of Villages</li><li>✓ NGO' s ( Non-Government Organizations)</li><li>✓ Cooperations , Village Cooperatives</li><li>✓ Other</li></ul>
International Organizations	<ul style="list-style-type: none"><li>✓ World Bank(WB)</li><li>✓ Global Environment Fund (GEF)</li></ul>

# **Project Management**

## **Central Level**

- 1- Project Management Group (PMG)**
- 2- Project Management Group of each Ministries (PMU)**

## **Province Level**

- 1- Project Province Management Unit**
- 2- Small Michrocatchment Implemantors Teams**

# Financial Proportion of Total Budget

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	Loan	Grant	Total
World Bank	15.70	7.00	22.70
Government	11.49	2.20	13.69
Participant	7.71	0.80	8.51
TOTAL	34.90	10.00	44.90

## Distribution of Expenditures to Institutions (Loan+Grant)

Institution	World Bank	Government	Participant	Total
AGM-OGM	10.46	3.92	-	14.38
İL ÖZEL İD.		6.25	1.94	8.19
TÜGEM	2.82	0.72	2.07	5.61
ORKÖY	2.32	0.60	3.7	6.62
Expenses	0.10	-	-	0.10
Total	15.70	11.49	7.71	34.90
ÇYGM	0.47	0.10	-	0.57
KKGM	6.53	2.10	0.80	9.43
Total	7.00	2.20	0.80	10.00
General Total	22.70	13.69	8.51	44.90



# Quantities of Institutions Planned Activities

Institutions	Planned Implementation Areas (Ha.)
AGM	22,763
OGM	4,082
<b>TOTAL</b>	<b>26,845</b>
TÜGEM	7,625
KHGM	4,488
<b>GENERAL TOTAL</b>	<b>38,958</b>
ORKÖY	430 Unit

**It is necessary to provide the participation of all related public institutions and local people for a sustainable natural resource management**



## QUANTITIES OF FORESTRY ACTIVITIES AGM-OGM

Activities	Unit	Quantity
Soil Conservation Activities	Hectar	15,600
Protection and Improvement Of Poor Degraded and bare soil	Hectar	2,265
Gallery Plantation	Hectar	37
Planing Rangeland Management in Forest Area	Hectar	1,800
Rangeland Rehabilitation and Manegement in forest area	Hectar	2,350
Oak rehabilitation	Hectar	2,875
Rehabilitation of degraded and high forest with 10% closure	Hectar	807
Planing and determining theForest Products except wood	Hectar	400
Participatory Plantation	Hectar	710
<b>TOTAL</b>	<b>Hectar</b>	<b>26,844</b>

## Quantities of AGM Activities by the End of 2007

Activities	(Hectar)
Erosion Control	8,787
Oak Rehabilitation	150
Rehabilitation of degraded and High forest with 10% Canopy Closure	210
Participatory Planting	30
Rangeland Rehabilitation	2,625
Total	11,802

