

Document of  
The World Bank

Report No: 23169-RO

PROJECT APPRAISAL DOCUMENT  
ON A  
PROPOSED GLOBAL ENVIRONMENT FACILITY TRUST FUND GRANT  
IN THE AMOUNT OF SDR 4.0 MILLION  
(US\$5.15 MILLION EQUIVALENT)  
TO THE  
GOVERNMENT OF ROMANIA  
FOR  
AGRICULTURAL POLLUTION CONTROL PROJECT

October 25, 2001

**Environmentally and Socially Sustainable Development Unit  
Europe and Central Asia Region**

## CURRENCY EQUIVALENTS

(Exchange Rate Effective August 2001)

Currency Unit = Lei

Lei 1 = US\$29,626.86

US\$1 = Lei 27,499.50

## FISCAL YEAR

January 1 -- December 31

## ABBREVIATIONS AND ACRONYMS

ADD	Acute Diarrheic Disease	LACI	Loan Administration Change Initiative
ANCA	National Consultancy Agency for Agriculture	M&E	Monitoring and Evaluation
APCP	Agricultural Pollution Control Project	MAFF	Ministry of Agriculture, Food and Forests
ARET	World Bank Agricultural Research, Extension and Training Project	MOPA	Ministry of Public Administration
ASSP	Agricultural Support Services Project	MOPF	Ministry of Public Finance
BSEP	Black Sea Environmental Program	MWEP	Ministry of Waters and Environmental Protection
BSDRSP	Black Sea Danube River Strategic Partnership	NEAP	National Environmental Action Plan
BSSAP	Black Sea Strategic Action Plan	NGO	Non-governmental Organization
CAS	World Bank Country Assistance Strategy	OCGC	Office of Cadastre, Geodezy and Cartography
CGS	Competitive Grant System	OJCAC	Office of Judet Agricultural Consultancy
DGA	Directorate General for Agriculture	OJSPA	Office of Judet Soils Unit
DGAIA	Directorate General for Agriculture, Calarasi	PCC	Project Coordination Committee
ECA	Europe and Central Asia	PHD	Public Health Directorate
EMP	Environmental Management Plan	PIU	Project Implementation Unit
EPI	Environmental Protection Inspectorate	PMR	Project Management Reports
FMS	Financial Management System	PMU	Project Management Unit
EU	European Union	PPU	Project Preparation Unit
FAO	Food and Agricultural Organization	PSC	Project Steering Committee
GEF	Global Environment Facility	RAS	Romania Accounting Standards
GOR	Government of Romania	RCB	Romanian Commercial Bank
ICCPT	Research Institute for Cereals & Industrial Crops	ROL	Romanian Lei
ICPDR	International Commission for the Protection of Danube River	SA	Special Account
ISA	International Standard on Auditing	SAPARD	Special Accession Program for Agriculture and Rural Development
		UNDP	United Nations Development Program
		USAID	United States Agency for International Development

Vice President:	Johannes Linn
Country Director:	Andrew N. Vorkink
Sector Director:	Kevin M. Cleaver
Task Team Leader:	Jitendra Srivastava

**ROMANIA**  
**AGRICULTURAL POLLUTION CONTROL PROJECT**

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MAP(S)

ROMANIA  
AGRICULTURAL POLLUTION CONTROL PROJECT

**Project Appraisal Document**

Europe and Central Asia Region  
ECSSD

<b>Date:</b> October 25, 2001 <b>Country Manager/Director:</b> Andrew N. Vorkink <b>Project ID:</b> P066065  <b>Focal Area:</b> I - International Waters		<b>Team Leader:</b> Jitendra P. Srivastava <b>Sector Manager/Director:</b> Kevin M. Cleaver <b>Sector(s):</b> VY - Other Environment <b>Theme(s):</b> Environment <b>Poverty Targeted Intervention:</b> N	
<b>Program Financing Data</b>			
<input type="checkbox"/> Loan <input type="checkbox"/> Credit <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:			
<b>For Loans/Credits/Others:</b>			
<b>Amount (US\$m):</b> 5.15			
<b>Financing Plan (US\$m):</b>	<b>Source</b>	<b>Local</b>	<b>Foreign</b>
		<b>Total</b>	
BORROWER/RECIPIENT		4.13	0.52
GLOBAL ENVIRONMENT - ASSOCIATED IBRD FUND		1.00	0.00
GLOBAL ENVIRONMENT FACILITY		3.48	1.67
<b>Total:</b>		8.61	2.19
<b>Borrower/Recipient:</b> GOVERNMENT OF ROMANIA <b>Responsible agency:</b> MINISTRY OF WATERS, AND ENVIRONMENTAL PROTECTION Address: B-dul Libertatii, 12, Sector 5, Bucharest, Romania Contact Person: Mr. Petru Lificiu, Secretary of State Tel: 40-1 410-0219      Fax: 40-1-410-0219      Email:			
<b>Estimated disbursements ( Bank FY/US\$m):</b>			
<b>FY</b>	2002	2003	2004
<b>Annual</b>	0.50	1.25	1.20
<b>Cumulative</b>	0.50	1.75	2.95
<b>Project implementation period:</b> 5 years			

## **A. Project Development Objective**

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

The overall project development objective is to increase significantly the use of environment-friendly agricultural practices in the project area and thereby reduce nutrient discharge from agricultural sources in Romania to the Danube River and Black Sea. In support of this objective, the project will assist the Government of Romania to: (i) promote the adoption of environment-friendly agricultural practices by farmers' associations, family farms and individual farmers in the Calarasi Judet (county); (ii) promote ecologically sustainable land use and management in the Boianu-Sticleanu Polder, and ecological restoration of the neighboring Calarasi-Raul Polder to act as a filter and reduce nutrient discharge to the Danube; (iii) strengthen national policy and regulatory capacity; and (iv) promote public awareness and mechanisms for replicability. The project, envisaged as a demonstration activity in the Calarasi county in the southern part of Romania, along the lower Danube, may provide replicable lessons for introduction of similar practices in other districts of Romania as well as other Black Sea riparian countries.

Project impact, output and performance indicators have been developed to provide a baseline and targets for project monitoring and evaluation (see Annex 1). The success of overall project impact will be measured in terms of adoption of practices for reducing nutrient discharge, namely: (i) percentage of households with livestock in project area adopting improved manure handling facilities – targeted to move from baseline of zero to 45% by 2006 and 65% by 2010; (ii) percentage cropped area coming under nutrient management systems including crop rotation, crop nutrient management with soil testing, and use of organic manure – targeted to reach 30% by 2006 and 65% by 2010; (iii) percentage of cropped area employing environment-friendly practices – target of 65% by 2010; and (iv) trends in water quality indicators at designated sites – flow of nitrogen and phosphate to Danube river to be reduced by 10% by 2006.

*Project Global Environmental Objectives:* The global environmental objective of the Project is to reduce, over the long-term, the discharge of nutrients (nitrogen and phosphorous) and other agricultural pollutants into the Danube River and Black Sea through integrated land and water management of the Calarasi region and ecologically sustainable use of natural resources in two agricultural polders. The project is the first of its kind under the umbrella of the *Black Sea/Danube Strategic Partnership - Nutrient Reduction Investment Fund* under which riparian countries would be eligible for Global Environment Facility (GEF) funding for projects that would control or mitigate nutrient inflow to the Black Sea. The proposed project is one of the Bank's early efforts in mainstreaming environmental considerations into agriculture and is expected to serve as a model for similar operations to be replicated in the other littoral countries under the umbrella of the Strategic Partnership Program.

Project activities are directly linked to "Strategic Action Plan for the Protection and Rehabilitation of the Black Sea" (BSSAP), formulated with the assistance of the GEF. BSSAP has identified nutrient discharge from agricultural sources as the most serious problem facing the Black Sea. By improving manure management and agricultural practices, and by sustainably managing two high priority former floodplain areas, the project would also complement the Danube River Pollution Reduction Program and assist the Government in meeting its international obligations under the Bucharest Convention. In addition, project activities would help the Romanian government in honoring its commitments under the Odessa Ministerial Declaration on the Protection of the Black Sea and the Danube River Protection Convention, as well as moving Romania towards EU accession by addressing European Union Directives: 91/676/CEE – Directive regarding water protection against pollution with nutrients originating from agriculture; and 96/61/CEE – Directive related to the prevention and the complete reduction of pollution. Also, through

proposed project activities of tree planting, recycling of manure and crop residues and ecologically sustainable land use in the project area, an ancillary global benefit of carbon sequestration will occur under the project.

## **2. Key performance indicators: (see Annex 1)**

Project impact, output and performance indicators have been developed to provide a baseline and targets for project monitoring and evaluation. Overall project impact will be measured in terms of adoption of practices for reducing nutrient discharge, namely: percentage of households adopting improved manure handling facilities and the area coming under environment-friendly practices (target of 65% coverage by 2010), as well as trends in water quality indicators at designated sites.

## **B. Strategic Context**

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

**Document number:** 22180-RO **Date of latest CAS discussion:** June 19, 2001

The Romania CAS is consistent with the country's development agenda: poverty reduction and EU accession. The World Bank has identified five priorities in the CAS: promotion of economic growth, institution building to strengthen the rule of law, greater access to opportunity, strengthening of the safety net, and protection and sustainable management of natural resources and the environment. The proposed GEF-funded project directly addresses the major development challenge of protecting and enhancing the environment, assisting the country towards EU accession and institution building. The project will help develop the legal framework to address the EU Nitrates Directive as well as a Code of Good Agricultural Practices which will not only assist in EU accession but also with improving agricultural production which in turn will help to boost exports and foreign exchange earnings. By seeking the commitment and full participation of relevant local and national stakeholders in project preparation and implementation, project activities will build local and national capacity to meet the goal of environmentally sustainable agriculture and help Romania honor its international commitments to reduce nutrient discharge to the Black Sea from agricultural sources. The proposed project is also in line with the initiatives launched in support of the agricultural sector, which was deemed a priority on the grounds that it offered good prospects for growth and poverty reduction.

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

The Project will implement priority actions identified in the Black Sea/Danube Strategic Partnership - Nutrient Reduction Investment Fund, Black Sea Strategic Action Plan, Danube River Strategic Action Plan and Danube River Basin Pollution Reduction Program supported by GEF. The Project's objective of reducing non-point source nutrient pollution from agriculture is consistent with GEF Operational Program Number 8, *Waterbody Based Operational Program*, which focuses "mainly on seriously threatened water-bodies and the most important trans-boundary threats to their ecosystems." Under the Program, priority is accorded to projects that are aimed at "changing sectoral policies and activities responsible for the most serious root causes or needed to solve the top priority trans-boundary environmental concerns." The Project's approach of combining good agricultural practices with ecologically sustainable use of natural resources in two former floodplain areas, identified under the Danube River Pollution Reduction Program, is consistent with the GEF Operational Program Number 9, *Integrated Land and Water Multiple Focal Area Operational Program*, which supports "more comprehensive approaches for restoring and protecting the international waters environment," and the proposed project is commensurate with this.

The Project will provide an opportunity for the GEF to be a catalyst for actions to bring about the successful integration of improved land and water resource management practices. GEF support will

reduce costs and barriers to farmers adopting improved and sustainable agricultural practices. It will help develop mechanisms to move from demonstration level activities to operational projects that reduce non-point nutrient pollution to the Danube River and Black Sea. The project is an extension of the Rural Environmental Protection Project in Poland and the Agricultural Research, Extension and Training (ARET) Project in Georgia that seek to reduce nutrient flow from the agricultural sector to water bodies.

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

*Main Sector Issues:* During the last few decades, the Black Sea suffered severe environmental damage, mainly due to coastal erosion, eutrophication, insufficiently treated sewage, conversion of wetlands, increased nutrient run-off from agriculture, introduction of exotic species, and inadequate resource management all of which led to a decline of its biological diversity, loss of habitat and long-term ecological changes. Black Sea Environmental Program (BSEP) studies revealed that 58% of the total nitrogen and 66% of the total phosphorous flowing in dissolved form into the Black Sea come from the Danube river basin. More than half of all nutrient loads into the Danube river originate from agriculture, about one-fourth from private households and about 10-13% from industry.

Romania is the largest contributor of nutrients to the Black Sea as the country's entire territory drains into the Sea. About 44% of the total nitrogen input and 58% of total phosphorous (P) input from Romania to the Black Sea stems from agriculture and livestock. Privatization of farm lands assets have lead to farmers keeping livestock on site, and this has nutrient pollution problems in drinking water. Groundwater pollution with nitrate (NO<sub>3</sub>) and microbial organisms from agriculture has major implications from the point of view of drinking water supply for rural settlements in Romania. In 1997, for example, a number of infants were diagnosed and hospitalized with acute nitrates poisoning in the proposed project area (Calarasi Judet). An analysis of samples from 45 public wells and micro-centrales in Calarasi revealed that over 76% of the samples exceeded bacteriological standards and 79% exceeded acceptable levels of chemical content.

*Government Strategy.* Reduction of nutrient run-off (nitrogen and phosphorous) into the Danube river and Black Sea from agriculture is an integral part of the country's environmental strategy as well as the Black Sea and Danube River Basin Strategic Action Plans. The Government of Romania has also assumed international obligations under the Bucharest Convention, the Odessa Ministerial Declaration on the Protection of the Black Sea, and the Danube River Protection Convention to reduce nutrient discharge to the Black Sea, and is moving towards compliance with relevant European Union Directives. Development of agricultural support services and on-farm environmental management is the basis of the government's overall strategy for agriculture which is aimed at creating an enabling environment to fully realize the sector's potential. Towards this, the Ministries of Agriculture and Environment have developed close linkages between the ongoing Agricultural Support Services Project (ASSP) and the proposed APCP. ASSP aims to support priority extension and applied research activities that will quickly transfer existing proven technology to private farmers and agro-processors. A number of activities under ASSP will be executed in the Calarasi Judet and APCP will fund the incremental cost of implementing relevant ASSP activities that complement the objectives of APCP. Thus the proposed project will allow the Government of Romania to mainstream environmental and public health considerations into its agricultural sector and the synergy of such an approach will bring about greater benefits globally, regionally and locally vis-à-vis independent, discrete agricultural and environmental projects.

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

The Project would extend and deepen the ongoing and proposed reforms of the sector by addressing the following key issues:



- fully integrating environmental concerns into agricultural practices to make them more sustainable, including the storage, management and application of manure, ecologically sustainable use of natural resources in a floodplain, buffer strips, conservation tillage, to reduce over the long term the discharge of the nutrient load into the Romanian ground and surface waters as well as into the Danube River and the Black Sea;
- promoting appropriate policies and policy reforms in order to create the enabling environment for realizing project objectives;
- developing capacity of private smallholder and commercial farmers to use environment-friendly agricultural practices and resource management;
- building national capacity in assisting the Government in meeting its international obligations under the Bucharest Convention, the Odessa Ministerial Declarations of the Protection of the Black Sea and the Danube River Protection Convention; and
- moving towards compliance with the EU Directives as part of the EU accession process.

### ***Strategic Choices***

Strategic choices made before proceeding with project preparation may be summarized as follows:

(i) First, whether project interventions were justified at this juncture. In this regard, land reform/privatization had resulted in ownership of farmland being vested in individuals with minimal experience in small scale or commercial farming. Without providing the small holders and commercial farmers access to information on sustainable agricultural practices and technology, it was highly unlikely that the reform measures would yield anticipated benefits. That existing institutions would be able to provide such information in an efficient and cost-effective manner was also unlikely, given that they were not designed to meet the needs of the sector as it evolved. Since the ASSP was designed to address these issues, the need and timing of APCP were deemed appropriate. APCP would complement ASSP in ensuring that the technologies disseminated were environment-friendly and responsive to Romania's international commitments of reducing agricultural pollution to the Black Sea.

(ii) Second, whether to undertake project activities on a country-wide basis or focus activities in a particular area whereby the project could serve as a demonstration activity to be replicated in other similar areas;

(iii) Third, whether to work with the Ministry of Waters and Environmental Protection or with the Ministry of Agriculture, Food & Forests to prepare the project and entrust it with responsibilities of implementation.

With regard to (ii) and (iii), keeping in view the lack of expertise in promoting environment-friendly agricultural practices in Romania, institutional weakness prevalent in the country, it was decided to target a compact area of Romania. As local and national capacity increased, project activities could then be replicated in other similar areas of the country. It was agreed that given the nature of the project activities, it would be useful to involve both MWEP and MAFF in project preparation. However, for operational convenience, MWEP was chosen as the line ministry with overall responsibility for the project.

(iv) Fourth, whether to set up the Project Management Unit (PMU) at the project site (Calarasi Judet),

or establish it in MWEP or MAFF in Bucharest. To ensure close linkages with ASSP, much discussion was held to combine the PMUs for both projects in the MAFF in Bucharest (as PMU of ASSP was based in Bucharest). However, in order to decentralize implementation power at the local level, build local ownership and capacity, and to be able to effectively monitor and evaluate the impact of project activities, it was important that the implementing agency be at the project site and not far removed from the target population. Thus the PMU will be established in Calarasi. However, there will be close working arrangements between the PMUs of ASSP and APCP.

### **C. Project Description Summary**

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

The project will support activities both at the Judet (county) as well as National level. At the Judet level, the project will focus on **Calarasi Judet**, one of the poorest agricultural counties of Romania, characterized by intensive farming, lack of running water, absence of a sewage system, contaminated drinking water wells (both nitrites and bacteriological levels in water are above maximum acceptable standards) as well as poor livestock management practices. Traditionally livestock is maintained near the house without an organized system to collect and store manure. The lack of efficient manure management practices is significant in terms of Romanian surface and groundwater pollution and nutrient run-off to the Danube River and Black Sea.

The forty-eight comunas of the *Calarasi Judet* located in the southeastern part of Romania have about 410,000 ha of arable land and a total population of 332,000 in 94,000 households. This entire area will also benefit from APCP support for technology adaptation and extension interventions for environment-friendly agricultural practices under the Competitive Grant Program of the ASSP and will help leverage additional funds from the ASSP for the Calarasi Judet. In the southern part of the Judet, the project will support activities for nutrient reduction and monitoring in seven comunas Al Odobescu, Ciocanesti, Cuza Voda, Gradistea, Independenta, Vilcelele, and Vlad Tepes comprising 21 villages, as well as in the *Boianu-Sticleanu* and *Calarasi-Raul* polders bordering the lower Danube river. The area for direct project interventions comprises about 90,000 ha of which 70,000 ha is arable land. While the average size of land holding per family is about 2.6 ha, much of the land is grouped into larger family farms or leased out to agricultural associations for farming operations. The main crops produced in the area include maize, wheat, barley, sunflower and vegetables. Cattle, pigs, sheep, goats, horses and poultry are common in the Judet. Livestock on holdings in the Judet by types and number and area under major crops are provided in working paper 1 of the project. (Details in Working Paper 1). Most farms are mixed livestock and field crops.

The *Boianu-Sticleanu* Polder (approx. 23,000 ha) comprises a former floodplain area, drained and transformed into an agricultural polder in the late sixties and now containing large areas of cultivated land, small areas of floodplain forests, degraded lands and the Iezer Calarasi water-body. The Iezer Calarasi, with a surface of 3,200 ha, is to be declared a nature reserve, being an important corridor for bird migration, most of them listed on Bonn and Bern Conventions. Iezer Calarasi was also identified by WWF studies under the Danube Pollution Reduction Program (Project RO 67), the NEAP, and recent studies coordinated by MWEP, as a high-priority area to be rehabilitated in the Lower Danube River Basin. The *Calarasi-Raul* Polder, part of which is proposed for ecological restoration under the project, adjoins the *Boianu-Sticleanu* polder to the east.

#### **Component 1: Activities in the Calarasi Judet (US\$9.22 m)**

***Manure Management Practices (US\$5.20 m).*** This sub-component will provide incentives for the installation of improved manure storage facilities and equipment for manure collection and application in the seven comunas. Villages and households wishing to participate in the investment program would be selected against agreed criteria and cost-sharing arrangements. County Council engineering staff would collaborate on design of the village-level manure store and would work with the Environmental Protection Inspectorate (EPI) to see that the constructions met environmental guidelines on preventing manure leakage to surface or groundwater sources. Community training and awareness on good practices for waste collection and manure management, including composting, testing, and field application, would be provided. (Details in Working Paper 6 and 16).

***Promotion of Environment-friendly Agricultural Practices (US\$2.47 m).*** This sub-component will promote the adoption of better agricultural practices that would improve agricultural production while reducing nutrient discharge pollution from agriculture. The proposed activities would include: (i) the promotion of environmentally-friendly agricultural practices; and (ii) demonstration program of integrated crop and nutrient management, including crop rotations and efficient application of organic and inorganic fertilizers based on soil tests using soil testing kits provided by the project. Activities within the entire Judet would be supported through the ASSP Competitive Grant Scheme with the APCP providing farmers groups, eligible institutions and NGOs with the beneficiary contribution required to access CGS funds. At the level of the seven comunas, the project would support a program of testing/evaluation and demonstrations of environment-friendly practices, as well as pilot organic farming operations. (Details in Working Paper 2, 3 and 4).

***Integrated Management of Boianu-Sticleanu Polder and Ecological Restoration of part of the Calarasi-Raul Polder (US\$1.09 m):*** The project would develop and support a specific land use management plan for the Boianu-Sticleanu Polder. Thus the project would develop an action plan for a vulnerable area as requested under the EU Nitrate Directive. This component would include: (i) plantation of agro-forestry trees on the degraded lands adjacent to the Iezer Calarasi and buffer strips on unproductive riparian land; (ii) implementation of the code for good agricultural practices on the neighbouring arable land; and (iii) implementation of a conservation management plan for the proposed Iezer Calarasi nature reserve. The component will complement the restoration activities on the Bulgarian side (Oriahovo, Bulgarian Danube islands and the floodplain west of Belene and Tutracan). The project would also provide the costs of studies and ecological restoration of part (about 3000 hectares) of the **Calarasi-Raul Polder** (adjoining the Boianu-Sticleanu Polder to the east and comprising a major portion of abandoned rice fields) to wetlands. The project interventions in the two polders would be coordinated by the Danube Delta National Research Institute (DDNRI). (Details in Working Paper 8).

***Strengthening Capacity in Calarasi Judet ( Environmental Protection Inspectorate (EPI) and Public Health Directorate) to Monitor Soil and Water Quality and Environmental Impacts (US\$0.46 m).*** The project would strengthen the capacity of EPI and Public Health Directorate in Calarasi to carry out soil and water quality monitoring program to determine the impact of various project activities (in particular, manure and nutrient management and the application of Code of Good Agricultural Practices etc.), on soil and water quality. The project would support the incremental costs of: (a) selecting and maintaining a set of soil and water quality monitoring sites in the project area to develop baseline data for the current status of surface and groundwater quality; (b) determining the impact of improved manure storage systems and better agricultural practices on water quality; (c) strengthening institutional and technical capacity of EPI and PHD by providing professional training to field and laboratory staff and upgrading laboratory equipment for analyzing water and soil samples for various water quality indicators; and (d) by providing incremental operating expenses for field monitoring activities. (Details in Working Paper 9 and 12).

**Component 2: Strengthening National Policy and Regulatory Capacity (US\$0.27 m).**

This would include support to the Ministry of Water and Environmental Protection (MWEP) and Ministry of Agriculture, Food and Forests (MAFF) for: (i) work relating to the application of the Nitrates Directive and harmonization of legislation with the requirements of the European Union. A new Governmental Decision (No. 964 and dated October 13, 2000) meets Government's obligations to introduce the provisions of the EU Nitrate Directive into Romanian legislation. The issue of this document is the first step in creating the legal framework for water and soil protection and would need to be followed by the preparation of the Code of Good Agricultural Practices; (ii) developing a Code of Good Agricultural Practices; and (iii) strengthening the capacity of the National Authority for Ecological Agriculture in its efforts to promote scientific organic farming and land use management. MWEP would take the lead on the application of the Nitrates Directive while MAFF will handle the development of the code (in collaboration with MWEP) and the organic farming elements of the project. (Details in Working Paper 11).

**Component 3: Public Awareness and Replication Strategy (US\$0.45 m)**

A broad public information campaign of the project's activities and benefits will be undertaken at the local, national and regional levels to achieve replicability of project interventions. The project will strive to induce the behavioral changes necessary to the success of the project (use of a manure management system, respecting the environment-friendly agricultural practices, etc.) so that the overall goal of reducing nutrient discharge to the Black Sea could be achieved. The public awareness activities will be delivered through cost effective, innovative vehicles (including a bilingual website) as well as through the provision of training in the use and benefits of environment-friendly agricultural practices. The project would provide for the organization of regional workshops, field trips, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other Black Sea riparian countries. The aim will be to build a general goodwill for the project and its benefits, which will raise the interest of potential future clients. (Details in Working Paper 10).

**Component 4: Project Management Unit (US\$0.86 m):**

The project would support a Project Management Unit (PMU) to be established by MWEP in the DGAIA offices, Calarasi. The PMU would comprise Project Manager, Technical Specialist (who would also handle project monitoring/evaluation), Financial Management Specialist, Procurement Specialist, Accountant, Secretary/Translator and Driver. The PMU will be responsible for procurement; all financial matters relating to disbursements, maintenance of project accounts, and financial monitoring; as well as monitoring and evaluation of all project activities.

Component	Sector	Indicative Costs (US\$M)	% of Total	Bank financing (US\$M)	% of Bank financing	GEF financing (US\$M)	% of GEF financing
1. Calarasi Judet:	Pollution Control / Waste Management	0.00	0.0	0.00	0.0	0.00	0.0
(a) Manure Management Practices	Pollution Control / Waste Management	5.20	48.1	0.00	0.0	2.54	49.3
(b) Promotion of Environmentally- Friendly Agricultural Practices	Pollution Control / Waste Management	2.46	22.8	0.00	0.0	0.82	15.9
(c) Integrated Management of the Boianu-Sticleanu and Calarasi-Raul Polders	Pollution Control / Waste Management	1.09	10.1	0.00	0.0	0.45	8.7
(d) Water and Soil Quality Monitoring	Pollution Control / Waste Management	0.46	4.3	0.00	0.0	0.21	4.1
2. Strengthening National Policy and Regulatory Capacity	Pollution Control / Waste Management	0.27	2.5	0.00	0.0	0.21	4.1
3. Public Awareness and National and Regional Replication Strategy	Pollution Control / Waste Management	0.45	4.2	0.00	0.0	0.38	7.4
4. Project Management Unit	Other Environment	0.87	8.1	0.00	0.0	0.54	10.5
<b>Total Project Costs</b>		10.80	100.0	0.00	0.0	5.15	100.0
		0.00	0.0	0.00	0.0	0.00	0.0
<b>Total Financing Required</b>		10.80	100.0	0.00	0.0	5.15	100.0

Note: The total cost of the project is US\$10.80 million. The GEF will finance US\$5.15 million of the total project cost. The Government contribution of US\$5.65 million includes US\$1.0 million from the ongoing Bank-funded Agricultural Support Services Project.

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

### *Key Policy Reforms to be Sought*

Policy reforms sought under the project emphasize the ongoing decentralization process in the country by ensuring full local participation in decision-making in the execution of project activities. This will be achieved, in part, by locating the Project Management Unit in Calarasi county rather than Bucharest, and will help build local institutional capacity. The project will seek to create the enabling policy environment for commitment to environment-friendly agricultural practices on the part of both the local as well as national governments.

The project will support MAFF and MWEP to develop and implement a Code for Good Agricultural practices in Calarasi Judet, which will include the implementation of land use management plan in the Boianu-Sticleanu Polder. APCP will thus strive to mainstream environmental considerations into Romania's agriculture sector and much complementarity is envisaged between the agricultural projects supported by the Competitive Grant Scheme (CGS) under ASSP and sustainable environmental aspects promoted by APCP. The project will also support the National Authority for Ecological Products to develop the supporting institutional arrangements for promotion of organic farming.

### ***Institutional Reform to be Sought***

***National Level:*** The project would pilot the establishment of inter-sectoral cooperation between MWEP and MAF in the implementation of the project. The institutional arrangements agreed between MWEP, MAFF and MOPF included setting up the Project Preparation Unit in Calarasi with the support of the local government. Furthermore, the two ministries have signed a memorandum of understanding on the sharing of financial management and procurement staff between the APCP (under MWEP) and ASSP (under MAFF). Also, an Organizing Commission and Support Group has been established to follow up on the Nitrates Directive Governmental Decision (No. 964, dated 13 October, 2000) covering approval of the “Action plan for the protection of waters against nitrate pollution from agricultural sources”, prepared with French assistance under the EU Twinning Program. This document is based on the regulations described in the EU *Nitrate Directive (91/676/EEC)* and meets the Government’s obligations in introducing the provisions of the nitrates directive into the Romanian legislation. However, this document is only the first step in creating the legal framework for water and soil protection and should be followed, inter alia, by the preparation of the Code of Good Agricultural Practices. The project would strengthen the national policy and regulatory capacity of the country for meeting its international obligations under the Bucharest Convention, Odessa Ministerial Declaration on the Protection of the Black Sea, and Danube River Protection Convention and would assist Romania in implementing the EU Directives as part of the EU accession process.

***Local Level:*** The project would seek the commitment and full participation of the local institutions in the implementation of the project. In order to build local ownership and capacity, and to be able to effectively monitor and evaluate the impact of project activities, implementation of project activities will be entrusted to relevant local institutions, including: the Calarasi Directorate General for Agriculture (DGAIA), and its extension (OJCA) and soils (OJSPA) agencies, the Calarasi office of the EPI and Public Health Directorate; the extension consulting agency, ANCA; the ICCPT Research Institute for Cereals and Industrial Crops, Fundulea; and the Danube Delta National Research Institute. Training will be provided to the staff of these entities in implementing relevant project activities that will go a long way in building local capacity to reduce nutrient discharge pollution from agricultural production.

### **3. Benefits and target population:**

The proposed project is the first instance where the Government of Romania is mainstreaming environmental considerations in agricultural practices. The synergy of such an approach will bring about greater benefits globally, regionally and locally vis-à-vis independent, discrete agricultural and environmental projects.

Internationally, benefits will accrue through: (i) a continued reduction in the discharge of nutrients into Danube River and Black Sea and the accompanying improvements in the local and Black Sea water quality; (ii) broad-based stakeholder participation that will increase public awareness and demand-driven approaches for protecting the Black Sea; (iii) improving habitat for migratory birds and a variety of endangered species; and (iv) sequestering carbon in the grasslands, cropland and forests.

Nationally, the country will benefit: (i) through improvements in quality of ground and surface waters; (ii) better maintenance of productive ecosystems and critical natural habitats in the freshwater, estuarine and near shore waters along the Black Sea coast; (iii) improved agricultural productivity through better agricultural practices; (iv) progress towards compliance with EU Directives; and (v) increased capacity building of local institutions such as EPI and PHD.

Locally: (i) at the farm level, additional income from effective use of organic waste (manure as fertilizer), crop rotations, organic produce, and improved livestock grazing practices; (ii) in the crop sector, outcomes will include improved production efficiency through low input use and better farm management; (iii) in the health sector, there will be improvements in health and sanitation as there will be an improvement in the drinking water and general hygiene of the villages; and (iv) through terrestrial and aquatic habitat enhancement, increased populations of birds and fish species of local economic and social importance.

*Target Population:* (i) All forty-eight comunas of the Calarasi Judet comprising about 410,000 ha of arable land and a total population of 332,000 in 94,000 households will benefit from the project. (ii) Seven comunas comprising about 90,000 ha with 70,000 ha of arable land with a total rural population is 26,700 in 10,540 households will specifically participate in the manure management sub project. (iii) The proposed project is a demonstration activity that may be replicated in other similar areas of Romania and riparian countries of the Black Sea. Thus, the project will have a larger geographic impact. The project will also benefit a large population beyond the seven comunas.

#### **4. Institutional and implementation arrangements:**

***Project Steering Committee:*** A Project Steering Committee (PSC) has replaced the Inter-Ministerial Working Group. It comprises representatives from MWEP, MAFF, Ministry of Public Finance (MOPF) and Ministry of Public Administration (MOPA). The Minister, MWEP, will chair the Steering Committee. The Project Manager will be the ex-officio Secretary of the PSC. The committee will be responsible for providing project oversight advice and assistance in resolving issues associated with project implementation, and ensure commitment of the concerned Ministries.

***Project Co-ordination Committee (PCC) at Judet-level:*** Co-ordination at the Judet-level of Calarasi would be assured by a Project Co-ordination Committee chaired by the President of the County Council, with the Prefect as vice-chair. The PCC membership includes the Vice-President of the Calarasi County Council, the County Council Architect, the Directors of DGAIA, EPI, Public Health Directorate, OJCA, OJSPA and OCAOTA, an NGO representative, two private farmers and the Mayors of the seven Comunas. The Project Manager will be the ex-officio Secretary of the PCC. The PCC will provide technical oversight and ensure co-operation and co-ordination of the implementing institutions, together with local commitment to long term sustainability. The PCC would reinforce co-ordination at the local level.

***Project Management Unit (PMU):*** MWEP would establish a Project Management Unit (PMU), located at DGA-Calarasi to handle procurement; all financial matters relating to disbursements, maintenance of project accounts and financial monitoring; monitoring as well as evaluation of all project activities. The PMU would comprise Project Manager, Technical Specialist (who would also handle project monitoring/evaluation), Financial Management Specialist, Accountant, Secretary/Translator and Driver. The PMU of APCP will work closely with the PMU of ASSP.

***Financial Management:*** The Project Management Unit (PMU), to be established by MWEP and located in DGAIA headquarters at Calarasi, will be responsible for the project's overall financial management system. All procurement, financial management and disbursement procedures for the Project will be in accordance with the relevant Bank guidelines. The Government will maintain throughout the project life a project financial management system (FMS) in a format acceptable to the Bank.

The project will initially use traditional disbursement procedures (direct payments, reimbursements and

replenishments to the Special Account with full documentation or SOEs) and produce PMRs for reporting and management information only. The FM system will be re-assessed in end-2003 for eligibility for PMR-based disbursements. Following successful certification, the Borrower, jointly with the Bank, may consider shifting to PMR-based disbursements. (Details in Working Paper 13).

A detailed description of the financial management and accounting system that will be used for the project is presented in Annex 6.

**Project Monitoring and Evaluation:** A well-designed monitoring and evaluation system will be critical for ensuring the project's timely and successful implementation, and enhancing its impact by a systematic analysis of lessons learned and their effective dissemination. Project monitoring and evaluation would be the responsibility of the PMU. Monitoring will be based on the baseline survey undertaken during preparation phase of the project. Extensive data by comunas and villages has been collected and the Public Health Directorate and the EPI-Calarasi have provided baseline data for soil and water quality levels. The Project Preparation Unit has developed performance indicators based on Annex 1. The PMU would annually monitor and evaluate project performance through conducting beneficiary surveys. The results of M&E activities will be fed back into the implementation process as improved practices.

The PMU will design a simple Management Information System for M&E, reporting formats for each component, including targeted annual performance objectives and monitoring indicators using Annex 1 details as the basis. These indicators include evaluating the project's impact by monitoring soil and water quality. Quarterly reports will cover progress in physical implementation, the use of project funds and project impact. The Quarterly reports will be consolidated by the PMU into half-yearly progress reports to be submitted through MWEP to the Bank within two months of the end of each six-month reporting period. These half-yearly progress reports will also include an implementation plan and work program for the next six months following the reporting period. The format of reports will be agreed with the Bank.

A mid-term review will be carried out to assess overall progress. Lessons learned, with recommendations for any improvements, would be used in restructuring the project, if necessary.

## **D. Project Rationale**

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

Alternatives considered were: (i) limit project activities to manure management in most problematic areas along the Danube River; (ii) work primarily on wetland restoration along the lower Danube river; and (iii) merge the proposed project with the Agricultural Support Services Project.

With regard to (i) it was concluded that simply targeting manure management would be inadequate and ineffective in realizing the project objectives. Manure management should be part of a more comprehensive package that involves a variety of measures to control nutrient run-off to the Black Sea. Thus, to make a larger impact, the project has included other activities in addition to the storage, application and disposal of manure, including, *inter alia*, crop rotation, organic farming, conservation tillage systems, riparian buffer strips, soil testing, application of fertilizers, monitoring of water quality.

Option (ii) was rejected in favor of a more comprehensive approach in one compact, high priority area along the Danube river through a demonstration project involving a combination of environment-friendly



agricultural practices as well as wetland management that could be replicated in other similar areas in Romania as well as riparian countries of the Black Sea. Thus, the project preparation team selected Calarasi region, in the southern part of Romania, along the lower Danube, which would include the Boianu-Sticleanu and Calarasi-Raul polders. The area is characterized by unsustainable agricultural practices, including inappropriate crop and nutrient management, storage and application of mineral fertilizers, pesticides, manure and domestic waste and destruction of the former floodplain areas. There is a lack of septic tanks and waste water treatment plants in most of the rural settlements. This aspect will be tackled by the SAPARD project to be funded by the EU and which will have a program in the Calarasi Judet. Groundwater pollution with nitrogen and phosphorous from agricultural practices in this region is high and in excess of health standards which has strong ramifications on human health with the incidence of Acute Diarrheal Diseases exceeding average rates for the rest of the country. The Boianu-Sticleanu and Calarasi-Raul polders were chosen as this formerly reclaimed floodplain, if rehabilitated, could serve as a biological filtration mechanism that could result in significant nutrient load reductions to the Black Sea.

As regards (iii), initially it was decided to merge the proposed project with the ASSP that was under preparation at the time. However, at the time of inception of APCP, the ASSP was far ahead with preparation and ready for appraisal, and to add APCP at that late juncture would have delayed the processing of ASSP. Moreover, merging the two projects would have increased the size of the ASSP and in view of the institutional weakness in Romania, lack of expertise with main-streaming environmental considerations into agriculture, and lack of coordination between the MWEP and MAFF, to merge the two projects would increase the risk of ineffective project implementation. It was agreed that APCP activities would be more effective if it had a more focused approach and targeted one select area than the entire country (as in the case of ASSP). However, given the overall commonality of objectives and activities, close working arrangements and synergies have been ensured between the two projects.

**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> Environmentally Sustainable Agricultural Practices, Protection of the Black Sea/Biodiversity	Romania Agricultural Support Services Project (ASSP)	S	S
	Forst Biodiversity and Natural Resources Management Project	S	S
	Cultural Heritage Project	S	S
	Danube Delta Biodiversity Project	S	S
	Bulgaria Wetlands Restoration Project		
	Georgia Agricultural Research, Extension and Training (ARET) Project	S	S
	Municipal Infrastructure Rehabilitation—MIRP	S	S
	Ukraine Danube Delta	S	S

	Biodiversity Project Poland Rural Environmental Protection Project	S	S
<b>Other development agencies</b> EU USAID	SAPARD Black Sea-Danube Project (Hungary, Slovakia and Romania)		

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

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

Key lessons learned from rural environmental and agricultural operations in the regions and reflected in the Proposed Project include:

- the early involvement of key stakeholders in project preparation, specifically including local communities and influential decision makers, is essential in order to ensure ownership and successful project implementation;
- environment-friendly agricultural activities should yield tangible benefits for key stakeholders, specifically local communities, in order to ensure adoption;
- effective monitoring and evaluation mechanisms need to be developed and applied to measure project impact and feed lessons learnt into project design;
- decentralized responsibility for financial and project management (e.g., as in the Romania Danube Delta Biodiversity Project) builds local ownership and sustainability of project activities; counterpart training and specialized support for project related activities such as procurement, disbursement, supervision, financial management, etc., is a must; and
- dissemination of information about the benefits of improved environmental management is critical to the widespread adoption of new technologies and practices.

The project has incorporated these experiences and built on them specifically by: (i) addressing the links between socio-economic issues and environment-friendly agricultural practices, (ii) building both the local and national capacity for reduction of nutrient loads into the groundwater and surface water including the Black Sea; and (iii) ensuring a participatory and transparent approach to project preparation and implementation.

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

The Ministry of Waters and Environmental Protection and the Ministry of Agriculture, Food and Forests are very enthusiastic about the project and lending full support to it. An Inter-Ministerial Commission (IMC) was established at the start of project preparation under the leadership of MWEP and MAFF that provided excellent support with project preparation. The IMC has now been replaced by a Project Steering Committee (PSC) and comprises representatives from MWEP, MAFF, MOPF and MOPA to provide overall guidance and support during project implementation. The government is developing the legal framework to address EU Nitrates Directive as well as the Code of Good Agricultural Practices which will not only contribute to the reduction the nutrient loads into the Danube River and Black Sea but also assist in EU accession.

The local officials in the Calarasi Judet, including the President of the County council, vice-president, and Prefect, as well as all seven mayors of the project comunas are fully committed to the project. The DGAIA, Calarasi has provided office space for the PPU that will become the PMU. The President of the Calarasi County Council has expressed commitment to providing financial support for waste management systems at the comuna/village level and the County Council has confirmed that it will co-finance (25% contribution) the costs of constructing village-level manure facilities in all comunas. The farmers, farmer associations, NGOs, private sector, and other relevant beneficiaries are keen to participate in the project and have confirmed their contribution to project preparation and implementation in cash and/or kind (time, labor, etc.)

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

The principal value added of GEF support for the Project comes from providing additional funds to address trans-boundary water problems in the Black Sea. GEF funds will help reduce the barriers to farmers adopting environment-friendly agricultural practices and allow the Government to consider scaling-up the program. Without GEF support to coordinate these activities, Romania might undertake a series of small activities in different parts of the country to address the issues and lack a mechanism to coordinate the financing, approaches and geographical targeting of activities. GEF funds will help to achieve high level policy commitment to the need for environmentally sustainable agricultural practices while supporting “on-the-ground” investments. GEF funds will also leverage Bank funds from ASSP to mainstream environmental concerns in nation-wide agricultural projects. The GEF may also leverage funds from EU-funded SAPARD projects as well as funds from donors by stimulating a program to coordinate activities, increase coverage and generate a larger impact. In this regard, USAID has expressed its support for the project and is making US\$600,000 available through parallel financing for activities under components 1 and 2. It is also considering financing a pilot animal waste management unit in 2001 to enable the County Council to jump start the project in one comuna. The GEF has already added value by supporting the Romania and Ukraine Danube Delta Biodiversity Conservation Projects, Poland Rural Environmental Project, Georgia Agricultural Research, Extension and Training (ARET) Project, in addition to the Black Sea Partnership Program, Danube River Basin Environment Program and Danube Pollution Reduction Program. Given their international scope, the GEF and the Bank can provide funds to cover the incremental costs of replicating such activities within Romania and in other countries in the Region.

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

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

- ☐ Cost benefit      NPV=US\$ million; ERR = % (see Annex 4)
- ☐ Cost effectiveness
- ☒ Incremental Cost
- ☐ Other (specify)

Realization of the global environmental benefits of the project in the medium to longer term will require GEF support, since there will no quick pay off for the local communities and the Government is only able to provide the bare minimum of assistance for agricultural activities. While the improved, environment-friendly practices to be introduced by the project will provide the basis for a sustainable agriculture in the long run, in the short-run the impact on the economy will be small. International experience indicates that it takes time for the benefits to work through to local communities.

Indeed, ex-ante quantification of benefits of investments (rates of return) for the promotion of environment-friendly agricultural practices is usually not undertaken, as it is difficult, if not impossible, to quantify precisely the outcome of these activities. Predicting and quantifying economic costs and benefits ex-ante of such activities is problematic because the outcomes of the technology innovation or dissemination are not defined at the time of project design, but instead evolve with the project through a process of priority setting and consumer demand for the technologies. The lack of reliable technical and economic data on different variables, including farmer adoption rates, and difficulties in linking cause (costs) and effect (outcomes) is also a problem. Whatever parameters are included would be questionable. Even large surveys give spurious results. Social and environmental benefits of projects are particularly difficult to express in monetary terms. Economic returns from such an exercise are therefore difficult to predict.

However, ex-post analysis of such activities over the past two decades shows that in most countries there are high returns to these investments. In Romania, with the new private farmers starting at a low production and productivity base, the returns to the transfer of technology and information are expected to be high. The range of benefits likely to be realized by testing alternative environment-friendly, sustainable technologies and methods, and promoting their replication and adaptation, would be diverse. New farming methods could lower production costs, increase output efficiency; produce more profitable crops and livestock; improve product quality; reduce capital expenditures on machinery, irrigation equipment and buildings; reduce crop and livestock losses; make better use of available land, labor and other resources; and improve environmental sustainability of production systems. Macrobenefits resulting from the project would be increased fishery, tourism and better human health.

The *incremental cost analysis* for the GEF-funded component is described in Annex 4. The analysis assumes a baseline under which the nutrient pollution caused by agricultural practices are not addressed, resulting in continued discharge of nutrients into the Black Sea. The Project would introduce and demonstrate more sustainable and environmentally benign technologies and practices at an estimated incremental cost of US\$5.15 million. Without the project, some progress will be made through ongoing government efforts including the Bank funded projects but there would be little if any reduction in nutrient discharge into the Danube and the Black Sea. Hence the proposed project will provide incremental support for nutrient reduction in the Black Sea.