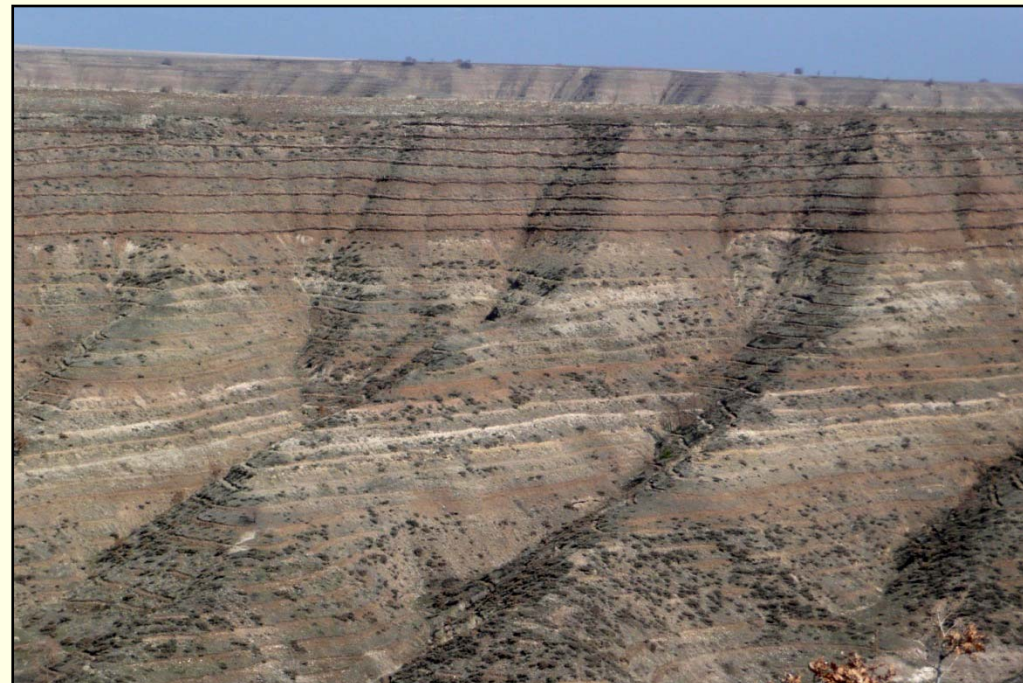


# AGM Activities





# AGM Activities





# AGM Activities



## Quantities of Agricultural ActivitiesTUGEM by the End of 2007

Activities	Unit	Quantity
Fallow Reduction	Hectar	1,834
Appropriate Use Of Marjinal Lands	Hectar	509
Environment Friendly Agricultural Technics	Hectar	155
Income Generation Demonstrations	Unit	39
Rangeland rehabilitation	Hectar	2,442
Rainfed Fruit Garden Establishment	Hectar	539
Irrigated Fruit Garden Establishment	Hectar	751
Irrigated Fodder Production	Hectar	596
Vegetable Production	Hectar	199
Wild Tree Grafting Outside of The Forest	Hectar	97
Field Boundry Plantation	Hectar	90
Simple Agricultural Implementations Technics	Unit	14
Beekeeping	Unit	360



## Realizations of TUGEM by the end of 2007

Activities	Unit
Beehive and Equipments Distribution	126 Unit
Agricultural Area Rehabilitation	2,551 Hectar

# TUGEM Activities





# TUGEM Activities



**Fruit Garden Establishment**



# TUGEM Activities





## Quantities of Special Province Administrative Board Activities by the End of 2007

Activities	Unit	Quantity
Small Scale Irrigation	Hectar	3,939
Agricultural Terrace	Hectar	495
River Bend Rehabilitation	Hectar	57
<b>TOTAL</b>	<b>Hectar</b>	<b>4,488</b>

# Special Province Administrative Board Activities



**Small Scale Irrigation**

## ORKOY Activities

Activitiy	Unit	Quantity
Dairy Cow Keping	Unit	168
Dairy Sheep Keping	Unit	169
Pond Fishery	Pond	10
Greenhouse	Unit	80

## Realizations of ORKOY by the end of 2007

Activities	Quantities
Husbandary (Dairy Cow Keeping and Dairy Sheep Keeping )	195 Unit
Total	195 Unit



# ORKOY ACTIVITIES





## Realizations of ÇYGM & KKGM by the end of 2007

Activities	Unit	Quantities
Central Store	Unit	3
Small Farm Type Store	Unit	110
Household Type Store	Unit	194
Farm Type Store	Unit	6
Manure Analyze	Test	75
Soil Analyze	Test	4,160
Machinery (Tractor, etc.)	Unit	35

## Realizations of ÇYGM by the end of 2007

Activities	Quantities
Monitoring Water quality	34 Station
Total	34 Station

## Realizations of KKGM by the end of 2007

Activities	Quantities
Central-type store	6 unit
Household-type and Farming Type solid/liquid store	265 unit
Tractor, Romork, manure spreader	35 unit

# Manure Management



**Traditional Manure Storing**



**Flowing of liquid manure in the river**



## KKGM Activities



**Household-type solid & liquid waste (manure) store**



# KKGM Activities



**Central-type solid manure store**



**Central-type liquid manure store**





# KKGM Activities



Liquid manure spreader



Spreading of Liquid manure into the soil

# **Expected Benefits From The Project (1)**

**Benefits provided by Natural resource rehabilitation and reducing the rural poverty works**

- ✓ **Protection of Existing Forest and Range Land**
- ✓ **Rehabilitaion and Development of Degreded Forest and Range Land**
- ✓ **Prevention of Loss by Erosion, Flood and Overflowing**
- ✓ **Strengthening and Diversification of Agricultural Systems**
- ✓ **Increasing Employment and Decreasing of Rural Poverty**
- ✓ **Strengthening of Institutional Capacity,**