The completion of the activities is expected to have a demonstration effect that would in time allow the replication and net benefits. This would have a significant positive benefit in terms of the efficiency with which Government expenditures on agriculture are used. It would allow more effective use of Government funds that will also facilitate EU-accession.

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

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

Experience in other countries indicates that improved manure storage, conservation tillage, crop rotations, and other similar practices, can generate positive financial rates of return for the farmer from his or her share of investment in the long run. In one of the studies conducted at Iowa State University in the USA, researchers have concluded that reduced tillage systems resulted in highest financial returns to farmers in comparison with the conventional tillage (mouldboard plough) system. Reduced tillage systems resulted in net profit of \$40.5/ha more compared to conventional tillage system (Hamlett et. al., 1983) Hamlett, C.A., T.S. Colvin, and A. Musselman. 1983. Economic potential of conservation tillage in Iowa. Transactions of the American Society of Agricultural Engineers 26(3): 719-727.

The main financial benefit from the improved management of livestock waste will be realized in the recycling of the nutrients in crop production. Application of 40 tons/ha of stored livestock waste on the typical rotation of maize, wheat and soya is estimated to give a saving on purchase of inorganic fertilizer equivalent of about 30% on input costs. Furthermore, the need for credit to pre-finance the crop is lower. The use of organic material will feature in the development of organic farming and will have a beneficial impact on longer-term soil fertility. Again, it will take time for these benefits to work through to the farm households.

The project will evaluate the financial implications of the farm environmental improvements during implementation of the pilot project. Using experience gained from the pilot interventions, the project will assess the conditions in Romania under which positive financial rates of return can be established and what the returns are likely to be. The project will assess the conditions in Romania under which these positive FRRs can be established and what are to be the likely rates of return.

#### **Fiscal Impact:**

The total government financing during the project implementation period is estimated at US\$0.70 million in the form of staff salaries and operating costs and US\$1.16 million in taxes and VAT payments. This is approximately 1% of the combined annual budgets of MAFF and MWEP. Since this contribution is spread over a five-year period, the annual strain on the government's resources and thus the fiscal impact should be minimal. The Ministry of Public Finance and MWEP have confirmed that the Romanian Government's direct contribution cited above could be met from the budget. Experience with counterpart funds and sustainability in GEF-funded project has been good, as evidenced by the Danube Delta and Forest Biodiversity projects.

### **3. Technical:**

The project will establish a functioning model of good practices to reduce nutrient run-off from agricultural practices and build national capacity to replicate these practices in other parts of Romania. Skills will be acquired through international experience from a combination of study tours, workshops, networking, training, establishing linkages among various relevant institutions.

Some twelve improved agricultural practices have been selected for field evaluation and demonstration. These practices include: conservation tillage, crop rotations with legumes, shelterbelts/windbreaks, hedge rows, narrow vegetative barriers, filter strips, riparian buffers, nutrient management, wellhead protection, agro-forestry, tree planting, organic farming and grazing management. These practices were selected as they met certain key criteria including, inter alia, cost effectiveness/low input, time proven readily transferable technology, good buffering effects for improved water quality and no adverse environmental effects. These are "tried and tested" effective solutions, applicable to the problem of nutrient discharge to Romania's surface and groundwater.

Wherever possible, the project will work with the extension staff of the Agricultural Support Services Project. The project will also aim to strengthen the legislative and regulatory framework to promote project activities and a public awareness program will be developed to disseminate the benefits of environmentally sustainable agricultural practices.

### **4. Institutional:**

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

Ministry of Waters and Environmental Protection has been designated by the Ministry of Public Finance as the line Ministry with overall responsibility of project implementation.

#### 4.2 Project management:

A Project Management Unit (PMU), will be established at DGA–Calarasi to co-ordinate implementation activities by the different local and national agencies, including the field agencies of MAF and MWEP as well as to handle procurement, all financial matters relating to disbursements, maintenance of project accounts and financial monitoring, the monitoring and evaluation of all project activities. A Project Steering Committee (PSC) comprising representatives from MWEP, MAFF, MOPF and Ministry of Local Public Administration has been established for providing project oversight, advice and assistance in resolving issues associated with project implementation. The Minister of MWEP will co-chair the Steering Committee. The institutional arrangements agreed between MWEP, MAFF, MOPF and the local government would establish the necessary collaborative requirements for project implementation. Such arrangements would also help build capacity to promote and monitor sustainable agricultural practices and improve Romania's agricultural sector. (See Annex 2, Attachment 1 for Organizational Chart).

In order to decentralize implementation to the local level, build local ownership and capacity, and to be able to effectively monitor and evaluate the impact of project activities, implementation of project activities will be entrusted to relevant local institutions, including: the Calarasi DGAIA and its extension (OJCA) and soils (OJSPA) agencies, the Calarasi office of the EPI and Public Health Directorate; the extension consulting agency, ANCA; the ICCPT Research Institute for Cereals and Industrial Crops, Fundulea; and the Danube Delta National Research Institute. Training will be provided to the staff of these entities in implementing relevant project activities that will go a long way in building local capacity to reduce nutrient discharge pollution from agricultural production. Co-ordination at the Judet-level would be assured by a Project Co-ordination Committee (PCC) chaired by the President of the County Council with the Prefect as vice-chair. Members would include the Vice-President of the Calarasi County Council, the County Council Architect, the Directors of DGAIA, EPA, Public Health Directorate, OJCA, OJSPA and OCAOTA, an NGO representative, two private farmers and the Mayors of the seven Comunas, all of who are fully committed to the project.

#### 4.3 Procurement issues:

A detailed procurement plan has been prepared by the PPU. The ASSP PMU's Procurement Specialist, who is well trained and experienced in Bank procurement, will also serve the proposed APCP. Bidding documents for the first year's procurement actions are under preparation and are expected to be ready by negotiations. The total value of contracts subject to prior review is estimated at the equivalent of US\$1.55 million, or 30% of the value of the grant. Given the relatively small size of many of the contracts and the repetitive nature of the main civil works contracts (manure storage facilities) this level of prior review is considered acceptable.

#### 4.4 Financial management issues:

The banking system in Romania is perceived as potentially sensitive to liquidity problems. Despite a certain degree of restructuring of the banking sector, the systemic risk is still significant; however, by opening the project Special Account at the RCB, the largest Romanian bank, the banking risk is kept at an acceptable level. Also, inflation and USD/ROL exchange rate evolution are problematic in Romania. In 2000, inflation was 40%, while the devaluation was 42%. The Government has estimated 25% inflation for 2001.

To avoid the risk of possible nepotism and corruption in the PMU, (i) all payment orders will be signed jointly by the PMU administrator and financial management specialist; (ii) the beneficiaries' representatives

will certify the works done, goods delivered and services rendered before the payments are made by the PMU; and (iii) the responsibilities of the individual PMU staff will be clearly indicated in the financial management manual.

Regarding possible delays in payments to suppliers: (i) due to the signatures required on the Government contributions; and (ii) inadequate counterpart funds in the Government project accounts, the experience on existing projects indicates that this risk to a large extent is contained by adequate supervision by the Bank and has not been a problem so far. Ministry of Public Finance (MOPF) has clearly promised that the counterpart funds for this project will be provided in the national budget starting FY02.

Most of the beneficiaries' contributions to project activities are expected to be in kind. This may lead to disagreements in terms of the equivalent amount (in kind contribution quantified in monetary terms). The risk will be mitigated by agreeing a priori the quantification mechanism, based on the local conditions. If a beneficiary contributes in cash, its cash contribution will be deposited in a bank account and a bank statement proving this will be attached to the agreement. When the contribution is in kind, the financing agreement will detail the mechanism for quantifying the in-kind contribution in monetary terms, and will mention the nature of the in-kind contribution. These measures should keep the associated risks at a moderate level.

## **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 major environmental objective of the project is to reduce the amount of nutrients leaching into the groundwater or flowing directly into the river systems and then into the Black Sea. Through integrated land and water use management with full co-operation of the beneficiaries. The project has been designed and will be implemented in a participatory manner so as to have the maximum environmental (and financial) impact on the area. The project thus expected to be environmentally beneficial. No major adverse impacts are expected.

As part of component 1, the project will provide for 4000 manure storage bunkers at individual farmer's homesteads to store manure from their domestic animals and 14 village-level manure storage facilities. The environmental concerns under this component may include leakage of the manure from the village-level storage facilities (if construction is not made according to specifications), inappropriate manure spreading in the fields and improper cleaning of the individual manure storage tanks and large manure platforms. An environmental assessment has been done and mitigating measures proposed to address these environmental issues are given in Annex 11. Also, an environmental management plan has been developed to ensure that activities undertaken under this component will be closely monitored with regular inspections by the local environmental agency(ies).

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

The main feature of the EMP is to implement a comprehensive soil and water quality monitoring program in the project area to evaluate the effects of different project activities on nutrient reduction to surface runoff and groundwater sources. Standardized soil and water quality monitoring efforts have been developed to provide decision-makers and the public officials with reliable data on problems and trends in the water quality of drinking water supplies and the Danube River and its tributaries. These efforts are hampered by the lack of adequate laboratory and monitoring equipment and chemicals for the operation and maintenance of soil and water quality monitoring laboratories of the Environmental Protection Inspectorate (EPI) and the Public Health Directorate (PHD) of Calarasi Judet. The project will provide additional

laboratory equipment, chemicals and supplies, and training to build capacity of the EPI. The project would fund a comprehensive soil and water quality monitoring plan for collecting data on drinking water wells, piezometers, drainage and irrigation canals that drain nutrient loads into the Danube river and Black Sea. These data will be analyzed and made available to all stakeholders in a usable form. The project will develop and evaluate a watershed scale computer simulation model to predict and quantify the effects of agricultural activities in the watershed on the reduction of nutrients moving to the Danube River. The monitoring plan will be implemented by the PMU with technical assistance and equipment provided by the EPI and PHD.

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

Date of receipt of final draft: July 2001

An environmental assessment of the various project activities has been made and mitigation measures proposed to address various possible environmental impacts are addressed in EMP shown in Annex 11. This project will have positive effects on the environment. The EMP addresses various environmental issues (like surface and groundwater quality, soil quality, and bio-diversity), potential environmental impacts, and proposed actions to be taken during the implementation phase of the EMP. The EMP has been designed to monitor the soil and water quality of project activities so that immediate mitigation measures can be taken if a potential for an environmental damage occurs. All the actions of the EMP will be implemented in the in the first year of the project.

The EA and EMP were sent to the Infoshop on August 27, 2001.

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?

Various stakeholders of the project include individual small farmers, owners of large farms, NGOs, Mayors and Vice Mayors of 14 comunas, and officials of Directorate General of Agriculture, Departments of Land Reclamation and Irrigation, EPI, PHD, and international agencies like the USAID. These stakeholders were individually consulted and project functions were discussed with them. All of the stakeholders were consulted on the ongoing soil and water quality problems in the region and the quality of Danube River. All the stakeholders agreed that water of Danube River is polluted with nutrients and interventions proposed in this project would be very good for the region. Some of the stakeholders have agreed to participate in project activities by allowing their drinking water wells to be sampled for water quality. The EMP has been discussed at length with the officials of EPI and PHD, and Mayors of the comunas. It is proposed that after the approval of this project but before the start of implementation, The EMP would be further shared in village level group meetings to create awareness and seek further input.

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?

A comprehensive soil and water quality monitoring program has been developed for implementation. Project activities will be intensively monitored to determine the impact of the relevant activities on soil and water quality. This project will install and monitor 20 piezometers to determine the flow of nitrogen and phosphorus along the groundwater gradient (underground water flow lines) in the aquifer that eventually is draining into the Danube River. Also, the project will monitor water quality of three man-made and one natural drain in the lower part of the polder area which are draining nutrients directly into the Danube River. Data from piezometers and open drainage canals will help the project in quantifying the reduction in nutrient loads to the Danube River. At three sites in the project area, the project will evaluate the effects of nutrient management, tillage, and crop rotations on soil and water quality. Also, limited water monitoring



equipment will be installed to monitor the positive effects of buffer strips, tree planting, and establishment of agro-forestry on water quality. Environmental evaluation indicators have been reflected in the EMP which meet the objectives and goals of this project.

### ***International Waterways***

OP/BP 7.50 does not apply to this project as the project will not involve the use of water or potential water pollution on international waters (para 2 of the O.P. 7.50). On the contrary the project is designed to decrease existing levels of pollution in the Danube and the Black Sea: The project will be funded under the GEF Strategic Partnership for the Danube and Black Sea Basin that aims at reducing the pollution level in these international water bodies. The Partnership has been developed on the basis of the Bucharest Convention for the Protection of the Black Sea against Pollution (1992) and the Danube River Protection Convention (1994), that have been signed and ratified by riparian countries. The interventions supported under the Partnership, including agricultural nutrient pollution control, follow directly from the Strategic Action Plans (SAP) prepared and endorsed by the Black Sea and Danube Commissions which carry out these Conventions. The Commissions and 17 riparian countries which participated at the Black Sea/Danube Stocktaking meeting on June, 29-30, 2000 in Istanbul endorsed the Partnership and the three model projects, including the Romania Agricultural Pollution Control Project. Supported by this endorsement by the Black Sea riparian countries, the May 2001 GEF Council approved the Partnership.

## **6. Social:**

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

The agricultural land in the project area is divided into farms, fields and plots and farm residences are outside of fields, usually within villages. These are the areas for residing, storing food for human consumption as well as animal feed, and for stabling animals – poultry, pigs, cattle, sheep, horses. The area is characterized by a high concentration of animals, limited knowledge of the practices for efficient storage, management and application of plant nutrients and a very high concentration of domestic waste disposed near the water wells and watercourses. This has had a serious impact on human health as general pollution of groundwater with nitrites, nitrates and bacteria has steadily increased with 15 infants (under 6 months) diagnosed and hospitalized in 1997 with acute intoxication with nitrites. The incidence of Acute Diarrheal Diseases exceed national levels in the project area. (Details in Working Paper 1).

At the national level, Governmental restructuring and reduction of subsidies are influencing socio-economic conditions to a large degree, including real wage declines and unemployment. At the level of the project demonstration site, key rural development issues are unsustainable use of resources, unemployment, lack of knowledge and lack of access to credit to support environment-friendly agricultural practices. Poor economic conditions and their implications for social welfare result in a lack of interest in environmental protection on the part of stakeholders. The project will result in economic opportunities for key stakeholders that are linked to the objectives of the project.

A baseline survey at the comuna and village level has been conducted and is available. The results of the survey have been used to fine-tune the project. The survey will be undertaken annually to monitor progress of the project.

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

During project preparation, key stakeholders, individual farmers, farmer organizations, NGOs and local officials have been fully consulted in the development of detailed project components. A baseline survey was undertaken to identify the relevant needs and priorities of the stakeholders and information obtained

from the participating groups have been instrumental in the development of the project.

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

Project preparatory activities have been undertaken with full involvement and participation of government counterparts, various research institutions, NGOs and relevant civil society organizations. Extensive consultative meetings were held during project preparation and the input of these groups have helped in the outcome of project design. The ownership of land is still in transition. However, there is no resettlement issue in the project area.

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

The Project Management Unit will ensure full participation of beneficiaries in the implementation of the project. The PMU will annually monitor and evaluate project progress and measure the impact of project activities against the socio-economic baseline survey undertaken during project preparation. The PMU will undertake a systematic analysis of the impact and achievements of project activities and the results of the M&E activities will be fed back into the implementation process as improved practices.

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

Monitoring will be based on the baseline survey undertaken during preparation phase of the project. Extensive data from comunas and villages has been collected and the Project Preparation Unit has developed performance indicators based on Annex 1. A well-designed monitoring and evaluation system that will include social indicators is being developed by the PMU which will annually monitor and evaluate project performance through conducting beneficiary surveys. The results of M&E activities will be fed back into the implementation process as improved practices. A mid-term review will be carried out to assess overall progress. Lessons learned, with recommendations for any improvements, would be used in restructuring the project, if necessary.

## 7. Safeguard Policies:

### 7.1 Do any of the following safeguard policies apply to the project?

Policy	Applicability
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 type="radio"/> Yes <input checked="" type="radio"/> No
Pest Management (OP 4.09)	<input type="radio"/> Yes <input checked="" 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 (OD 4.30)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Safety of Dams (OP 4.37, BP 4.37)	<input type="radio"/> Yes <input checked="" 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.

The Project has several activities that will result in positive impacts on the environment. The only caution would be to ensure that 14 large manure storage facilities at the village level are designed properly and constructed according to environmental guidelines of the Environmental Protection Inspectorate (EPI). Project has put a safeguard that design of these large manure storage facilities must be prepared under the supervision of County Council engineering staff and EPI will ensure that the constructions of manure

storage facilities have met environmental guidelines on stopping manure leakage to surface or groundwater sources. These facilities will not be built close to any surface water body. Also, manure storage facilities will be well covered and fenced off for to ensure safety. Another safeguard is that the project will implement an extensive soil and water monitoring program to ensure that seepage of manure to ground water does not occur (see Section 5.3).

## F. Sustainability and Risks

### 1. Sustainability:

To promote *institutional sustainability*, the PMU will be located in the Calarasi branch of the General Directorate for Agriculture (DGAIA) bringing project management to the local level. The MOPF, MWEP and MAFF at the national level as well as the local government agencies, communa councils and farming communities are in full support of the project. Both the DGAIA and the Environmental Protection Inspectorate, which have strong institutional capacity and a proven track record at the county level, will have lead responsibility for project implementation at the field level and will thus ensure sustainability of the project. The project will provide assistance for capacity building in policy and regulatory matters which will enable MWEP and MAFF to establish a sound basis for overall management of the project. To ensure *social sustainability*, the project has emphasized the early involvement of key stakeholders in project preparation and implementation, including policy makers, local public officials and community leaders, farmers, their associations, NGOs. Such involvement will create a sense of ownership and contribute to social sustainability. In addition, the project would benefit the farmers by promoting cost-saving yield-enhancing agricultural practices as well organic farming which has the potential to open new markets for the local farmers. Such project interventions will ensure *financial sustainability*. Environmental Sustainability is the key element to project design.

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

Risk	Risk Rating	Risk Mitigation Measure
<b>From Outputs to Objective</b>		
Low/inadequate commitment from national and local governments and institutes for project activities leading to increased pollution of the Danube River and Black Sea and failure of national and local authorities to avert further damage	N	National public awareness program targeted at key audience, including policy makers to mobilize support for improving water quality. Participatory approach in developing plans and staff training
Implementing agencies may be unable to attract and retain qualified staff.	N	Project will provide training and career development benefits and work towards establishing loyalty to this new professional field.
Lack of fiscal resources may preclude replication of project activities in other similar sites of Romania.	M	Project benefits will demonstrate efficacy and need for replication and garner government support; exploration of possible donors.
Farmers don't have access to credit, machinery and inputs that would enable them to practice environmentally-friendly agricultural practices.	S	Grants of at least 70% would be provided for construction of solid waste manure stores. Cost sharing in kind by farmers will be encouraged, thus reducing the need for cash contributions.

<b>From Components to Outputs</b> Farmers are less willing to accept improved, environment-friendly agricultural practices.	N	Careful validation of proposed environment-friendly practices and staff and farmer training; on-location advice; and advocacy of immediate and long-term benefits of project activities. Public awareness campaign to disseminate information on the benefits and results of environment-friendly agricultural practices.
Land ownership issues for polder restoration	M	The land has been leased for long term. The GOR is requiring the lessee to follow good agricultural practices in the area as recommended by APCP.
New private sources of funding do not come forward	M	Ensure donor participation in project design.
Beneficiaries cannot develop new manure handling and storage systems that are financially attractive.	S	Early designs and pilots will be implemented to develop low-cost manure handling and storage systems that are financially attractive to farmers. The local government has agreed to co-share in the costs of platform constructions.
Project incentives are not sufficient to motivate farmers to participate	M	Project will undertake a broad public awareness campaign to underscore project benefits on both an economic level (higher incomes) and improved health (improved drinking water supply and sanitation).
<b>Overall Risk Rating</b>	<b>M</b>	

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

### 3. Possible Controversial Aspects:

None.

## G. Main Grant Conditions

### 1. Effectiveness Condition

- The Project Management Unit has been established in accordance with the law of the Recipient, and appropriate staff selected in a manner satisfactory to the Bank.
- The Recipient has selected the auditors referred to in Section 4.01(b)(i) of the Grant Agreement, with experience, qualifications and terms of reference satisfactory to the Bank.

### Conditions for Negotiations

- Clarification of the legal status in the Calarasi-Raul Polder and Memorandum of Understanding between the Delta Institute / MWEP - Agency of State Domains / MAFF for restoration works in the abandoned rice polder.
- Signing of the addenda to the leasing agreements in the Boianu-Sticleanu polder; the addenda

stipulates that the lessee would follow good agricultural practices in the area as recommended by APCP.

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

MWEP will maintain PMU with resources, composition and under terms of reference satisfactory to Bank until project completion

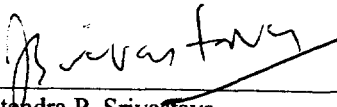
Any changes to composition of PSC, PCC and PMU only with agreement of the Bank.

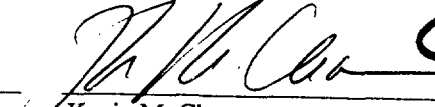
**H. Readiness for Implementation**


- ☒ 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.

  
Jitendra P. Srivastava  
Team Leader

  
Kevin M. Cleaver  
Sector Manager/Director

  
Andrew N. Vorkink  
Country Manager/Director

**Annex 1: Project Design Summary**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

<b>Hierarchy of Objectives</b>	<b>Key Performance Indicators</b>	<b>Monitoring &amp; Evaluation</b>	<b>Critical Assumptions</b>
<b>Sector-related CAS Goal:</b> Protection and sustainable management of natural resource and the environment  Assist Romania in implementing the National Environment Strategy Plan Assist process of integration with the European Union	<b>Sector Indicators:</b> Gradual Improvements in soil and water quality  Capacity to address environmental degradation of the Black Sea. Progress towards meeting environmental compliance targets with EU legislation. Strengthen the capacity of Environmental Protection Directorate (EPI) and Public Health Directorate (PHD) in Calarasi.	<b>Sector/ country reports:</b> Agricultural statistics Periodic data collection on soil and water quality of major water bodies, by EPI  National reports  Periodic EU assessments	<b>(from Goal to Bank Mission)</b> Improved agricultural practices contribute to national economy through an increase in average incomes, and environmental enhancement. EU membership is also likely to increase average incomes  Policy standards adopted meet EU requirements
<b>GEF Operational Program:</b> The Project's objective of reducing nutrient discharge to Danube river and Black Sea is consistent with OP No. 8, Water body based operational Program which focuses mainly on threatened water bodies and the most important trans-boundary threats to their ecosystems. Project goals are also consistent with OP No. 9, Integrated Land and Water Multiple Focal Area	Increased awareness of threats to pollution of trans-boundary water bodies from nutrients from animal waste and agricultural chemicals	Agricultural Statistics Regional Surveys and collection of periodic data on water quality from major water bodies in the project area by EPI & PHD  Regional Surveys	Government's ability to mobilize resources to reduce threats to water bodies and build institutional capacity for future environmental challenges  Sustained effort to raise the public awareness and demand for protection and improvement to environmental factors
<b>Global Objective:</b>  To increase significantly the use of environment-friendly agricultural practices among farmers' associations, family farms and other eligible	<b>Outcome / Impact Indicators:</b> Increased awareness of environmental issues in agriculture among farmers within and outside project area.	<b>Project reports:</b> Agricultural statistics Water quality data sets Social Assessment  Economic and Financial	<b>(from Objective to Goal)</b> Project-developed interventions are replicated on a wide scale.  Adoption of improved

farmers in the target project area. The global environmental goal is to reduce, over the long-term, the discharge of nutrients and other agricultural pollutants into the Danube River and Black Sea through integrated land and water management of the Calarasi region and ecologically sustainable use of natural resources in two agricultural polders.	<p>Increased area of adoption of production and resource conservation technologies.</p> <p>High satisfaction rate among participating farmers.</p> <p>Sixty Five percent (65%) of participating farmers implementing environmentally-friendly agricultural practices.</p>	<p>Assessment</p> <p>Annual regional and national reports</p> <p>Interviews with farmer groups and local governments</p>	environmental policies by government to address non-point agricultural pollution control.
<p><b>Output from each Component:</b></p> <p>1. Calarasi Judet ASSP, CGS, sub-projects with environment-friendly focus in the Judet.</p> <p>Packages developed for manure management</p> <p>A well documented pilot completed and evaluated for replication</p> <p>Sustainable management adopted in Boianu-Sticleanu polder.</p> <p>Good monitoring system for water and soil quality</p>	<p><b>Output Indicators:</b></p> <p>Promotion of new environment-friendly agricultural practices</p> <p>High level of participation (all comunas, all villages and 65% of individual farmers) in target areas that have built manure stores etc.</p> <p>High level of participation (all comunas, all villages and 65 % of individual farmers) in target areas where nutrient management plans have been developed and other environment-friendly practices evaluated/demonstrated.</p> <p>Use of environment-friendly agricultural practices.</p> <p>Area planted to agro-forestry.</p> <p>Management plan adopted for Iezer-Calarasi reserve.</p> <p>Improved water quality in drainage canals.</p> <p>Better soil and water quality</p>	<p><b>Project reports:</b></p> <p>Quarterly reports from APCP and CGS (ASSP)</p> <p>Quarterly reports</p> <p>Quarterly reports</p> <p>Quarterly reports</p> <p>EPI monitoring reports and periodic collection of water quality data.</p> <p>Annual monitoring reports from EPA and Calarasi Department of Public Health</p>	<p><b>(from Outputs to Objective)</b></p> <p>Technologies respond to farmer's needs.</p> <p>Markets and prices provide sufficient incentives to producers and processors.</p> <p>Continued land use based on plans developed. Other government programs do not conflict with project goals.</p> <p>Continued adequate support from local and national government continues for</p>

<b>2. National Policy and Regulatory Capacity</b> Improved policy framework drafted for non-source pollution control  Code of Good Agricultural Practices adopted  Strengthening of institution for Organic farming	Policy framework for non-source pollution meets EU criteria.  Adoption of code monitored by EPI  Information system and legislation in place.	Government legislation  Quarterly reports  Agricultural statistics	carrying out the components  Continued support and enforcement of policy  Provide resources to monitor and regulate standards.
<b>3. Public Awareness &amp; Replication:</b>  Increased knowledge & awareness of ways to reduce nutrient pollution of water bodies in Calarasi Judet.  Increased awareness of ways to reduce nutrient discharge from agriculture in other Judets.  Increased Awareness and demand for replication in the region.	Public awareness Adoption of environment-friendly agricultural practices  Public and farmers aware of the potential to improve income while protecting the environment. Demands from other local governments for replication of project investments. Visits and awareness of farmers, NGOs, and officials of other countries of the project in the Calarasi Judet	Social assessment sample surveys Quarterly reports  Social assessment sample surveys Quarterly reports  Quarterly reports	Allocation of resources  Farmers and leaders in other countries become interested in reducing non-point source pollution from agriculture and allocate resources to replicate project activities.
<b>4. Project Management</b> Well-managed project.	Continued support from the Project Steering Committee and Project Co-ordination Committee	Supervision Reports	Adequate availability of necessary institutional support government agencies.
<b>Project Components / Sub-components:</b> <b>1. Calarasi Judet</b> <b>US\$ 9.22 million</b> Matching grant for manure management practices  Promotion of environment-friendly agricultural Practices  Integrated management of Boianu-Sticleanu Polder and ecological restoration of the	<b>Inputs: (budget for each component)</b>  US\$ 5.20 million  US\$2.47 million  US\$1.09 million	<b>Project reports:</b>  Progress Reports (quarterly)  Progress Reports (quarterly)  Progress Reports (quarterly)	<b>(from Components to Outputs)</b>  Local government support the pilot initiative by contributing resources.  Project incentives are sufficient to motivate farmers to participate in the project  Enforcement of land-use plan



Calarasi-Raul Polder.			
Capacity to Monitor Soil and Water Quality and Environmental Requirements	US\$0.46 million	EPI and PHD annual reports of soil and water quality. Annual social assessment sample survey	Implementing agencies may be unable to attract and retain qualified staff, inadequate laboratory facilities
<b>2. National Level</b> <b>US\$ 0.27 million</b>			
Develop policy framework for non-point source pollution.	US\$0.09 million	Draft appropriate policies	Continued support and will for enforcing policy
Develop Code of Good Agricultural Practices.	US\$0.12 million	Draft of code	
Promotion of organic farming	US\$0.06 million	Status Institutional frame-work	
<b>3. Public Awareness &amp; Replication Strategy</b> <b>(US\$0.45 million)</b>			
Public Awareness in Calarasi Judet	US\$0.21 million	Annual social assessment sample survey	Timely availability of counterpart funds
Public awareness, and replication national level	US\$0.17 million	Sample Survey	Continued support for implementing agency
Regional cooperation for replication	US\$0.07 million	Progress Reports (quarterly)	Ability to interact with each other for mutual benefit.
<b>4. Project Management, Unit (US\$0.86 million)</b>		Progress Reports (quarterly)	
Project Administration	US\$0.65 million	Progress Reports (quarterly)	Ability to maintain staff, offices and support from local governments and communities
Project Monitoring/Evaluation	US\$0.21 million	Progress Reports (quarterly)	

**Annex 2: Detailed Project Description**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

**By Component:**

**Project Component 1 - US\$9.22 million**

**Activities in Calarasi Judet:**

In the **Calarasi Judet**, the project will support activities at two levels: first at the Judet level, where funds from the ASSP Competitive Grant Scheme will be leveraged; second, in seven comunas around Lake Galatui. The respective project areas and activities will be as follows:

(a) All forty-eight comunas of the Calarasi Judet comprising about 410,000 ha of arable land and a total population of 332,000 in 94,000 households. The APCP will provide support for Competitive Grant Scheme technology adaptation and extension interventions on environment-friendly practices, thereby leveraging additional funds from the ASSP for the Calarasi Judet.

(b) Seven comunas Al Odobescu, Ciocanesti, Cuza Voda, Gradistea, Independenta, Vilcelele, and Vlad Tepes comprising about 90,000 ha with 70,000 ha of arable land. Total rural population is 26,700 in 10,540 households. The southern part of this area borders the lower Danube and includes the Boianu-Sticleanu Polder (approximately 23,000 ha). Formerly a floodplain area, it has been drained and transformed into an agricultural polder in the sixties and now contains large areas of cultivated land, small areas of floodplain forests, degraded lands and the Iezer Calarasi water body. The Iezer Calarasi, with a surface of 3,200 ha, is to be declared a nature reserve, being an important corridor for bird migration, most of them listed on Bonn and Bern Conventions. Iezer Calarasi was also identified by WWF studies under the Danube Pollution Reduction Program (Project RO 67), the NEAP, and recent studies coordinated by MWEP, as a high-priority area to be rehabilitated in the Lower Danube River Basin. The Calarasi-Raul Polder (total area of about 15,000 ha of which 3000 ha has been cultivated for rice) adjoins the Boianu-Sticleanu Polder to the east. The project will provide for investments in the following activities in the seven comunas:

- the provision of grants on a cost-sharing basis for the installation of improved manure storage facilities and equipment for manure collection and application;
- the testing and demonstration of environment-friendly agricultural practices;
- the promotion of ecologically sustainable land use in the Boianu-Sticleanu Polder, including a conservation management plan for the Iezer Calarasi water body, as well as the ecological restoration of part of the Calarasi-Raul Polder; and
- the strengthening of capacity in Calarasi Judet for monitoring soil and water quality and environmental requirements.

***Manure Management Practices' (US\$5.20 m).*** This sub-component will provide provide grants for the installation of improved manure storage facilities at village and household level, and equipment for manure collection and application in the seven comunas. Grants on a cost-sharing basis of about 70% of total costs would be provided for the construction of village-level solid waste manure facilities and small storage bunkers with effluent collection facilities at the household level, as well as supply of equipment for manure handling and spreading. Villages and households wishing to participate in the investment program would be selected against agreed criteria and cost-sharing arrangements. Priority would be given to vulnerable groups, widows, female farmers and poorer households (see Operational Manual – Working Paper 16).

Fourteen of the twenty-one villages in the project area would be expected to invest in manure storage and handling facilities with costs shared between the project (grant), comuna and village households (cash and in-kind) and the Calarasi County, which would contribute some 25% (in cash) of the costs of manure store construction. County Council engineering staff would collaborate on design of the village-level manure store and would work with the Environmental Protection Inspectorate (EPI) to see that the constructions met environmental guidelines on stopping manure leakage to surface or groundwater sources. Four piezometers (two upstream and two downstream) will be installed around each of the fourteen manure storage platforms to monitor the quality of groundwater, and to see if any seepage of manure to groundwater occurs. Community training and awareness on good practices for waste collection and manure management, including composting, testing, and field application, would be provided.

**Manure Storage System:** The key elements of the storage system to be provided by the project and the support to be provided in the form of village-level stores and household storage bunkers, are set out in the Operational Manual for the component – Working Paper 16. With regard to the **Village-level Manure Storage Facilities**, the calculated capacity for a typical village is for 3200 tonnes of material after 4 months Consultation with the mayors indicated that they would have preferred 6 months of storage. The additional one month of storage at households partly addresses this concern. Construction of the larger store would add 30% to the costs and would not seem to be justified.. With a capability of storage at the household for at least one month, the effective storage period is 5 months. The objective should be to empty the platform by the end of autumn. The length of time that is needed to hold the material can be put to good effect in the stabilisation of the waste. The recommended facilities for the village-level store are detailed in the feasibility study and designs – Working Papers 6 & 7.

With respect to the **household store/bunker**, the waste quantities arising at the average household have been used to calculate nominal capacity of household agricultural waste stores. A simple open fronted store with concrete base and 1.2 m tall walls would be sufficient for most households with a drainage channel connecting to a covered below ground tank of 500 litres capacity. A separate small capacity container (about 90 litres) would be provided for the collection of recyclable and non-recyclable household wastes.

**Manure Handling and Application System:** The project will support a manure handling and application system comprising: (i) waste collection/delivery to village-level facility; (ii) provision of equipment to facilitate handling at the village-level facility – loader, shredder for maize stalks; (iii) management of waste to stimulate breakdown and composting; (iv) provision of spreaders for field spreading of rotted material; (v) provision for handling effluents.

**Selection Criteria:** Criteria agreed with County Council and Comunas for selecting (a) comuna/villages in the village-level manure storage and handling and (b) households for the construction of homestead manure storage bunkers, are summarized in the Project Implementation Plan and Operational Manual for the manure storage and handling system (Working Paper 16). Following approval in principle of a Comuna's application for assistance, the Comuna would sign a preliminary agreement with the PMU covering the provision of assistance for the manure handling system (platform, household bunker and manure handling and spreading equipment); agro-forestry on comuna land and introduction of better management practices for communal grazing lands. Furthermore, the comuna/village council would commit to working with farmer and family associations on the adoption of environment-friendly agricultural practices on privately-owned land. Subsequently, once the design of the storage facility and terms and conditions of the assistance had been agreed, a grant agreement would be signed with the PMU

setting-out the terms and conditions of the provision of GEF funding including the cost-sharing arrangements between GEF, the County Council, the comuna and the beneficiary households.

Households completing an application for materials to construct homestead manure storage bunkers, would be ranked against a number of criteria (Operational Manual, Annex 3) including, inter alia: number of livestock, family situation, and homestead location/layout and consequent risk of polluting groundwater. The system of weighting applied to these criteria favors the vulnerable groups, widows, female farmers and poorer households, as well as those most likely to be contributing to nutrient discharge into the groundwater.

The project would also provide the few, large private dairy and pig units with a grant of up to about one third of the cost of installing solid-based or liquid-based waste handling systems. The amount of the grant would be based on the commercial size of the unit and its capacity to make the necessary investments to protect the groundwater from significant source of nutrient discharge. Implementation procedures and pro-forma for both the comuna/village level units and the larger, private livestock units are set out in the PIP and Operational Manual.

**Investment program:** The proposed investment program is given below.

Project Activity	Pre-Project	PY1	PY2	PY3	PY4	PY5	Total
Communa-level waste platforms (number)	1	1	4	4	4		14
Handling and Application Equipment (number sets)	1	1	4	4	4		14
Manure storage bunkers at household level	250	250	1000	1250	1250		4000

A pilot phase will be launched early in 2001, with USAID funding, for the construction of one comuna/village storage facility and about 250 household-level bunkers. This single facility, as well as the household bunkers, would be monitored for usage, management and recycling of nutrients to farmland. This experience will be fed back into the design of facilities constructed during the project.

**Promotion of Environment-friendly Agricultural Practices (US\$2.47 m).** This sub-component will include adoption of agricultural practices that would maintain or increase profitability from crop production while reducing non-point source pollution from agriculture. The proposed activities include: (a) the promotion of environment-friendly agricultural practices; (b) agro-forestry; and (c) establishment of a land use information system for monitoring evolution of land use patterns.

**Environment-friendly Agricultural Practices:** The project would provide for (i) demonstration of a number of improved practices, and (ii) demonstration program of integrated crop and nutrient management, including crop rotations and efficient application of organic and inorganic fertilizers based on soil tests. Some twelve improved practices have been selected for field-testing and demonstration in the project area. These include conservation tillage, shelterbelts/windbreaks, filter strips, wellhead protection, agro-forestry,

grazing management, riparian buffers etc. Sites for field-testing and demonstration would be selected against agreed criteria. A detailed program for the first two years has been prepared and sites identified with the help of comunas' Mayors, while an indicative program has been prepared for project years' 3 – 5. On the assumption that the project will start in January 2002, the following program is proposed for 2002/03:

- **Nutrient management** including crop rotation, manure management, crop nutrient management with soil testing, and with training program to be conducted for ANCA staff and farmers in parallel with on-farm demonstrations;
- **Shrub Rows:** Proposed for the Vlad Tepas communa with the "Total Chim. Commercial Society"(Mrs Maria Dragomir, General Manager) as the practice stakeholder. The shrubs will be established in the area between two existing tree windbreaks;
- **Narrow Vegetative Barriers:** Propose in the same comuna and same general location as the shrub rows. This will provide a good comparison of the practices and be a decision tool for area farmers who observe performance of the practices. It will also enhance credibility of yield data collected by the farmer;
- **Conservation Tillage:** Initial demonstration program on the "Total Chim. Commercial Society" farm at Vlad Tepes starting in spring of 2002; and
- **Tree planting & Riparian Buffer Strips:** In the Boianu-Sticleanu Polder area.

Specialized equipment for conservation tillage would be placed with selected farmers/farmer associations/ NGOs/implementing agencies who would contract with the PMU to conduct a combination of environment-friendly practices on their farms, as well as operating the machinery to conduct demonstrations on other farms. The program would be designed by and carried out under the supervision of an extension/research agency or consortium contracted to implement the sub-component under contract to the PMU. The project would provide the equipment and operating costs to the implementing agency together with the cost of inputs and materials, while the selected farmers would provide the necessary tractors and non-specialized equipment.

The indicative testing/demonstration program for the full five years is as follows:

Practice	PY1	PY2	PY3	PY4	PY5
Nutrient management Includes crop rotation, manure management, crop nutrient management with soil testing.	xxx	xxx	xxx	xxx	xxx
Conservation tillage		xxx		xxx	
Shrub rows	xxx		xxx		
Vegetative barriers	xxx				
Riparian buffers		xxx	xxx	xxx	
Reclamation old waste platforms		xxx			
Wellhead protection		xxx			
Grazing management			xxx		

**Agro-Forestry Program:** the agro-forestry program will include tree planting in the following locations:  
(i) erosion-prone locations in the terrace area – such as along water courses where comuna-owned land has

been bench-terraced; (ii) degraded areas in the Polder subject to water-logging; and (iii) windbreaks or shelterbelts on privately-owned agricultural land. Areas of 1090 hectares in the Polder and 432 hectares of comuna land in the terrace area have been identified as best suited for reforestation. The farmers, mayors, NGO's and forestry experts recommend planting of following types of plants: acacia, hind cherry, honey locust, white willow, rosacannia, ligustrum vuegone, fruit trees and fruit shrubs.

The tree planting in the terrace area would be organized by the Comuna Mayor's office with technical supervision provided by the National Forestry Agency. The project would provide saplings and use of tree planter, while the labor would be provided by the village households. The following tree planting program (hectares) is proposed for the terrace area:

Comuna	PY1	PY2	PY3	PY4	PY5	Total
Al Odobescu	5	15	20	25	35	100
Ciocanesti	10	10	15	20	50	105
Cuza Voda	5	10	10	15	20	60
Gradistea	5	5	5	5	5	25
Independenta	7	10	15	20	25	77
Vilcelele	7	7	7	0	0	21
Vlad Tepes	5	10	10	15	0	40
Total	44	67	82	100	135	428
SC Total Chim	1	1	1	1	0	4
TOTAL	45	68	83	101	135	432

The above activities will result in reducing nutrient run-off into surface and ground-water, protecting the long-term fertility of soils by maintaining organic matter levels, fostering soil biological activity, through the use legumes and vegetables in the crop rotation schemes as well as effective recycling of organic materials, including crop residues and livestock wastes. Use of these practices can be expected to raise yields and reduce the need for purchased inputs.

**Land use Information System:** The project would provide for a PC-based GIS system to serve as a database of mapped data and other monitoring data collected during the project. Either a GIS unit would be established in the Calarasi Department of Agriculture, or the work would be sub-contracted to an existing agency that has worked with satellite imagery.

***Integrated Management of Boianu-Sticleanu Polder (US\$0.83 m) and Ecological Restoration of the Calarasi-Raul Polder (US\$0.26 m):*** The project would develop and implement a comprehensive land use management plan for the **Boianu-Sticleanu polder** comprising the following actions: (i) agro-forestry on the degraded lands adjacent to the Iezer Calarasi and on unproductive riparian land; (ii) implementation of the code for good agricultural practices on the neighbouring arable land; (iii) sustainable use of livestock grazing lands; (iv) implementation of a conservation management plan for the proposed Iezer Calarasi nature reserve; and (v) the project would also provide the costs of studies and ecological restoration of part (about 3000 hectares) of the **Calarasi-Raul polder** (adjoining the Boianu-Sticleanu Polder to the east and comprising a major portion of abandoned rice fields) to wetlands. The project interventions in the two polders would be co-ordinated by the Danube Delta National Research Institute (DDNRI). The project support to be provided for implementing the land use management plan will represent a pilot action plan for a vulnerable area as required under the EU Nitrate Directive.

**Agro-forestry:** Some 1090 hectares of land have been identified (see Working Paper 4) as suitable for

replanting with trees (primarily poplar and willow). These areas include low-lying areas subject to water logging and/or poorer sandy soils, as well as canal banks. These lands are included in the areas leased out for commercial farming and an application for changing the land-use designation has been prepared by the PPU and agreed in principle with MWEP and MAFF. A Governmental Decision is to be prepared by June 30 confirming the change in land use. The project will subcontract with the National Forestry Agency, or other organization, for the tree planting and subsequent management. The project would provide the saplings and planting equipment while the contracted agency would provide the labor. The program will be as follows:

Area	PY1	PY2	PY3	PY4	PY5	Total
Mircea Voda	10	15	40	40	45	150
Ciocanesti	10	50	150	250	380	840
Gradistea	10	15	20	25	30	100
Total	30	80	210	315	455	1090

**Implementation Code of Good Agricultural Practices on the Arable Land:** The Director General, Agency for State Domains, has agreed that a clause obligating the Commercial Companies leasing land in the Boianu-Sticleanu Polder to follow a Code of Good Agricultural Practices and apply the APCP provisions, would be added as an addendum to the leasing agreements.

In addition, the Agency of State Domains (ADS) will ensure that all future concession/privatization contracts in the Danube flood plain include a clause stipulating that the lessee/owner has to follow the Code of Good Agricultural Practices similar to that to be followed in the Boianu-Sticleanu Polder. The ADS will also include a clause in future land privatization contracts that will ensure the owners/users follow environment-friendly agricultural practices. The local EPIs' will issue the environmental permits after privatization accordingly, and will monitor enforcement.

**Sustainable Use of Pastures and Other Grazing Areas:** The project would support the renovation and improved grazing management of about 300 hectares of comuna pastures: Gradistea (150 ha) and Cuza Voda (141 ha).

**Conservation Management Plan for the Proposed Iezer-Calarasi Nature Reserve:** MWEP has approved terms of reference (PIP, Annex 6.3) for the preparation, in the first year of the project, of a Conservation Management Plan for the proposed Iezer-Calarasi nature reserve. The costs of preparing the plan and its implementation will be supported during the project. MWEP has confirmed that the area will be designated a reserve by end-December 2001 and it does not involve any resettlement.

The costs of studies for restoration to wetlands of part of the **Calarasi-Raul Polder** (adjoining the Boianu-Sticleanu Polder to the east and comprising a major portion of abandoned rice fields), as well as the restoration program, would be met by the project. A note identifying the area for restoration, objectives and terms of reference for the initial study to be financed by MWEP, are in Working Paper 8.