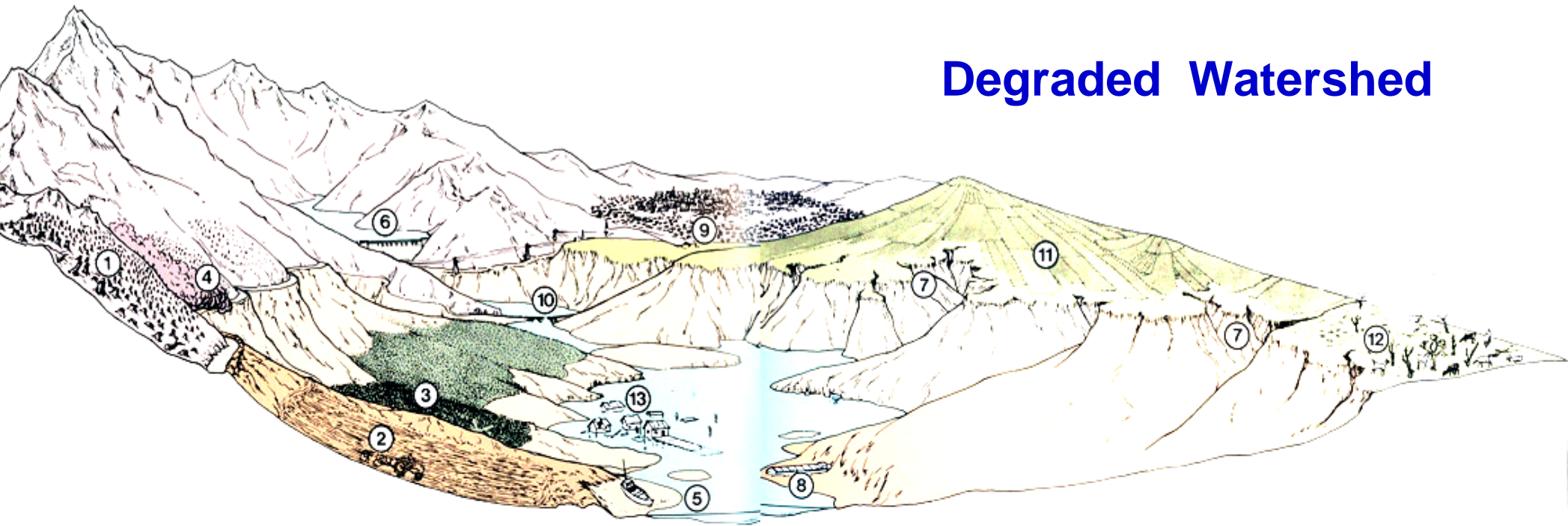


## **Expected Benefits From The Project(2)**

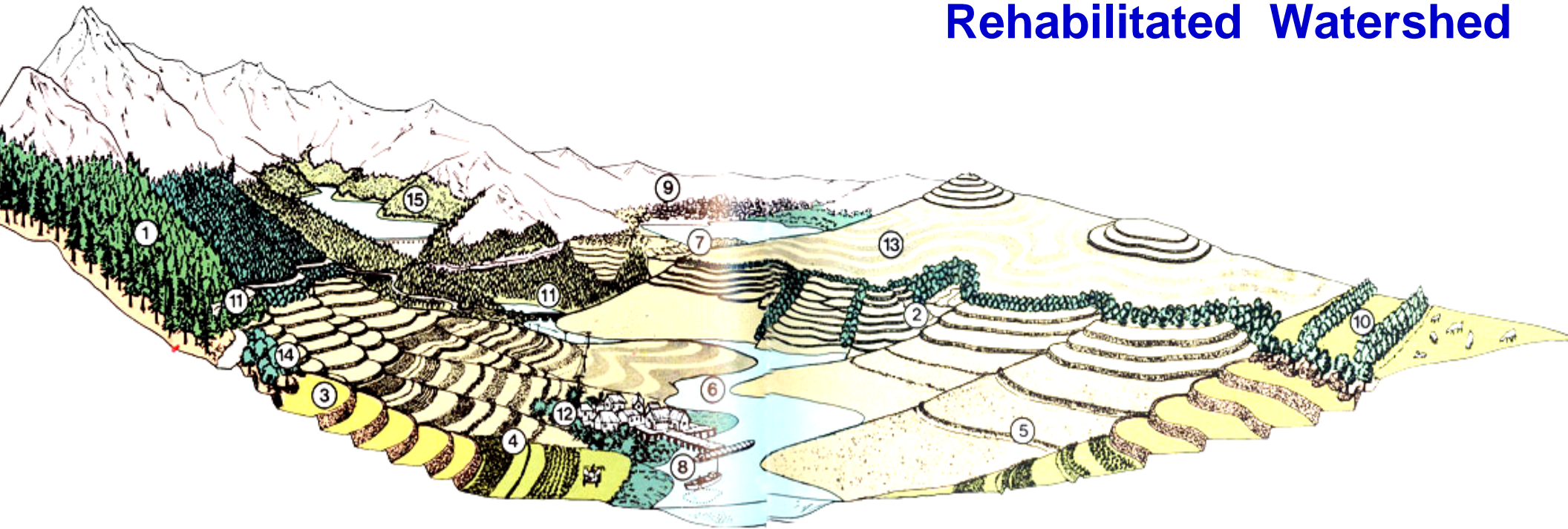
**Benefits provided by reducing and monitoring works of agricultural and husbandary pollution**

- ✓ **Raising the Quality of Ground and Underground Water,**
- ✓ **Decreasing the Quantity of Nitrate Discharge to Big Rivers and Black Sea,**
- ✓ **Consistency Ability to Environmental Legislation about Discharging of Water,**
- ✓ **Consistency Ability on Nitrate Monitoring to EU restrictions and to Environmental Friendly Agricultural Implementations**
- ✓ **Increasing Employment and Decreasing of Rural Poverty**
- ✓ **Strengthening of Institutional Capacity,**

**Degraded Watershed**



**Rehabilitated Watershed**





# Coordinator Unit

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