**12. Strengthening Capacity in Calarasi Judet (Environmental Protection Inspectorate - EPI - and Public Health Directorate) to Monitor Soil and Water Quality and Environmental Impacts (US\$0.46m):** The project would strengthen the capacity of EPI and Public Health Directorate in Calarasi to monitor soil and water quality and environmental impacts of agriculture, as well as specific project actions (manure management, tree planting, application of Code of Good Agricultural Practices etc.), on water and

soil quality. The project would support the incremental costs of: (a) selecting and maintaining a set of water and soil quality monitoring sites in the project area; (b) upgrading the equipment for monitoring of water and soil quality; and (c) incremental operating expenses for monitoring activities. The two local agencies will be responsible for monitoring the water and soil quality at selected sites, as well as the long-term environmental benefits from reduced discharges of nutrients and microbial contaminants into surface and groundwater.

13. A comprehensive soil and water quality monitoring program has been developed for implementation. Project activities will be intensively monitored to determine the impact of that particular activity on soil and water quality. This project will install and monitor 20 piezometers to determine the flow of nitrogen and phosphorus along the groundwater gradient (underground water flow lines) in the aquifer that eventually is draining into the Danube River. Also, the project will monitor water quality of three manmade and one natural drain in the lower part of the polder area which are draining nutrients directly into the Danube River. Data from piezometers and open drainage canals will help the project in quantifying the reduction in nutrient loads to the Danube River.

14. With regard to the village-level manure storage units to be constructed under the project, four piezometers (two upstream and two down stream) would be installed and sampled for nitrate and phosphate concentrations in the shallow groundwater to determine if any leakage of manure to groundwater is taking place at these sites. At three sites in the project area, project will evaluate the effects of nutrient management, tillage, and crop rotations on soil and water quality. Also, limited water monitoring equipment will be installed to monitor the positive effects of buffer strips, tree planting, and establishment of agro-forestry on water quality. Environmental evaluation indicators have been reflected in the EMP which meet the objectives and goals of this project.

#### **Project Component 2 - US\$0.27 million**

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

This component would include support to the Ministry of Water and Environmental Protection (MWEP) and Ministry of Agriculture, Food and Forests (MAFF) for supporting work on: (i) application of the Nitrates Directive in Romanian agriculture; (ii) preparing a Code of Good Agricultural Practices; and (iii) strengthening the capacity of the proposed National Agency for Ecological Agriculture in its efforts to promote scientific organic farming and land use management. The project will provide technical assistance and some material costs for the respective groups in the two ministries.

#### **Project Component 3 - US\$ 0.45 million**

##### **Public Awareness and Replication Strategy**

The project will support public awareness efforts: (i) at local (Calarasi judet) level, to familiarize the population and help induce the behavioral changes necessary to the success of the project in the seven selected comunas, and replication in the judet area; (ii) at national level, to disseminate the information concerning the benefits of the project activities and promote replication at national level; (iii) at regional level, in the Black Sea Riparian countries to promote the pilot project as a possible model for replication.

**Local level - Calarasi Judet:** The objectives of the public awareness campaign at local level are to familiarize the population and help induce the behavioural changes necessary to the success of the project (use of household manure storage bunkers and village-level livestock waste stores, respecting the



environment-friendly agricultural practices, etc.) in the seven selected comunas and support the replication of this component in Calarasi Judet. Additionally, the local activities will serve as an information depository for the national and regional activities.

The project will develop a three-step approach to the public communication strategy and a layering of the message so that the targeted audiences recognize the importance of agricultural pollution and environment-friendly practices for the life of their communities, and all agencies involved as credible and expert resources. The first step will be the preparation of the campaign, involving the identification and recruiting of experts, preparation of materials, etc. The second step will be an informational campaign aimed to raise the interest of the target groups, while the third step will reinforce and consolidate the behaviors suggested and concentrate on replication efforts based on the results achieved. To maximize the efficiency of the awareness efforts (acceptance by the local community), one or more local organizations (i.e. NGO) will be selected through a competitive process to implement the communications strategy and an action plan based on the guidelines provided.

**National level:** A broad, nationwide public information campaign will be undertaken to disseminate the benefits of proposed project activities. The efforts at national level will concentrate on institutions and groups (Government agencies, national environmental or professional associations, academia etc.) that may influence the replication of the project in other areas. Information will be delivered (as a public service) through the public broadcasting institutions, including a regular supply of information to the mass-media on the progress of the project. This approach will build a general goodwill for the project and its benefits, and will raise the interest of potential future clients. The demonstrations and on-farm trials in the project area will be used as a practical laboratory for training agricultural extension and environmental personnel from elsewhere in Romania. Activities will, in part, be selected for piloting based on their broader applicability to agriculture in the Danube Plain and other regions of Romania.

**Regional replication:** The project would provide for the organization of regional workshops, field trips, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other Black Sea riparian countries. The pilot activity will aim to serve as a model to be replicated in countries such as Bulgaria, Ukraine, Moldova, which will help contribute to significant reductions in the nutrient loads entering the Danube River and Black Sea.

#### **Project Component 4 - US\$0.87 million**

##### **Project Management Unit (PMU)**

The project would support a Project Management Unit (PMU) to be established by MWEP in the DGAIA offices at Calarasi. The PMU would comprise Project Manager, Technical Specialist (who would also handle project monitoring/ evaluation), Financial Management Specialist, Accountant, Procurement Specialist, Secretary/ Translator and Driver.

Funds would be provided to meet the salaries and operating costs of the PMU over the project period as well as for hiring short-term consultants and/or local agencies to assist with *engineering design for the manure management component*, supervision of each component, and project monitoring/evaluation. The PMU would co-ordinate project implementation by the different implementing agencies, and would be responsible for all procurement, financial management and monitoring/evaluation matters.

##### **Institutional Arrangements**

1. **Project Steering Committee:** Co-ordination at the national level would be ensured by a Project Steering Committee. The Steering Committee has been established by the Minister, MWEF, and comprises representatives from MWEF, MAFF, Ministry of Public Finance (MOPF) and Ministry of Public Administration (MOPA). The Minister, MWEF, will chair the Steering Committee. The Project Manager is the ex-officio Secretary of the PSC. The committee will be responsible for providing project oversight advice and assistance in resolving issues associated with project implementation, and ensure commitment of the concerned Ministries.
2. **Project Co-ordination Committee (PCC) at Judet-level:** Co-ordination at the Calarasi Judet-level would be assured by a Project Co-ordination Committee. The PCC will provide technical oversight and ensure co-operation and co-ordination of the implementing institutions, together with local commitment to long term sustainability. The PCC would reinforce co-ordination at the local level. The PCC would be chaired by the President of the County Council with the Prefect as vice-chair and membership including DGAIA, EPI, Public Health Authority, OJCA, OJSPA, OCAOTA, two private farmers, NGO and the Mayors of the seven comunas. The Prefect would ensure co-ordination of local government agencies, while the President of the County Council would ensure co-ordination of all comunas participating in the project. The Project Manager will be the ex-officio Secretary of the PCC. The Project Co-ordination Committee was established in November 2000.
3. **Project Administration:** The *Project Management Unit* will be responsible for assuring that GOR and World Bank procedures are followed, for providing financial management and procurement services, for reporting on project activities, for overall project monitoring against agreed performance indicators, and evaluation of the project's impact on beneficiaries. At the national level, the Project Manager will report to the Minister (or his designated representative), MWEF, which has been selected by the MOPF as the line ministry responsible for the preparation and management of this project. At the Calarasi level, the Project Manager will report to the President of the County Council and to the Prefect.
4. The PMU would be responsible for overall monitoring of the progress with project implementation and beneficiary-impact of the APCP. Responsibility for the technical monitoring of the impact on nutrient load reduction would be the responsibility of the Environmental Protection Inspectorate and the Public Health Directorate. A Management Information System would be established in the PMU prior to project effectiveness.
5. **Project Implementation:** The overall project implementation arrangements are summarised in the organisation chart at Attachment 1.

Attachment 1.

**Annex 3: Estimated Project Costs**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

<b>Project Cost By Component</b>	<b>Local US \$million</b>	<b>Foreign US \$million</b>	<b>Total US \$million</b>
Manure Management Practices	4.07	0.68	4.75
Promotion of Environment-Friendly Agriculture Practices	1.40	0.91	2.31
Integrated management of Polders	0.92	0.02	0.94
Soil and Water Quality Monitoring	0.27	0.14	0.41
Strengthening National Policy and Regulatory Capacity	0.12	0.12	0.24
Public Awareness and Replication Strategy	0.35	0.03	0.38
Project Management Unit	0.65	0.13	0.78
<b>Total Baseline Cost</b>	<b>7.78</b>	<b>2.03</b>	<b>9.81</b>
<b>Physical Contingencies</b>	<b>0.28</b>	<b>0.08</b>	<b>0.36</b>
<b>Price Contingencies</b>	<b>0.55</b>	<b>0.08</b>	<b>0.63</b>
<b>Total Project Costs <sup>1</sup></b>	<b>8.61</b>	<b>2.19</b>	<b>10.80</b>
<b>Total Financing Required</b>	<b>8.61</b>	<b>2.19</b>	<b>10.80</b>

<b>Project Cost By Category</b>	<b>Local US \$million</b>	<b>Foreign US \$million</b>	<b>Total US \$million</b>
<b>Goods</b>	<b>2.21</b>	<b>0.89</b>	<b>3.10</b>
<b>Works</b>	<b>2.57</b>	<b>0.02</b>	<b>2.59</b>
<b>Services</b>	<b>0.89</b>	<b>0.31</b>	<b>1.20</b>
<b>Training</b>	<b>0.14</b>	<b>0.14</b>	<b>0.28</b>
<b>Research and Extension (Grants)</b>	<b>1.03</b>	<b>0.79</b>	<b>1.82</b>
<b>Public Awareness Campaigns</b>	<b>0.33</b>	<b>0.02</b>	<b>0.35</b>
<b>Recurrent Costs</b>	<b>1.44</b>	<b>0.02</b>	<b>1.46</b>
<b>Total Project Costs <sup>1</sup></b>	<b>8.61</b>	<b>2.19</b>	<b>10.80</b>
<b>Total Financing Required</b>	<b>8.61</b>	<b>2.19</b>	<b>10.80</b>

please disregard the footnote below.

<sup>1</sup> Identifiable taxes and duties are 1.17 (US\$m) and the total project cost, net of taxes, is 9.63 (US\$m). Therefore, the project cost sharing ratio is 53.48% of total project cost net of taxes.

## Annex 4

### ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT

#### Incremental Cost Analysis

##### Overview

The global environmental objectives of the GEF Alternative are to protect the quality of the Black Sea by reducing the discharge of nutrients (nitrogen and phosphorous) and other agricultural pollutants into the Danube River and Black Sea. The proposed project aims to significantly increase the adoption of environmentally-friendly agricultural practices and promote ecologically sustainable land use in a high priority floodplain area in the project site and thereby reduce pollution from agricultural sources in Romania to the Danube River and Black Sea. Towards this, the project will: (i) promote the adoption of environmentally-friendly agricultural practices by farmers' associations, family farms and individual farmers in seven comunas of the Calarasi Judet (county); (ii) promote integrated land and water use management in the Boianu-Sticleanu Polder; (iii) strengthen national policy and local regulatory capacity; (iv) promote a broad public awareness campaign to disseminate the benefits of project activities; and (v) promote regional collaboration. GEF funding will thus remove institutional, financial and knowledge barriers, which currently act as disincentive to the adoption of environmentally-friendly agricultural practices by farmers. The GEF Alternative intends to achieve this at a total incremental cost of about US\$5.15 million.

##### Context and Development Goals

During the past few decades, the Black Sea has suffered severe environmental damage, mainly due to coastal erosion, eutrophication, insufficiently treated sewage, introduction of exotic species, and inadequate resource management all of which led to a decline of its biological diversity, loss of habitat and long-term ecological changes. There is general agreement that eutrophication, caused by an increase in nutrient flux down the major rivers in the late 1960s when fertilizer and chemical use increased markedly as a result of the "Green Revolution" and subsidization of these inputs, and poor management of animal waste, are the most serious problems facing Danube River and the Black Sea over the medium- to long-term. The effect of eutrophication on the northwestern shelf of the Black Sea is generally recognized as disastrous and is primarily related to nutrient loads carried by Danube River.

**Nutrient flow from the Danube River.** Black Sea Environmental Program (BSEP) Studies revealed that 58% of the total nitrogen and 66 % of the total phosphorous flowing in dissolved form into the Black Sea come from the Danube basin. More than half of all nutrient loads into Danube River originate from agriculture, about one fourth from private households and about 10 – 13 % from industry. The most important pathways into the Danube basin for phosphorous are direct discharges (33% of the total flow, predominantly from agriculture), erosion/runoff (31%, mainly agriculture) and sewage treatment plant effluents (30%). Nitrogen loads come from: direct discharges (35%), erosion/runoff and sewage treatment plant effluents in more or less equal shares, again agriculture being the source for more than half the total nitrogen run-offs in many countries.

**Nutrient flow from Romania.** The Trans-boundary Diagnostic Analysis carried out on the basis of a pollution source inventory for the BSEP reveals that Romania plays a particularly significant role in the discharge of nutrients into the Black Sea, accounting for about 27% of the total discharge. The other river basin countries (Bulgaria, Ukraine, Georgia, Russia and Turkey) together account for another 43% and the

non-coastal countries (Austria, Belarus, Bosnia-Herzegovina, Croatia, Czech Republic, Germany, former Yugoslavia, Hungary, Moldova, Slovakia and Slovenia) for the remaining 30%.

Agriculture is the mainstay of the Romanian economy, primarily due to its abundant natural resource base. Two-thirds of Romania's area is agricultural land. Not surprisingly therefore, Romania is the biggest contributor of nutrients to the Black Sea as its entire territory drains into the Black Sea. Total nutrient emissions in surface water in 1994 were about 284 – 306 kilo tons nitrogen/year and 39 – 40 kilo tons phosphorous/year. About 44% of the total nitrogen input stems from agriculture, while municipal waste water accounts for 11 – 12% and industry for 9 – 10 %. In the case of phosphorous, the role of agriculture is even greater, accounting for about 58% of total emissions, followed by industry with 20.6% and municipal waste water with 11.4%. Groundwater pollution with nitrates and microbial organisms from agriculture has a major social significance from the point of view of drinking water supply for rural settlements in Romania.

Between 1996-1999, forty-five cases of acute nitrate poisoning were reported in the proposed project area (Calarasi Judet). In 1997, a number of infants were diagnosed and hospitalized with acute nitrates poisoning. In fact, all cases of acute nitrate poisoning in 1997 in Romania were in the Calarasi Judet. Between 1996 and 1999, 59 samples from public wells and microcentrales in Calarasi were analyzed for quality. Of this, 45 samples (76.2%) exceeded bacteriological standards and 47 samples (79%) exceeded acceptable levels of chemical content. Twenty samples (39.9%) of the 45 samples that did not meet the maximum admitted number of bacteria, exceeded acceptable levels for *Streptococcus Fecalis* and 29 samples for *Fecalis Coliforms*. Also, low levels of sanitation and lack of hygiene are increasing transmission of enteric germs, leading to a large number of diseases including Acute Diarrheic Disease (ADD).

Following the political and social upheaval caused by the transition to a market economy, and the accompanying economic decline in the region, riparian countries have reduced the overall discharge of nutrients into the Danube River and the Black Sea. Largely because of this, and also because of the success of nutrient load reduction programs, particularly, in the upper Danube countries, there has been partial recovery of coastal ecosystems. Nevertheless, the overall discharge of nutrients is still higher than what it was in the 1960s. The economic downturn in the coastal countries is temporary, and offers a window of opportunity for actions aimed at improving the marine ecosystems and avoiding the return to the previous situation of chronic eutrophication.

**Government Strategy.** Romania has assumed its international obligations under the Bucharest Convention, the Odessa Ministerial Declaration on the Protection of the Black Sea, Danube River Protection Convention and is moving towards compliance with the European Union Directives. In addition, as a member, Romania is also committed to the overall goals of the joint Danube-Black Sea Working Party to take measures to reduce nutrient levels and hazardous substances to such levels necessary to permit the Black Sea eco-system to recover to similar conditions as those observed in the 1960s.

Reduction of nutrient run-off (nitrogen and phosphorous) into the Danube and Black Sea from agriculture has been identified as a priority action under the National Environmental Action Plan (NEAP) as well as the Black Sea and Danube River Basin Strategic Action Plans. Wetland restoration along the Danube River has also been identified as one of the most effective ways to reduce nutrient loads into the Danube and Black Sea and the project's selected site for promoting ecologically sustainable land use, the Boianu-Sticleanu agricultural polder, is listed as a high priority area both in the NEAP and in the Danube River Pollution Reduction Program. In addition, the project may will also promote ecological restoration of the Calarasi-Raul polder that adjoins the Boianu Sticleanu polder in the east. The Ministry of Waters and

Environmental Protection (MWEP) is in the process of harmonizing the environmental legislation with that of the EU, as a condition for accession, and in this context is paying particular attention to the Nitrates Directive which is one of the most important Directives under the EU accession process. On-farm environmental management is an integral part of the Government's overall strategy for the agricultural sector, which is aimed at creating an enabling environment to fully realize the sector's yet unfulfilled potential. In support of the strategy, agricultural input and output prices are being liberalized as is the trade regime. Also, about 80% of the arable land has been returned to previous owners and heirs.

### **Baseline Scenario**

The baseline scenario includes activities that will promote Romania's agricultural sector without GEF support. The Government's agricultural strategy and Romania's access to EU have significant implications for the organization and management of an improved agricultural sector. Farmers and processing industries in Romania are building capacity to enter and compete in EU markets and must gain access to appropriate knowledge, skills and technologies. Only then will Romanian agriculture be competitive and efficient. However, as few of the new owners have farming experience, measures are included under the on-going Bank's Agricultural Support Services Project to strengthen the infrastructure for the agricultural research, extension and training system and make the entities delivering such services more responsive to the needs of private farmers, including access to information and cost effective agricultural technologies and practices which, while increasing productivity, promote conservation and sustainable use of the country's natural resource base. This may encourage non-point source pollution from increased agricultural productivity in Romania, contributing significant and excessive loads of nutrients into the Black Sea that may lead to widespread eutrophication and the ecological damage and economic losses associated with this process. The long-term implication will be continued degradation of a globally significant international waterbody and its associated bio-diversity in the shared coastal and marine environment of the Black Sea. The Baseline Scenario does not include an effective mechanism to address this issue. The GEF Alternative would go beyond the Baseline Scenario by allowing the project to establish a mechanism for coordinating the approach, funding and support of activities designed to reduce non-point source pollution from agriculture.

8. **Costs.** The total cost of the project is US\$10.80 million. The total expenditures under the Baseline Scenario are estimated at US\$5.65 million.

### **Global Environmental Objective**

9. The global environmental objective of the project is to promote the adoption of environmentally-friendly on-farm agricultural practices to reduce nutrient loads entering the Black Sea. The dissemination and outreach features of the project will contribute to its replicability. The role of the GEF in this project is to reduce farmers' perceived risks in adopting environmentally-friendly on-farm agricultural practices and remove barriers for their adoption. It would demonstrate that farmers who adopt these measures are able to get the most beneficial use out of their lands and minimize negative impacts on the environment while improving the health of the Black Sea ecosystem. In turn, this should lead to a sustainable increase in economic activities such as fishing and tourism and to a healthier and wealthier population. Finally, activities promoted under the GEF Alternative will facilitate the sharing of experiences on the search for feasible and affordable solutions to deal with non-point source pollution from agriculture to international water bodies.

10. **Scope.** The GEF Alternative would provide the means (above and beyond the Baseline Scenario) for meeting the proposed project's goals. Specifically, it will: (i) install improved manure storage facilities and

equipment for manure collection, storage and application; (ii) provide manure spreaders/applicators for efficient and cost-effective use of manure on croplands, together with judicious use of mineral fertilizers; (iii) conduct on-farm trials and demonstrations to promote the use of improved sustainable agricultural practices, including reduced tillage, better chemical management systems, terracing, contour farming and buffer strips for water quality benefits; (iv) develop a specific land use management plan for the integrated management of the Boianu Sticleanu polder; (v) strengthen national policy and regulatory capacity to address agricultural pollution control; (vi) promote regional collaboration; and (vii) undertake a broad public awareness campaign to disseminate benefits of project activities.

11. **Costs.** The total cost of the GEF Alternative is estimated at US\$10.80 million detailed as follows: (i) Component 1: Activities in the Calarasi Level -- US\$9.22million; (ii) Component 2: Strengthening National Policy and Regulatory Capacity -- US\$0.27 million; (iii) Component 3: Public awareness and Replication Strategy -- US\$0.45 million; (iii) Component 4: Project Management Unit -- US\$0.87 million.

### **Benefits**

12. **Domestic and International Benefits.** The GEF Alternative would go beyond the Baseline Scenario by allowing the project to promote environmentally friendly agricultural and rural practices that will reduce non-point sources of pollution to the Black Sea as well as carbon emissions into the atmosphere which has strong implications for global climate and human health. Given the country's precarious budgetary situation, the government can ill-afford to spend scarce funds as financial incentives to farmers to reduce nutrient loads into the Black Sea for regional and global gains. GEF funds will allow additional investments in sustainable farm management practices and manure storage etc. in the selected project area of Calarasi Judet that will have an impact on the Black Sea and provide willing farmers with an sustainable alternate technologies. Under the GEF Alternative, the promotion of improved sustainable agricultural practices and a decrease of manure flushing into water systems will provide greater environmental benefits and augment the demonstration potential of the exercise. It should also improve farm profitability. It will promote a public awareness program to effectively explain the benefits of improved environmental practices at farm level. It will also allow the development of a strategy for project replication within Romania and internationally.

13. The proposed project is a demonstration activity in the southern part of Romania, along the lower Danube River. The forty-eight comunas of the *Calarasi Judet* located in the southeastern part of Romania have about 410,000 ha of arable land and a total population of 332,000 in 94,000 households. In the southern part of the Judet, the project will support activities for nutrient reduction and monitoring in seven comunas Al Odobescu, Ciocanesti, Cuza Voda, Gradistea, Independenta, Vilcelele, and Vlad Tepes comprising 21 villages, as well as in the *Boianu-Sticleanu* and *Calarasi-Raul* polders bordering the lower Danube river. The Boianu-Sticleanu Polder (approx. 23,000 ha) comprises a former floodplain area, drained and transformed into an agricultural polder in the late sixties and now containing large areas of cultivated land, small areas of floodplain forests, degraded lands and the Iezer Calarasi water-body. The Iezer Calarasi, with a surface of 3,200 ha, is to be declared a nature reserve, being an important corridor for bird migration, most of them listed on Bonn and Bern Conventions.

14. Through improved farming practices, annual saving of dissolved nutrients flowing into the Black Sea is estimated at 20 kg/ha N and 2.5 kg/ha P. It is assumed that through improved handling, half of the manure is prevented from being flushed into the river systems and hence into the Black Sea. If after 10 years, 60% of the farmers in the project area adopted similar practices, then the estimated annual saving of pollutants flowing into the Black Sea will be significant. Also it is reasonable to assume that through the project's public awareness campaign, field visits and workshops, even farmers from adjoining areas may adopt the

environmentally friendly agricultural practices, thus resulting in a larger impact under the project. More detailed assessment will be undertaken in quantifying accrued benefits during project implementation.

#### **Incremental Costs**

15. The difference between the cost of the Baseline Scenario US\$5.65 million and the cost of the GEF Alternative US\$10.80 million is US\$5.15 million, which will be financed by GEF. This amount represents the incremental cost of achieving the global environmental benefits of reduced degradation of international waters.



**Annex 5: Financial Summary**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

Years Ending

	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>							
Investment Costs	0.5	2.3	2.2	1.9	1.5	0.6	0.0
Recurrent Costs	0.2	0.5	0.5	0.3	0.2	0.1	0.0
<b>Total Project Costs</b>	0.7	2.8	2.7	2.2	1.7	0.7	0.0
<b>Total Financing</b>	0.7	2.8	2.7	2.2	1.7	0.7	0.0
<b>Financing</b>							
IBRD/IDA	0.5	1.3	1.2	1.0	0.7	0.5	0.0
Government	0.1	0.9	0.9	0.8	0.5	0.1	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Provincial	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Co-financiers	0.0	0.0	0.0	0.0	0.0	0.0	0.0
User Fees/Beneficiaries	0.1	0.7	0.6	0.4	0.5	0.1	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total Project Financing</b>	0.7	2.9	2.7	2.2	1.7	0.7	0.0

**Main assumptions:**

Note: Figures may differ slightly due to rounding.

Note: Figures for IBRD/IDA refer to the GEF Grant in the amount of US\$5.15 million

## **Annex 6: Procurement and Disbursement Arrangements**

### **ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

#### **Procurement**

##### **Procurement methods (Table A)**

The procurement of goods and works would be conducted in accordance with the Bank's Guidelines for Procurement under IBRD loans and IDA Credits, January 1995, revised January and August 1996, September 1997 and January 1999. Consulting Services and training would be procured in accordance with the Guidelines for Selection and Employment of Consultants by World Bank Borrowers, January 1997, revised September 1997 and January 1999. The Bank's Standard Bidding Documents; Standard Request for Proposal; etc., will be used. A General Procurement Notice (GPN) will be published in the U.N Development Business in December 2001.

##### **Responsibility**

The Project Management Unit (PMU) will be responsible for procurement and may recruit a procurement specialist familiar with the Bank's procurement requirements. The PMU would collect and record information regarding procurement administration, and would send quarterly reports based on these information to the Bank. These reports would indicate:

- (i) status of procurement;
- (ii) an updated procurement plan; and
- (iii) compliance with aggregate limits on specified procurement methods.

The PMU will set up a computerized procurement monitoring system both for tracking procurement actions as well as to prepare periodic progress reports.

Training in procurement according to the bank policies and procedures would be provided during the project launch workshop to the PMU and other project beneficiaries. The PMU manager and the technical staff of the PMU would also receive training in procurement, enabling them to back up the procurement officer in his/her responsibilities of conducting and coordinating project procurement.

##### **Procurement Arrangement**

The project includes civil works for well head protection and manure management and structures for soil and water monitoring, manure pits for private farms and communal manure platforms, scattered in terms of location and time. Goods will include the following: vehicles; equipment – laboratory and field equipment (computer equipment, Laeche AE for NO<sub>x</sub>, Centrifuger, Electronics Balance, Soil Sampler, Sampling Pump), Tractors, Spreader, Auger, Tanker, Shredders, Bins and Plant Materials for demonstrations. There will also be several contracts for consultant services, individual consultants and training programs.

The thresholds by procurement arrangement for each category are summarized below. The allocation of project costs by procurement arrangements are set out in Table A, the value of contracts for prior review in Table B.

### **Civil Works and Technical Services**

**NCB:** Works estimated to cost less than US\$1.0 million per contract will be procured through National Competitive Bidding (NCB), in accordance with paragraph 3.3 of the Bank Guidelines.

**Minor Works:** Civil works and technical services estimated to cost less than US\$50,000 each may be procured on the basis of three written price quotations. The contract will be awarded to the lowest priced bidder that has the necessary experience and financial resources to successfully complete the contract.

**Community Participation in Procurement.** The following community-based procurement procedure will apply for the construction of well-heads and household manure bunkers. This procedure will be applicable for small projects estimated less than US\$1,000 each:

- an individual farmer submits an application to the PMU for analysis and approval;
- the PMU approves the request and gives clearance to go to commune shops for comparing the prices; choose the lowest one and to request an invoice;
- the farmer submits the invoice to the PMU;
- PMU compares the invoiced prices with the reference prices which the PMU will collect from the project area shops and upgrade on a monthly basis;
- if the prices are within the acceptable limits, PMU makes payments to the supplier directly;
- the farmer goes to the shops with the invoice certified by PMU/commercial bank (where the PMU opened the Special Account) that payment was made and receive the materials.
- the farmer will be responsible for providing labor.
- In order to ensure that farmers complete, make use of the provided materials and complete their works, the PMU will approve only small groups of farmers for each comuna and will approve projects for the next group of farmers only after the PMU engineer has certified that the farmers have completed the works.

### **Goods and Equipment**

Goods and equipment estimated to cost US\$100,000 each or more may be procured on the basis of ICB. Goods estimated to cost less than US\$100,000 each may be procured through International Shopping on the basis of three written quotations from two different countries or through IAPSO in accordance with procedures acceptable to the Bank. Small contracts for supplies and minor equipment estimated to cost less than \$50,000 each may be procured under National Shopping on the basis of three written price quotations from local suppliers.

### **Consultant Services and Training**

#### **Quality and Cost Based Selection (QCBS)**

Consultants services estimated to cost US\$200,000 or more will be procured through Quality and Cost based Selection (QCBS). These services will be advertised in Development Business, and in a national newspaper for expression of interest, and a shortlist will be drawn from responses gathered. For contracts below \$200,000, the short list may comprise of entirely qualified national consultants in accordance with paragraph 2.7 of the Consultant Guidelines.

#### **Least Cost selection (LCS)**

The contracts for auditing services and biological and hydrological monitoring will be conducted following the Least Cost Selection (LCS) method, in accordance with the provisions of para 3.6 of the Consultants Guidelines.

#### **Selection Based on Consultants Qualifications (CQ)**

Contracts for consulting services, such as preparation of management plans, assistance for soil and water monitoring, etc. estimated to cost less than \$100,000 per contract may be procured using the selection based on consultants qualifications (CQ), in accordance with provisions of para 3.7 of the Consultants Guidelines.

#### **Individual Consultants (IC)**

Consultant services will be procured through Individual Consultant procedures in accordance with Part V of the Consultant Guidelines. The assignments for individual consultants will be advertised when possible, and selection will be made on the basis of comparison of qualifications and experience.

#### **Training**

For other training activities, a detailed training program will be prepared on a six-month basis and submitted to the Bank for approval.

#### **Incremental Operating Costs**

The project will finance a portion of incremental operating costs. Incremental Operating Costs will be procured on the basis of annual budgets to be agreed with the World Bank.

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

Expenditure Category	Procurement Method <sup>1</sup>				Total Cost
	ICB	NCB	Other <sup>2</sup>	N.B.F.	
<b>1. Works</b>	0.00 (0.00)	2.31 (1.17)	0.23 (0.16)	0.13 (0.00)	2.67 (1.33)
<b>2. Goods</b>	0.69 (0.69)	0.00 (0.00)	0.79 (0.69)	0.21 (0.00)	1.69 (1.38)
<b>3. Services and Training</b>	0.00 (0.00)	0.00 (0.00)	1.77 (1.24)	0.08 (0.00)	1.85 (1.24)
<b>4. Community Participation</b>	0.00 (0.00)	0.00 (0.00)	0.86 (0.64)	0.00 (0.00)	0.86 (0.64)
<b>5. Sub-grants to Beneficiaries</b>	0.00 (0.00)	0.00 (0.00)	0.41 (0.33)	1.00 (0.00)	1.41 (0.33)
<b>6. Recurrent Costs</b>	0.00 (0.00)	0.00 (0.00)	0.28 (0.23)	2.03 (0.00)	2.31 (0.23)
<b>Total</b>	0.69 (0.69)	2.31 (1.17)	4.34 (3.29)	3.45 (0.00)	10.79 (5.15)

<sup>1/</sup> Figures in parenthesis are the amounts to be financed by the Bank Grant. All costs include contingencies.

<sup>2/</sup> Other covers the following:

- Works- Includes three small works contract (\$0.095 million) as well as five contracts for technical services (\$0.137 million); Technical Services will be financed at 84%.
  - Goods-Others: Includes three IS contract (\$0.322 million), NS contracts for goods (\$0.551 million)
  - Comm. Participation - Others: Includes contracts for materials (0.864 million) less than US\$1,000 each.
- CS-Others: Includes two QCBS contracts (\$0.321million), two LCS contracts (\$0.176 million), CQ contracts (\$0.499 million), contracts with individual consultants (\$0.491million), and training (\$0.283 million).
- Grants- Others: Includes grants (\$0.410 million).

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

Consultant Services Expenditure Category	Selection Method							Total Cost <sup>1</sup>
	QCBS	QBS	SFB	LCS	CQ	Other	N.B.F.	
<b>A. Firms</b>	0.32 (0.22)	0.00 (0.00)	0.00 (0.00)	0.18 (0.13)	0.50 (0.35)	0.00 (0.00)	0.00 (0.00)	1.00 (0.70)
<b>B. Individuals</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.49 (0.34)	0.00 (0.00)	0.49 (0.34)
<b>Total</b>	0.32 (0.22)	0.00 (0.00)	0.00 (0.00)	0.18 (0.13)	0.50 (0.35)	0.49 (0.34)	0.00 (0.00)	1.49 (1.04)

1\ Including contingencies

Note: QCBS = Quality- and Cost-Based Selection

QBS = Quality-based Selection

SFB = Selection under a Fixed Budget

LCS = Least-Cost Selection

CQ = Selection Based on Consultants' Qualifications

Other = Selection of individual consultants (per Section V of Consultants Guidelines),  
Commercial Practices, etc.

N.B.F. = Not Bank-financed

Figures in parenthesis are the amounts to be financed by the Bank Grant.

**Prior review thresholds (Table B)**

With respect to goods and work, prior review by the bank of procurement documentation will be carried out for :

- All ICB
- First National Competitive Bidding (NCB) for works, and first Minor Works,
- First IS and NS contracts (for goods and technical services)

With respect to consultant services and training, prior Bank review will be required for all. Terms of Reference, irrespective of contract value. For each contract estimated to cost US\$200,000 or more, after the technical proposal has been evaluated, the technical evaluation report will be submitted to the World bank for its review prior to the opening of the priced proposals. For contracts estimated to cost US\$100,000 or more, the Bank will be notified of the results of the technical proposals. For contracts with individual consultants estimated to cost US\$25,000 or more, the qualifications, experience, terms of reference, and terms of employment shall be furnished to the Bank for its review and approval prior to contract signature. All other contracts will be subject to ex-post review by the Bank.

**Table B: Thresholds for Procurement Methods and Prior Review<sup>1</sup>**

<b>Expenditure Category</b>	<b>Contract Value Threshold (US\$ thousands)</b>	<b>Procurement Method</b>	<b>Contracts Subject to Prior Review (US\$ millions)</b>
<b>1. Works</b> and Technical Services	<1,000	NCB	0.200
	<50	MW	0.033
	<50	NS	0.035
<b>2. Goods</b>	>=100	ICB	0.690
	<100	IS	0.070
	<50	NS	0.030
	<50	NS	0.035
<b>3. Services including Training</b>	>=100	QCBS	0.321
	>25	LCS	0.119
		CQ	-
		Ind	0.080
<b>Incremental Operating Costs</b>	N/A	Annual Budgets	-
<b>5. Miscellaneous</b>			
<b>6. Miscellaneous</b>			

**Total value of contracts subject to prior review:** USD1.578 million

**Overall Procurement Risk Assessment**

**High**

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

during the first year of implementation and then on an annual basis (includes special procurement supervision for post review/audits).

**Table B2: Thresholds for Procurement Methods and prior Review**

<b>Section 1: Capacity of the Implementing Agency in Procurement and Technical Assistance Requirements</b>				
<ul style="list-style-type: none"> <li>• Additional needs to be assessed and Proc staff/consultants recruited on a need-basis as project evolves. Meanwhile, the ASSP Procurement Specialist who is experienced in Bank-financed projects will devote 50% of his time to APCP.</li> <li>• Proc Workshop for PMU.</li> <li>• An operational manual to be prepared</li> <li>• Training of PMU staff as needed</li> </ul>				
2. Country Procurement Assessment Report or Country Procurement Strategy Paper Status: CPAR dated August 1999			3. Are the bidding documents for the procurement actions of the first year ready by negotiations? Yes.	
<b>Section 2: Training Information and development on Procurement</b>				
4. Estimated date of Project Launch workshop: February 2002	5. Estimated date of General Procurement Notice publication: December 2001	6. Indicate if contracts are subject to mandatory SPN in Development Business: No	7. Domestic Preference for Goods: Yes	8. Domestic preference for Consultant Services: No
9. Retroactive Financing: No				10. Advanced procurement: No
11. Explain briefly the Procurement Monitoring System: Procurement implementation progress will be monitored through progress reports and supervision missions. At least one supervision mission every six months during the first year of implementation and then on an annual basis will include a procurement specialist. She/he will be responsible for updating the procurement plan, and conducting ex-post reviews. His/her findings will be included in the supervision reports for monitoring their implementation.				
12. Indicate the name of Procurement Staff as part of the Project Team: Naushad A. Khan, Senior Procurement Specialist      Division: ECSSD      Ext: 32699				
13. Explain briefly the expected role of the field office in Procurement:  The project officer assigned to this project would play an important role of monitoring the procurement process and also serve as an intermediary between the Headquarters and PMU.				

<sup>1</sup> Thresholds generally differ by country and project. Consult OD 11.04 "Review of Procurement Documentation" and contact the Regional Procurement Adviser for guidance.



## **Disbursement**

### **Allocation of grant proceeds (Table C)**

The allocation of Grant proceeds is given in Table C, which also indicates Bank financing by expenditure category. The project will be executed over a period of five years during which the full Grant amount of US\$5.15 million will be disbursed. Activities under the project are expected to be completed by December 31, 2006 and the expected closing date for the project will be June 30, 2007 after which no disbursements will be made.

It was agreed that the project will initially use traditional disbursement procedures (direct payments, reimbursements and replenishments to the Special Account with full documentation or SOEs) and produce PMRs for reporting and management information only and not for disbursement purposes. It was also agreed that the FM system will be re-assessed in end-2003 for the eligibility for PMR-based disbursements. Subsequently, the Borrower, jointly with the Bank, will review the possibility of disbursing on the basis of PMRs.

**Table C: Allocation of Grant Proceeds**

<b>Expenditure Category</b>	<b>Amount in US\$million</b>	<b>Financing Percentage</b>
1. Works		50%
(a) Manure Pits for Communas	0.89	67%
(b) Private Farm Manure Pits	0.13	17%
(c) Other Works	0.08	84%
3. Goods	1.24	100% of foreign expenditures 100% of, local expenditures (ex-factory) and 84% of local expenditures for other items bought locally except for waste collection bins at 67%
4. Consulting Services and training	1.07	100%
5. Sub-grants to beneficiaries	0.96	80%
6. Operating costs	0.27	85% until December 2003; 80% until 2004; 70% thereafter(except for PMU staff salaries at 100% net of taxes)
7. Unallocated	0.51	
<b>Total Project Costs</b>	5.15	
<b>Total</b>	5.15	

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

Statement of Expenditure (SOE) would be used for:

- (i) goods estimated to cost less than US\$100,000 per contract;
- (ii) works less than US\$50,000;

- (iii) individual consultant contracts costing less than US\$25,000;
- (iv) training contracts costing less than US\$25,000;
- (iv) incremental recurrent costs; and
- (v) sub-grants referred to in Table C, category 4.

Full documentation in support of SOEs would be retained by the PMU for at least two years after the disbursement. This information would be 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. Invoices supporting disbursements against SOEs should be kept at least one year after the Bank has received the last audit report under the grant.

#### **Special account:**

In order to facilitate disbursements, the borrower will open and maintain a Special Account (SA), with an acceptable bank in Romania on terms and conditions acceptable to the Bank. The Special Account will be drawn upon to meet payments to contractors, suppliers and consultants under the project. The initial allocation to the SA would be US\$500,000 and the ceiling in the SA would be limited to US\$500,000. Funds from the Special Account will be disbursed by submitting the relevant withdrawal applications. Replenishment applications should be submitted once every three months and must include reconciled bank statements as well as other appropriate supporting documents. The special account will be audited annually by independent auditors and the audit report submitted to the Bank for review and approval within six months after the end of the Government's fiscal year.

### **Financial Management**

#### ***Project Accounting***

The PMU will be in charge of all financial management aspects of the Project. A financial management system (FMS), including accounting, reporting, planning, budgeting, auditing and proper internal control systems are being finalized.

The Bank has defined a time-bound action plan (attached) to specify the steps necessary for further strengthening of procedures and staff development during implementation. The development of the FMS will be monitored by the Bank before effectiveness, during the first supervision missions and throughout project implementation.

The PMU includes the Project Manager, financial management specialist, accountant (if needed), procurement specialist, a number of technical experts and an assistant. The PMU will maintain all documentation related to project expenditures and keep financial records in accordance with sound accounting practices. The PMU will be mainly responsible for keeping the accounting records of the Project, in charge of all payments, operating the accounting software, handling both the Special Account (SA) and the Project Account (PA - Government contributions), prepare all bidding documents, reporting both to the Bank and the Government, planning, budgeting, disbursement and auditing.

The financial management specialist will be responsible for the planning, budgeting, consolidation and reporting aspects, handle all financial accounting records, ensure that accounting records are kept up to date in the accounting software and will be in charge of the petty cash arrangements. He/she will also establish permanent contacts with the beneficiaries, the Bank, accounting departments of the relevant ministries, auditors and the Ministry of Public Finance. If needed, a junior accountant may be hired later,

as project activities get underway.

The PMU staff will be responsible for: preparing the bidding documents; receive the offers and evaluate them in accordance with the WB regulations; submit the evaluations to the WB for no objection; sign contracts in an acceptable format; supervise the works performed by the contractors; certify (jointly with the beneficiaries' representatives) the acceptance of the goods, works and services provided in accordance with the terms of reference and the relevant technical specifications. The payment documents will be prepared by the PMU only after the fulfillment of the above steps. The PMU is the only entity authorized to make payments to suppliers.

A financial management consultant (TAMS Ltd., Bulgaria) was appointed to develop the financial management system for the project, in accordance with the Bank's OP/BP 10.02 and LACI requirements. The system features a customized accounting software fully responsive to the Project needs. The financial management specialist of the PPU is the primary operator of the software, with the PPU director responsible for authorizing all payments. The procurement specialist will have limited rights to access the software on procurement related aspects.

A draft version of financial management and accounting system was implemented by the selected consulting firm (TAMS Ltd.) and the initial training provided to the PPU Manager, the Financial Management Specialist and Project Assistant. TAMS is assisting the PPU in finalizing the implementation and inputting the final cost estimates in the system. The software manual was finalized and delivered. The financial management manual was presented in draft by the consultant and finalized by the PPU. The manual documents the accounting procedures, internal controls and measures to ensure a complete segregation of duties and avoid any conflict of interest.

The consultant, together with PPU staff, developed specific chart of accounts, detailed financial statements, reporting formats and methods, internal control procedures, disbursement and flow of funds arrangements, and assigned staff responsibilities in order to ensure a complete segregation of duties. The PMU will be fully in charge of recording and consolidating all payments, procurement, contracting, disbursement, reporting, accounting, planning, budgeting and auditing relating to the Project. No Project funds can be transferred directly to beneficiaries or any other parties, outside the Project's documented framework. Detailed accounts will be kept for each project component and its sub-components. The accounts will also reflect: the status of payment against each contract; utilization of the Special Account (SA) and replenishments made by the Bank; the amounts used from the Government contribution and other donors, and statements of sources and application of funds.

The PMU will maintain the project accounts on the cash basis of accounting. The PMU will be responsible for preparing PMRs and statements of expenses (SOEs) and submitting them to the World Bank, no later than 45 days after each quarter's end.

### ***Accounting Software***

The features of the financial management software used include, inter alia, customizable chart of accounts, foreign and local currency, English and Romanian language, contract management, Excel and Word exporting, integrated PMRs. A draft version of financial management and accounting software was implemented by the consulting firm appointed (TAMS Ltd.) and the initial training was provided to the PPU director, the financial management specialist and assistant. The software manual was finalized and delivered.

All project financial and accounting documents will be properly recorded and filed separately by the PMU, keeping a clear linkage with the software records.

The system is customized to respond to the project components and specifics and is able to produce routine

reports such as: trial balance, general ledger, balance sheet, income and expenditure statement by sources of funds, cash flow, general journal, suppliers' ledger, various budgets, etc. Also, all Project Management Reports (PMRs), mentioned in the WB "Project Financial Management Manual -- Exposure Draft, February 1999" can be produced by the system.

The PMU will keep full accounting records of the project and the system allows this to be done by project components and sub-components as well as by each financing source. The PPU will report to the World Bank and to the Romanian Government. The system features a customized chart of accounts to cater for the project specifics. TAMS assisted the PPU in finalizing the implementation and inputting the final cost estimates in the system.

The accounting system will account separately by financing sources (WB, Government contribution, Calarasi County Council, beneficiaries and other donors as applicable) and by sub-components.

A detailed draft manual of accounting procedures relevant to the project was prepared by the FM consultant with the support of the PPU staff. The manual documents the accounting procedures, internal controls and measures to ensure a complete segregation of duties and avoid any conflict of interest. All accounting entries will be kept in the foreign currency as well as in the Romanian currency, lei.

The PMU will prepare reports showing detailed budgeted and actual expenditures, uses of funds by source, summary of withdrawals and forecasts, statements of progress achieved to date and the objectives for the forthcoming quarter and semester. The format of the Project Management Reports (PMRs) has been agreed upon and the PMRs are fully customized and included in the software.

### ***Project Accounts and Cash Management***

The World Bank funds (GEF) will be allocated to the Romanian Ministry of Public Finance (MOPF - 'grant recipient') as per the Grant Agreement. The Ministry of Public Finance will then sign a subsidiary grant agreement ('convention') with the MWEP, giving full rights to MWEP to use the grant proceeds. PMU will access the grant proceeds through the Special Account ('SA'), opened at Romanian Commercial Bank (RCB), Calarasi Branch. Romanian Government contribution is to be channeled through the ROL account opened at the Treasury, Calarasi Branch. In this ROL project account, the PMU will receive allocations, as necessary, from the MWEP which will be the Romanian Government contribution to the project. Funds from the Special Account will also be transferred to this ROL Project Account which will allow conversion of USD to ROL to facilitate payment to local contractors. A separate sub-account in USD was opened at the RCB to receive the interest from the SA and cover bank charges for the SA.

Calarasi County Council Contribution to the project will be allocated monthly / quarterly to a new ROL account to be also opened at the Treasury, Calarasi Branch. It was agreed that a protocol will be signed between the PMU and the County Council to govern this monthly / quarterly procedure. A draft protocol was discussed and agreed in principle with the County Council representatives. The monthly / quarterly estimated contributions for the CY 2001 and for the full life of the project will be attached to the protocol as an Annex. Estimated monthly contributions for CY 2002 and thereafter will have to be ear-marked by the County Council well in advance in order to be included in the County Council yearly budget preparation and will be an integral part of the protocol.

The beneficiaries will contribute either in cash or in kind.

All sources of financing for the project will be reflected separately in the accounting software system. All the relevant financial accounting documents (invoices, contracts, payment orders, bank statements, etc.) will be recorded and kept at the PMU.

Signing procedures are in place, allowing the PMU director and financial management specialist to jointly sign when operating the above accounts.

With respect to cash management, the PMU will develop sound cash forecasting and weekly / monthly planning procedures. Amounts kept in ROL (both amounts held in banks and cash on hand) will be held at a minimum level to avoid the risk of possible future devaluation.

### ***Flow of funds***

The PMU will have full signature rights on operating all the above-mentioned bank accounts. This will insure an uninterrupted flow of funds and allow the PMU to consolidate all financing sources of the project. Every invoice received by the PMU will be checked for its accuracy and split into the net invoice amount and taxes. The PMU will then execute the payments from each financing source in accordance with the financing agreement and the percentages for each source (WB, Romanian Government, Calarasi County Council).

The beneficiaries will also contribute at the project, either in cash or in kind. Each beneficiary will sign a financing agreement with the PMU. This will detail the rights and obligations of each party. In case when the beneficiary will contribute in cash, its cash contribution will have to be deposited in a bank account and a bank statement proving this will be attached to the agreement. When the contribution will be in kind the financing agreement will detail the mechanism for quantifying the in kind contribution in monetary terms, and will mention the nature of the in kind contribution (land, labor, raw materials, consumables, transportation, etc).

Once the agreement is signed and the beneficiary's contribution agreed, the PMU will start executing payments for the relevant sub-component activities, as invoices are received from the suppliers. These invoices will be first jointly certified by the PMU and the beneficiary's representatives, in order to ensure that all the relevant goods were delivered, works done and services rendered, as per the technical specifications and terms of reference. In addition, all other project beneficiaries will be responsible for closely co-operating with the PMU on the financial management aspects of the project resources, under the respective project components in which they will participate.

### ***Internal Controls***

The PMU will adhere to sound internal control procedures and practices, to ensure that the Project funds are used with economy and efficiency and only for the purposes intended. The PMU will report to the Project Steering Committee and to relevant Ministers and will inform in a timely manner about project implementation and progress.

The PMU staff structure agreed (manager, financial management specialist, accountant - if needed, procurement officer, other technical experts and assistant, etc.) is perceived as able to ensure a complete segregation of duties and to avoid any conflict of interest.

All PMU staff must become familiar with the WB regulations (legal, disbursement, procurement, financial management, etc) applicable to their relevant area. A Financial Management Manual will be developed jointly by the PMU and by the financial management consultant appointed, documenting various types of financial transactions, approval and authorization steps, the flow of documents within the PMU and between the PMU and the beneficiaries, the accounting departments of the relevant ministries and MOPF, PMU's staff responsibilities and measures to ensure a complete segregation of duties, as well as other internal control procedures.

In addition to the above manual, the PMU will have to follow the procedures set up in the Project's

Operational Manual. The PMU staff are requested to enhance the manuals by documenting the day-to-day internal detailed procedures for each type of activity (such as correspondence handling, contracting and payment procedures, operation of all bank accounts, petty cash procedures, authorization mechanism, reporting, filling, etc.)

### ***Auditing***

The PMU will have the project accounts audited (including special and project accounts and all statements of expenditures) in accordance with ISA - International Standards on Auditing, by a firm of independent auditors acceptable to the World Bank. Recruitment of such firm on a yearly renewable contract (subject to satisfactory performance) and all the related steps are mentioned in the attached Financial Management Action Plan.

The PPU has prepared terms of reference for the audit of the project financial statements, in a format acceptable to the World Bank. A shortlist of auditors acceptable to the World Bank was presented. The PPU will prepare the audit RFP and submit it for no objection to the World Bank. Once the no objection is received, the PPU will send the RFP to the shortlisted auditors and start the selection process, as detailed in the FM action plan.

Selection of independent auditors acceptable to the Bank is a condition of effectiveness.

Audit reports and management letters for the project will be submitted by the PMU to the Bank within six months of the end of the Government's financial year. Invoices supporting disbursements against SOEs should be kept at least one year after the Bank has received the last audit report under the Grant.

The cost of the project audits will be financed by World Bank GEF proceeds.

### ***World Bank financial management certification***

Prior to project negotiations, the financial management system of the project will be subject to a detailed review and assessment by a World Bank accredited FM specialist, in accordance with OP / BP 10.02 and LACI requirements. The result of the assessment will have to demonstrate that the FM system for the project satisfies at least the minimum FM World Bank requirements.

It was agreed that the project will initially use traditional disbursement procedures (direct payments, reimbursements and replenishments to the Special Account with full documentation or SOEs) and produce PMRs for reporting and management information only and not for disbursement purposes. It was also agreed that the FM system will be re-assessed in end-2003 for the eligibility for PMR-based disbursements. Subsequently, the Borrower, jointly with the Bank, will review the possibility of disbursing on the basis of PMRs.

### **Financial Management Action Plan**

<b><i>Action</i></b>	<b><i>Responsibility</i></b>	<b><i>Due date</i></b>
<b>Establishment of financial management system</b>		
Select consultant and accounting software system	PPU / Bank	Completed
Conclude contract with the accounting software system supplier (financial management expert - FM consultant) and start activity	PPU / Bank / FM consultant	Completed
Initial installation and customization of the accounting software system and provision of appropriate training	FM consultant	Completed
Initial draft accounting manual documenting the project's accounting	FM consultant	Completed

and internal controls procedures		
Final draft accounting manual documenting the project's accounting and internal controls procedures	FM consultant	Completed
Final customization and complete implementation of the accounting software system, including full English language capability, full automation and final test run	FM consultant	Completed
Completion of training to PPU staff	FM consultant	11/15/2001
<b>Audit arrangements</b>		
Present shortlist of auditors and ToRs for no-objection to the WB	PPU	Completed
Confirm no-objection to shortlist of auditors and audit ToRs	Bank	Completed
Send RFP for no-objection to the Bank	PPU	Completed
Confirm no-objection to RFP	Bank	Completed
Send RFP to shortlisted auditors	PPU	Completed
Submission and opening of the offers	PPU	11/05/2001
Final evaluation and recommendation for selection	MWEP/PPU	11/15/2001
No Objection by the Bank	Bank	11/20/2001
Selection of auditors	PPU	11/25/2001
<b>Certification of financial management arrangements</b>		
Bank Financial Management Specialist to visit project prior to project board presentation to confirm adequacy of project's financial management arrangements and, if appropriate, to issue the FM certificate 'Annex 4-B'	Bank FMS	Completed
Bank Financial Management Specialist to visit project prior to project effectiveness to follow up and confirm adequacy of project's financial management aspects	Bank FMS	12/01/2001
<b>Project Management Reporting</b>		
Agree upon the final formats of the quarterly Project Management Reports (PMRs)	PPU / Bank / FM consultant	Completed
Final customization of the PMRs, full linkage with the accounting system, PMR training provided and test run	FM consultant	Completed
Produce first set of PMRs as at March 31, 2002 and quarterly thereafter	PMU	5/15/2002
Consider disbursing on the basis of submitted PMRs	Borrower/Bank	5/15/2004

**Annex 7: Project Processing Schedule**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

<b>Project Schedule</b>	<b>Planned</b>	<b>Actual</b>
<b>Time taken to prepare the project (months)</b>	20	
<b>First Bank mission (identification)</b>	09/15/1999	09/15/1999
<b>Appraisal mission departure</b>	05/20/2001	04/23/2001
<b>Negotiations</b>	10/05/2001	10/15/2001
<b>Planned Date of Effectiveness</b>	02/25/2002	

**Prepared by:**

Jitendra Srivastava, Doina Rachita, Meeta Sehgal, Naushad Khan, Arben Maho, Bogdan Constantinescu, Ranjan Ganguli, Rohan Selvarathnam, John Cole, Stefan Nicolau, Dana Dobrescu, Keith Openshaw, Adriana Dinu, Srish Kumar.

**Preparation assistance:**

Sharifa Kalala

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

<b>Name</b>	<b>Speciality</b>
Jitendra Srivastava	Technical
Doina Rachita	Technical
Meeta Sehgal	Technical
Naushad Khan	Procurement
Dana Dobrescu	Social
Stan Peabody	Social
Bodgan Constantinescu	Financial
Ranjan Ganguli	Financial
Rohan Selvarathnam	Project Costs
Srish Kumar	Project Costs
Arben Maho	Procurement
Peer Reviewers:	Julia Bucknall
	Mahesh Sharma
Quality Assurance	Marjory-Anne Bromhead
	John Hayward



**Annex 8: Documents in the Project File\***  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

**A. Project Implementation Plan**

See Working Papers enumerated below.

**B. Bank Staff Assessments**

**C. Other**

Detailed Strategies and Action Plans: Extension Activities, Public Awareness and Replicability

**Working Papers (Available in English and Romanian)**

Working Paper 1: Presentation of Project Area - Part I: Socio-Economic and Demographic Data; Part II: Social Assessment; Part III: Proposed Set of Indicators for Monitoring the Project Impact in the Pilot Area

Working Paper 2: Assessment of Land use Suitability and Programs for Testing /Demonstration Program of Environmentally-friendly Agricultural Practices

Working Paper 3: Design of Testing and Demonstration Program for Environmentally-friendly Agricultural Practices

Working Paper 4: Design of Agro-Forestry Program

Working Paper 5: Assessment of Land use suitability and Proposals for Land Use Information System.

Working Paper 6: Design of Village-level Manure Storage and Handling System

Working Paper 7: Feasibility Study for Manure Storage System

Working Paper 8: Proposals for Integrated Management of the Boianu-Sticleanu Polder and Ecological Restoration of Calarasi-Raul Polder

Working Paper 9: Strengthening capacity in Calarasi Judet for Soil and Water Quality Monitoring

Working Paper 10: Design of Public Awareness Campaign

Working Paper 11: Review of Regulatory Framework Governing Agricultural Pollution Control in Romania

Working Paper 12: Operational Manual for Soil and Water Quality Monitoring

Working Paper 13: Financial Management Manual

Working Paper 14: Design of Project Monitoring System

Working Paper 15: Competitive Grant Manual (Agricultural Support Services Project)

Working Paper 16: Operational Manual for Manure Management System

\*Including electronic files

**Annex 9: Statement of Loans and Credits**  
**ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT**

Project ID	FY	Purpose	Original Amount in US\$ Millions			Cancel.	Undisb.	Difference between expected and actual disbursements*	
			IBRD	IDA	GEF			Orig	Frm Rev'd
P043882	2000	AGR SUPPORT SERVICES	11.00	0.00	0.00	0.00	10.93	0.43	0.00
P056337	2000	MINE CLOSURE	44.50	0.00	0.00	0.00	43.52	12.05	0.00
P008797	2000	HEALTH SECTOR REFORM	40.00	0.00	0.00	0.00	40.00	3.07	0.00
P065041	2000	TRADE & TRANS FACIL IN SE EUR	17.10	0.00	0.00	0.00	17.10	0.00	0.00
P039251	1999	PIBL	25.00	0.00	0.00	1.10	17.35	4.45	0.00
P044176	1999	BIODIVERSITY	0.00	0.00	5.50	0.00	4.40	1.02	0.00
P058284	1999	CULTURAL HERITAGE	5.00	0.00	0.00	0.00	4.39	3.49	0.00
P049200	1999	SOC DEV FUND	10.00	0.00	0.00	0.00	4.59	4.59	5.04
P044614	1998	SCHOOLS REHABILITATION	70.00	0.00	0.00	0.00	59.30	34.40	-8.00
P055495	1998	CHILD WELFARE REFORM	5.00	0.00	0.00	0.00	3.64	2.74	0.00
P034213	1998	GEN'L CADASTRE	25.50	0.00	0.00	0.00	23.77	7.11	0.00
P008788	1998	TELECOMMUNICATION	30.00	0.00	0.00	7.00	17.46	21.37	3.32
P039250	1997	SECOND ROADS	150.00	0.00	0.00	0.00	32.44	-30.06	0.00
P008793	1997	HIGHER EDUCATION	50.00	0.00	0.00	0.00	30.10	30.10	11.70
P008778	1997	BUCHAREST WATER SUPP	25.00	0.00	0.00	0.00	10.18	10.05	0.00
P036013	1996	RAILWAY	120.00	0.00	0.00	0.00	44.53	43.20	0.00
P008794	1996	POWER SECTOR REHAB.	110.00	0.00	0.00	0.00	93.60	93.60	12.45
P008776	1995	(ESPP) EMPLOY. & SOC. PROTECTION	55.40	0.00	0.00	0.00	36.21	35.81	0.00
P008777	1994	PETROL SECT REH	175.60	0.00	0.00	0.00	79.45	79.45	-76.00
P008784	1994	EDUCATION REFORM	50.00	0.00	0.00	0.00	20.83	20.83	34.96
Total:			1019.10	0.00	5.50	8.10	593.80	377.71	-16.52

ROMANIA  
STATEMENT OF IFC's  
Held and Disbursed Portfolio  
Mar-2001  
In Millions US Dollars

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1999	Ambro	7.66	0.00	0.00	0.00	5.11	0.00	0.00	0.00
1998	Banc Post	0.00	0.00	10.00	0.00	0.00	0.00	10.00	0.00
1998	Bilstein Compa	1.74	0.00	0.00	1.74	1.74	0.00	0.00	1.74
1996	Danube Fund	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
1998	Demir Romania	5.00	3.20	0.00	0.00	5.00	2.55	0.00	0.00
1997	Efes Brewery	7.63	0.00	0.00	6.00	7.63	0.00	0.00	6.00
1998	FCR Fund	0.00	10.00	0.00	0.00	0.00	10.00	0.00	0.00
1998	Garanta	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00
1998	Krupp Compa	6.09	0.00	0.00	2.61	5.03	0.00	0.00	2.15
1997/00	Mobil Rom	15.00	0.00	0.00	20.00	0.00	0.00	0.00	0.00
1997	Rambox	1.35	2.00	0.00	0.00	1.35	2.00	0.00	0.00
1994/98	Romlease	0.00	0.30	0.00	0.00	0.00	0.30	0.00	0.00
1998	Small Bus. Loan	3.00	0.02	0.00	0.00	3.00	0.02	0.00	0.00
Total Portfolio:		47.47	17.72	10.00	30.35	28.86	17.07	10.00	9.89

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic
2001	Romlease Restr.	4000.00	0.00	0.00	0.00
2001	Banca Romaneasca	3000.00	3000.00	0.00	0.00
Total Pending Commitment:		7000.00	3000.00	0.00	0.00

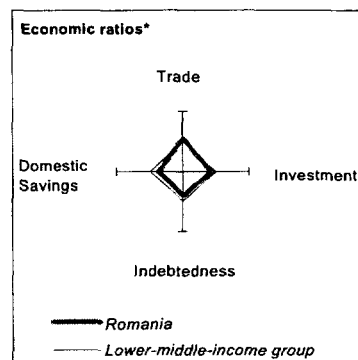
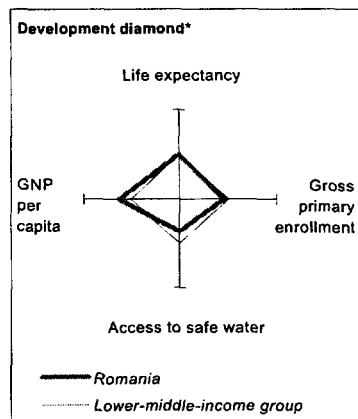
## Annex 10: Country at a Glance

### ROMANIA: AGRICULTURAL POLLUTION CONTROL PROJECT

	Romania	Europe & Central Asia	Lower-middle-income
<b>POVERTY and SOCIAL</b>			
<b>1999</b>			
Population, mid-year (millions)	22.5	475	2,094
GNP per capita (Atlas method, US\$)	1,520	2,150	1,200
GNP (Atlas method, US\$ billions)	34.1	1,022	2,513
<b>Average annual growth, 1993-99</b>			
Population (%)	-0.2	0.1	1.1
Labor force (%)	0.5	0.6	1.2
<b>Most recent estimate (latest year available, 1993-99)</b>			
Poverty (% of population below national poverty line)	22	..	..
Urban population (% of total population)	56	67	43
Life expectancy at birth (years)	69	69	69
Infant mortality (per 1,000 live births)	21	22	33
Child malnutrition (% of children under 5)	..	8	15
Access to improved water source (% of population)	62	..	86
Illiteracy (% of population age 15+)	2	3	16
Gross primary enrollment (% of school-age population)	104	100	114
Male	104	101	114
Female	103	99	116

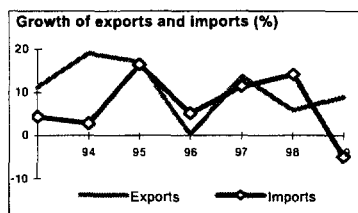
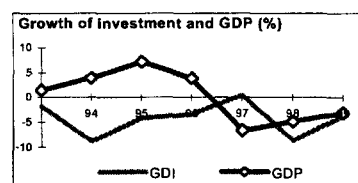
#### KEY ECONOMIC RATIOS and LONG-TERM TRENDS

	1979	1989	1998	1999
GDP (US\$ billions)	..	41.5	41.5	34.0
Gross domestic investment/GDP	39.6	26.8	21.4	19.9
Exports of goods and services/GDP	..	20.9	23.7	30.1
Gross domestic savings/GDP	..	29.5	13.3	15.7
Gross national savings/GDP	..	29.7	14.0	16.3
Current account balance/GDP	..	6.1	-7.2	-3.8
Interest payments/GDP	..	0.2	1.1	1.4
Total debt/GDP	..	2.6	24.3	27.1
Total debt service/exports	1.4	16.9	23.6	28.7
Present value of debt/GDP	..	..	23.2	27.1
Present value of debt/exports	..	..	98.5	92.0
<b>(average annual growth)</b>	<b>1979-89</b>	<b>1989-99</b>	<b>1998</b>	<b>1999</b>
GDP	1.5	-1.5	-4.9	-3.2
GNP per capita	1.2	-1.4	-5.1	-2.8
Exports of goods and services	..	4.6	5.8	8.9



#### STRUCTURE of the ECONOMY

	1979	1989	1998	1999
<b>(% of GDP)</b>				
Agriculture	..	15.7	15.0	15.5
Industry	..	56.4	36.6	31.0
Manufacturing	..	..	27.3	22.2
Services	..	27.9	48.3	53.5
Private consumption	..	58.9	72.2	69.6
General government consumption	..	11.6	14.5	14.7
Imports of goods and services	..	18.2	31.8	34.3
<b>(average annual growth)</b>	<b>1979-89</b>	<b>1989-99</b>	<b>1998</b>	<b>1999</b>
Agriculture	..	0.6	-8.8	4.7
Industry	..	-1.9	-5.6	-4.0
Manufacturing	..	..	-6.4	-3.1
Services	..	-2.4	-0.1	-8.4
Private consumption	..	-0.1	-6.5	-6.8
General government consumption	..	2.3	12.0	0.4
Gross domestic investment	..	-5.7	-8.6	-3.7
Imports of goods and services	..	4.4	14.1	-4.8
Gross national product	1.7	-1.7	-5.3	-3.0

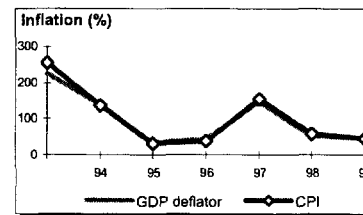


Note: 1999 data are preliminary estimates.

\* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

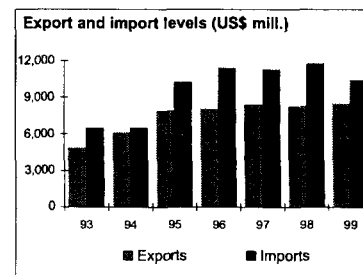
## PRICES and GOVERNMENT FINANCE

	1979	1989	1998	1999
<b>Domestic prices</b>				
(% change)				
Consumer prices	..	1.1	59.1	45.8
Implicit GDP deflator	3.2	-0.9	55.0	46.4
<b>Government finance</b>				
(% of GDP, includes current grants)				
Current revenue	..	51.0	30.1	33.3
Current budget balance	..	31.1	-5.0	-3.5
Overall surplus/deficit	..	13.5	-5.0	-3.4



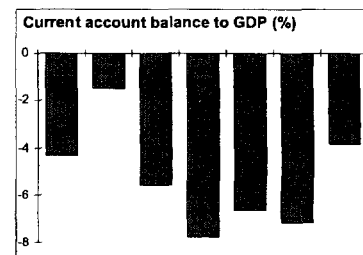
## TRADE

	1979	1989	1998	1999
(US\$ millions)				
Total exports (fob)	..	10,487	8,302	8,505
Textiles	..	..	1,583	1,310
Metals	..	..	508	502
Manufactures	..	7,056	5,238	5,654
Total imports (cif)	..	8,437	11,838	10,392
Food	..	124	523	417
Fuel and energy	..	4,728	1,687	1,251
Capital goods	..	2,148	3,206	2,689
Export price index (1995=100)	..	93	95	97
Import price index (1995=100)	..	99	98	101
Terms of trade (1995=100)	..	93	97	95



## BALANCE of PAYMENTS

	1979	1989	1998	1999
(US\$ millions)				
Exports of goods and services	10,133	11,321	9,519	9,862
Imports of goods and services	11,428	8,887	12,798	11,358
Resource balance	-1,295	2,434	-3,279	-1,496
Net income	-358	80	-442	-375
Net current transfers	..	0	753	568
Current account balance	-1,653	2,514	-2,968	-1,303
Financing items (net)	1,791	-1,160	2,125	1,471
Changes in net reserves	-138	-1,354	843	-168

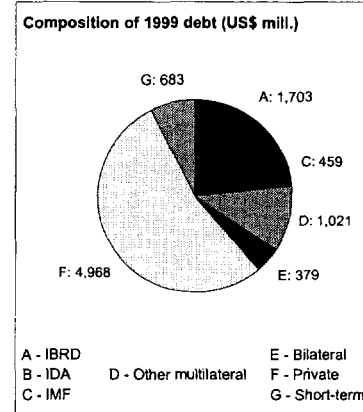


## Memo:

Reserves including gold (US\$ millions)	..	..	3,789	3,657
Conversion rate (DEC, local/US\$)	..	19.3	8,875.8	15,332.8

## EXTERNAL DEBT and RESOURCE FLOWS

	1979	1989	1998	1999
(US\$ millions)				
Total debt outstanding and disbursed	3,583	1,087	10,074	9,213
IBRD	590	0	1,469	1,703
IDA	0	0	0	0
Total debt service	142	1,941	2,310	2,876
IBRD	54	756	152	171
IDA	0	0	0	0
Composition of net resource flows				
Official grants	0	0	131	0
Official creditors	151	-1,188	-123	-65
Private creditors	1,680	-432	344	-351
Foreign direct investment	0	0	2,040	949
Portfolio equity	0	0	130	-706
World Bank program				
Commitments	340	0	130	340
Disbursements	142	0	122	323
Principal repayments	7	727	70	85
Net flows	135	-727	51	238
Interest payments	47	29	82	87
Net transfers	88	-756	-30	152



**Additional  
Annex 11**

**Environment Data Sheet**

<b>ENVIRONMENTAL DATA SHEET FOR PROJECTS</b>  <b>in the IBRD/IDA Lending Program</b>	
<b>Country:</b> Romania	<b>Project ID No:</b> GE-PO66065
<b>Project Name:</b> Agricultural Pollution Control Project	<b>Total Project Cost:</b> US\$10.80 million
<b>Appraisal Date:</b> July 2001	
<b>Board Date:</b> December 2001	<b>Team Leader:</b> Jitendra Srivastava
<b>Managing Unit:</b> ECSSD	<b>Sector:</b> Environment/Agriculture
<b>Est. date for receipt of EA by Bank:</b> 07/20/2001)	
<b>EA Category (A/B/C):</b> B	<b>Date Assigned:</b> 01/18/2000
<i>Date Sheet Prepared/Updated</i> 07/05/2000	
(Please do not leave any items blank: use "N/A" or "To be developed" when appropriate)	
<p><b>Major Project Components:</b> (presents description of project components)</p> <p>The objective of the proposed project is to significantly increase the use of environmentally friendly agricultural practices among eligible farmers in target project areas. The ultimate goal is to reduce the discharge of nutrients and other agricultural pollutants into the Danube River and Black Sea through integrated land and water management. While the farmers will receive benefits from the improved practices and investments, most of the benefits will come from improved environmental quality of Romanian surface and groundwater and the Black Sea.</p>	
<p>The project has identified Calarasi county, in the southern part of Romania, along the lower Danube river, as the project site. In support of the above objectives, the project will comprise the following components:</p> <p><b>Component 1: Activities in the Calarasi Judet. (US\$9.22 ).</b> This will include (i) manure management practices; (ii) promotion of environmentally friendly agricultural practices; (iii) integrated management of Boianu-Sticleanu Polder and ecological restoration of part of the Calarasi-Raul Polder; and (iv) strengthening capacity in Calarasi Judet to monitor soil and water quality and environmental impacts.</p> <p><b>Component 2: Strengthening of National Policy and Regulatory Capacity (US\$0.27m).</b> This would include support to the Ministry of Water and Environmental Protection (MWEP) and Ministry of Agriculture, Food and Forests (MAFF) for: (i) work relating to the application of the Nitrates Directive and harmonization of legislation with the requirements of the European Union; (ii) developing a Code of Good Agricultural Practices; and (iii) strengthening the capacity of the National Authority for Ecological Agriculture in its efforts to promote scientific organic farming and land use management.</p> <p><b>Component 3: Public Awareness and Replication Strategy(US\$0.45m).</b> A broad public information campaign of the project's activities and benefits will be undertaken at the local, national and regional levels to achieve</p>	

replicability of project interventions. The public awareness activities will be delivered through cost effective, innovative vehicles (including a bilingual website) as well as through the provision of training in the use and benefits of environment-friendly agricultural practices. The project would provide for the organization of regional workshops, field trips, training, publication in international agriculture and environmental journals and other activities to promote replication of project activities in other Black Sea riparian countries.

**Component 4: Project Management and Monitoring (US\$0.86m).** The project would support a Project Management Unit (PMU) to be established by MWEF in the DGAIA offices, Calarasi. The PMU would comprise Project Manager, Technical Specialist (who would also handle project monitoring/evaluation), Procurement Specialist, Financial Management Specialist, Accountant, Secretary/Translator and Driver. The PMU would be responsible for overall monitoring of the progress with project implementation and beneficiary impact of the APCP.

**Major Environmental Issues:** (describes major environmental issues identified or suspected in project)

None

**Other Environmental Issues:** (describes environmental issues of lesser scope associated with project)

The environmental concerns under this project (component 1) may include leakage of manure from the village-level storage facilities (if construction is not made according to specifications), inappropriate manure spreading in the fields and improper cleaning of the individual manure storage tanks and large manure platforms.

**Proposed Actions:** (describes actions proposed to mitigate environmental issues described in project)

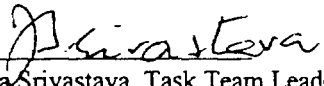
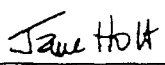
An environmental assessment has been done and mitigating measures to address the above environmental issues have been developed. Also, an environmental management plan has been developed to ensure that activities undertaken under this component will be closely monitored with regular inspections by the local environmental agency(ies).

A comprehensive soil and water quality monitoring program has been developed for implementation and to provide decision-makers and the public officials with reliable data on problems and trends in the water quality of drinking water supplies and the Danube River and its tributaries. These efforts are hampered by the lack of adequate laboratory and monitoring equipment and chemicals for the operation and maintenance of soil and water quality monitoring laboratories of the Environmental Protection Inspectorate (EPI) and the Public Health Directorate (PHD) of Calarasi Judet. The project will provide additional laboratory equipment, chemicals and supplies, and training to build capacity of the EPI.

The project will install and monitor 20 piezometers to determine the flow of nitrogen and phosphorus along the groundwater gradient (underground water flow lines) in the aquifer that eventually is draining into the Danube River. Also, the project will monitor water quality of three man-made and one natural drain in the lower part of the polder area which are draining nutrients directly into the Danube River. Data from piezometers and open drainage canals will help the project in quantifying the reduction in nutrient loads to the Danube River. At three sites in the project area, the project will evaluate the effects of nutrient management, tillage, and crop rotations on soil and water quality. Also, limited water monitoring equipment will be installed to monitor the positive effects of buffer strips, tree planting, and establishment of agro-forestry on water quality. Environmental evaluation indicators have been reflected in the EMP which meet the objectives and goals of this project.

**Justification/Rationale for Environmental Category:** (reasons for env. category selected & explanation of any



changes from initial classification)
The project is primarily designed to provide Technical Assistance. There is no anticipated negative environmental impact resulting from project activities. However, all physical investments will be screened in accordance with Romania's environmental regulations to address any impacts that might arise.
<b>Status of Category A Environmental Assessment:</b> (presents EA start-up date, EA first draft, and current status)
An Environmental Assessment has been undertaken and prepared in April/May 2001. Impact of project activities on the environment will be periodically assessed by the Project Management Unit during the life of the project and lessons learned will be fed back into the project as improved practices.
<b>Remarks:</b> (gives status of any other environmental studies, lists local groups and local NGOs consulted, tells whether borrower has given permission to release EA, etc)
The Environmental Management Plan was developed in close consultation with key stakeholders including individual farmers, farmer organizations, local officials (mayors, DGAIA engineering staff, technical staff and inspectors from EPI, etc.) as well as NGOs, such as Romanian Association for Sustainable Agriculture.
<p>Signed by:   Jitendra Srivastava, Task Team Leader</p> <p>Signed by:   Jane Holt, Environment Sector Leader</p> <p>August 16, 2001</p>

**Environmental Assessment:** Environmental assessment of various project activities has been made and mitigation measures proposed to address various possible environmental impacts are addressed in EMP (prepared by borrowers) shown in Tables 1. This project will have positive effects on the environment. The only caution would be to ensure that 14 large manure storage facilities to be built in this project are designed properly and constructed to ensure that manure does not leak from these facilities to surface or groundwater sources.

Project has made an environmental assessment and has developed the following mitigation plan to ensure that these structures are environmentally safe: i) design of these large manure storage facilities must be prepared under the supervision of County Council engineering staff and EPI will ensure that the constructions of manure storage facilities have met environmental guidelines on stopping manure leakage to surface or groundwater sources, ii) these facilities will not be build closer to any surface water body, iii) implement an extensive soil and water monitoring program to ensure that seepage of manure to ground water does not occur. To insure safe ground water quality, four piezometers (two upstream and two downstream) will be installed around each of the fourteen manure storage platforms by the EPI to conduct periodic monitoring of the quality of groundwater to ensure that seepage of manure to groundwater does not occur. During installation of these piezometers, soil samples will be taken and analyzed for nitrogen and phosphorous contents to establish baseline data information on the existing soil and water quality at the

construction site, iv) strengthen the institutional capacity of EPI. In Calarasi Judit, there is a functional EPI office with laboratory facilities to undertake the monitoring work, however, EPI will need additional but newer laboratory equipment and training for their professional staff to operate new equipment effectively. Project will provide additional laboratory equipment and training to build capacity of the EPI to undertake the project work more efficiently, and v) public awareness will be undertaken to create awareness of current systems and promote the adoption of environmental friendly manure management functions to reduce the nutrient loads to water bodies.

**Table 1. Environmental Management Plan for Romania Project: Environmental Impacts**

<b>Issues</b>	<b>Anticipated/Potential Environmental Impacts</b>	<b>Effects on Environment</b>	<b>Actions or Mitigation Measures</b>
Surface water quality	<p>Surface water quality will improve with the reduction in nitrogen and phosphorus transport to runoff waters from swine and cattle manure disposal sites, agricultural areas treated with manure and agricultural chemicals as better nutrient management practices will be implemented by the project.</p> <p>ii) Quality of drainage and irrigation canals that drain into Danube River will improve.</p> <p>iii) Overall effects on the quality of Danube river will be positive.</p> <p><b>Probability of occurrence: High</b></p>	<p>i) Increased quality and availability of Danube River water and Black Sea coastal waters will result in increased use of beaches by public and increased harvest of better quality fish</p> <p>ii) Increased utility of water for downstream users and fisheries if any.</p> <p>iii) drinking water supplies will improve and will have lesser health related effects for the city of Calarasi as it Danube River water for drinking supplies</p>	<p>i) develop and implement improved manure management and environmentally sound agricultural management practices in Calarasi County of Danube River watershed</p> <p>ii) Undertake a rigorous surface water quality monitoring program for Danube River and other surface water bodies that drain into Danube River to establish a baseline database of the quality of surface waters, lakes and Danube River as affected by better agricultural and manure management practices.</p>
Groundwater	<p>i) Reduction in nutrient leaching to groundwater quality will occur with the introduction of better manure storage and handling, and nutrient management practices will occur, ii) Quality of drinking water supplies will improve with the reduction of nitrate and bacteria in groundwater as a result of collecting manure from individual farmer's homesteads and storing in comuna platforms.</p> <p><b>Probability of occurrence: High</b></p>	<p>i) Increased quality and availability of groundwater for human and animal consumption</p> <p>ii) Groundwater is the main source of drinking for rural population and decreased levels of nitrate and bacteria in water will reduce water borne diseases in Calarasi region like nitrate poisoning. .</p>	<p>i) Implement environmentally sound agricultural and manure management practices in the project area.</p> <p>ii) Implement wellhead protection programs for rural drinking wells.</p> <p>iii) Establish extensive groundwater monitoring program in the highly intensive agricultural and animal production areas to determine the effect of better nutrient management practices.</p> <p>iii) Monitor groundwater quality in piezometers and wells in areas with</p>

			improved agriculture and animal waste management systems
Soil Quality	With the introduction of better farming systems, soil quality will improve <b>Probability of occurrence: high</b>	Better productive lands with increased organic matter and carbon sequestration	Undertake soil monitoring of selected areas to establish the effect of better farming systems on soil and water quality
Biodiversity	Increased biodiversity will occur because of better manure management systems, introduction of conservation tillage systems, forest areas, buffer strips etc. <b>Probability of occurrence: high</b>	Increased biodiversity	Observe impact on new plant and animal populations, and soil worm and microbial activity. Measure effects on soil organic matter and carbon contents, and possibly water quality.

## ENVIRONMENTAL MANAGEMENT PLAN

### A. MITIGATION PLAN

#### 1. Soil and Water Monitoring Program

##### (a): Manure Storage Facilities

			Cost	Institutional Responsibility	Comments (e.g. secondary impacts)
<i>Phase</i>	<i>Issue</i>	<i>Mitigating Measure</i>	<i>Install</i>	<i>Operate</i>	<i>InstallOperate</i>
Construction	None				
Operation	Manure leakage and water pollution	Proper engineering design according to British engineering design codes.	Included in the project	N/A	ContractorCountry Council and ComunaLoading and unloading of manure in the facilities will ensure proper manure storage
Decommissioning	N/A				

### B. MONITORING PLAN

						Cost	Responsibility
<b>Phase</b>	<b>What</b> <i>parameter is to be monitored?</i>	<b>Where</b> <i>is the parameter to be monitored?</i>	<b>How</b> <i>is the parameter to be monitored/ type of monitoring equipment?</i>	<b>When</b> <i>is the parameter to be monitored-frequency of measurement or continuous?</i>	<b>Why</b> <i>Is the parameter to be monitored (optional)?</i>	<b>Install</b>	<b>Operate</b> <b>Install</b> <b>Operate</b>
Baseline	N/A						
Construct	N/A						
Operate	Nitrate,	Piezometer and	Using		To detect if	Included	Included in the

	phosphor-us, & Bacteria in soil & water	well sites & project activities sites	piezometers, wells, and soil samplers	Monthly	there is any N and P leakage to water bodies	in the project	projectEPIEPI and PHD
Decommission	N/A						

### C. INSTITUTIONAL STRENGTHENING

#### 1. Equipment Purchases (Tabular Presentation Preferred) (Justification is Included in the Project)

List:

- Type of equipment
- Number of Units
- Unit cost
- Total Cost
- Local or International Purchase

Type of Equipment	Number of units	Unit cost	Total Cost	Local or International Purchase
Latchet Auto Analyzer for nitrate analysis	2	\$35,000	\$70,000	International
Centrifuger	2	\$1,000	\$2,000	International
Electronic Balance	3	\$500	\$1,500	International
Soil Samplers	4	\$500	\$2,000	International
Sampling Pump	2	\$2,000	\$4,000	International
GC Column	1	\$850	\$850	International
Electric. bath	1	\$1,500	\$1,500	International
pH Meter	1	\$500	\$500	International
Air Conditioner	4	\$1,000	\$4,000	International
Distilator	1	\$2,000	\$2,000	International
Refrigerator	1	\$1,500	\$1,500	International
Freezer	1	\$2,000	\$2,000	International
Agitator	1	\$500	\$500	International
Photo Spectro Meter	1	\$4,900	\$4,900	International
Water Samplers	2	\$500	\$1,000	International
Computers	4	\$1,500	\$6,000	International
Oven	1	\$3,500	\$3,500	International

#### 2. Training/Study Tours (Justification is included in the project)

List:

- Type of Training (Mitigation, Monitoring, Environmental Management, Other)
  - Number of Students
- Current and Future Organizational Unit in Which They Work or Current and Future

**Title/Job Description**

- Duration of Training
- Start Date/End Date (for each student)
- Venue of Training (Domestic or Abroad)
- Institute or Organization to Provide Training
- Cost (Local and Foreign)

Type of Training	No. Students	Organization	Job	Duration (days)	Timings	Venue	Institute	Cost (local/foreign)
Mitigation	1	EPI	Chemist	15-30	Yr.1	USA	ISU*	\$5,000 foreign
Mitigation	1	EPI	Engineer	15-30	Yr.1	USA	ISU	\$5,000 foreign
Mitigation	1	OJSPA	Chemist	15-30	Yr.2	USA	ISU	\$5,000 foreign
Mitigation	1	EPI	Chemist	15-30	Yr.2	USA	ISU	\$5,000 foreign
Monitoring	5	EPI	Eng/Ch.	5	Yr.2,3,4,5	ROMANIA	ICIM**	\$4,000 local
Monitoring	7	EPI, OJSPA	Eng/Ch.	5	Yr.2,3,4,5	ROMANIA	ICPA***	\$8,000 local
Environmental Management	1	EPI	Engineer	12	Yr. 1	USA	ISU	\$5,000 foreign
Environmental Management	1	OJSPA	Engineer	12	Yr. 1	USA	ISU	\$5,000 foreign
Environmental Management	2	EPI	Engineer	12	Yr. 2	USA	ISU	\$10,000 foreign

\* Iowa State University

\*\* Research Institute for Environment

\*\*\* Research Institute for Soil and Agrochemistry

**3. Consultant Services**

*(details are included in the project)*

- **Type of Service:** Environmental monitoring and Mitigation
- **Terms of Reference:** Provide monitoring and mitigation training, help in developing operational manual and implementing operational plans
- **Justification:** To help in building institutional capacity
- **Cost:** \$5,000/yr

**4. Special Studies:** None needed

**Justification:**

**Terms of Reference**

**Cost**

**D. SCHEDULE**

**Present (preferably in Chart Form) Start Dates and Finish Dates for:**

- **Mitigation Activities**
- **Monitoring Activities**
- **Training Activities**

**This information should be on the same chart defining the overall project schedule (Project Implementation Plan)**

#### **E. INSTITUTIONAL ARRANGEMENTS**

Write a paragraph explaining on how things will be taken care of on Monitoring information, take mitigation actions, and make decisions on correction measures.

A narrative discussion supported by organizational charts detailing:

- Responsibilities for mitigation and monitoring
- Environmental information flow (reporting—from who and to who and how often)
- Decision making chain of command for environmental management (to take action, to authorize expenditures, to shut down, etc.)

In short, how is all the monitoring data going to be used to maintain sound environmental performance—who collects the data, who analyzes it, who prepares reports, who are the reports sent to and how often, and who does that person send it to, or what does he/she do with the information—who has the authority to spend, shutdown, change operations etc.

Director of the Environmental Protection Inspectorate (EPI) in Calarasi would have the overall responsibility for environmental monitoring, mitigation, and performance. The Director of the EPI will be certifying the construction of manure storage facilities and installation of piezometers for environmental controls. EPI Director has developed an implementation plan for soil and water monitoring and collecting and analyzing the data soil and water samples from various project activities. EPI field engineer will collect soil and water samples from the field on monthly basis (as discussed in the implementation plan) and will bring to laboratory chemists in the laboratories of EPI and PHD. Field chemist will analyze all soil and water samples and the field engineer and lab chemists together will prepare quarterly and annual reports and will send to the PMU/international consultant for evaluations. At the end of each year, soil and water quality data will summarized in usable form for the benefit of stakeholders including the World Bank, Ministry of Water and Environment, and other Black Sea countries. EPI will have the authority to shut down/change operations to facilitate the implementation of a mitigation plan in case leakage/breakdown occurs until things are fixed up.

#### **F. CONSULTATION WITH LOCAL NGOs AND PROJECT-AFFECTED GROUPS**

*(The details on all the consultations is provided in the project file).*

**Additional  
Annex 12**

**Comments of STAP Reviewer**

**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 Danube River 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 recognises the importance of community and decision maker education building acceptance of and commitment to identifying and operating within the constraints of the natural resources and the ecological systems which produce them. This is the most critical factor of the project.

**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 key element in a major source of nutrient pollution of the Black Sea from poor agricultural practices in the Romanian catchments that drain into the River Danube.

**The Context of GEF Goals and Guidelines**

The project clearly addresses the objectives of the integrated land and water multiple focal area. 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.

**Regional Context**

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

**Replicability**

There are now several projects addressing agricultural pollution of catchments draining into enclosed seas. The common elements of each should be positive “triple bottom line” outcomes for impoverished rural communities through simultaneous and linked improvements in the economic, environmental and social outcomes of agriculture. The circumstances of each is unique so it would be naïve to expect a simply replicable “turn-key” model but this project builds on the experience of others and has immediate potential for replication in the management of other parts of the Danube catchment.

**Sustainability**

This is the key to the project. The design has been developed with substantial local consultation. The indications are that farmers in the target community will participate with enthusiasm. Provided there is ongoing demonstration and community appreciation of the economic, environmental and social benefits of

the agricultural methods adopted it can be expected that they will be increasingly adopted.

Community involvement, education and demonstration of benefits are critical elements of the program design.

### **Contribution to Future Strategies and Policies**

As discussed above. Success with this project should contribute to the broader adoption of pollution minimising agricultural practices in the catchments of eastern Europe.

### **Secondary Issues**

Linkages to other programmes and action plans are identified in table 2 of the proposal.

### **Involvement of Stakeholders**

The project proposal addresses this appropriately as a critical issue. Stakeholder commitment and involvement are key elements in the community considerations in the uptake and routine adoption of pollution minimising agricultural practices.

### **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**

The document as reviewed still has some figures to be finalised and a check is needed as ongoing revisions have resulted in inconsistencies between figures in the text and tables. Notwithstanding, and subject to the qualification above, the amounts and relativities of funding proposed for the various components appear reasonable.

### **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 situation described for Calarasi Judet and Romania. I recommend that it should proceed.

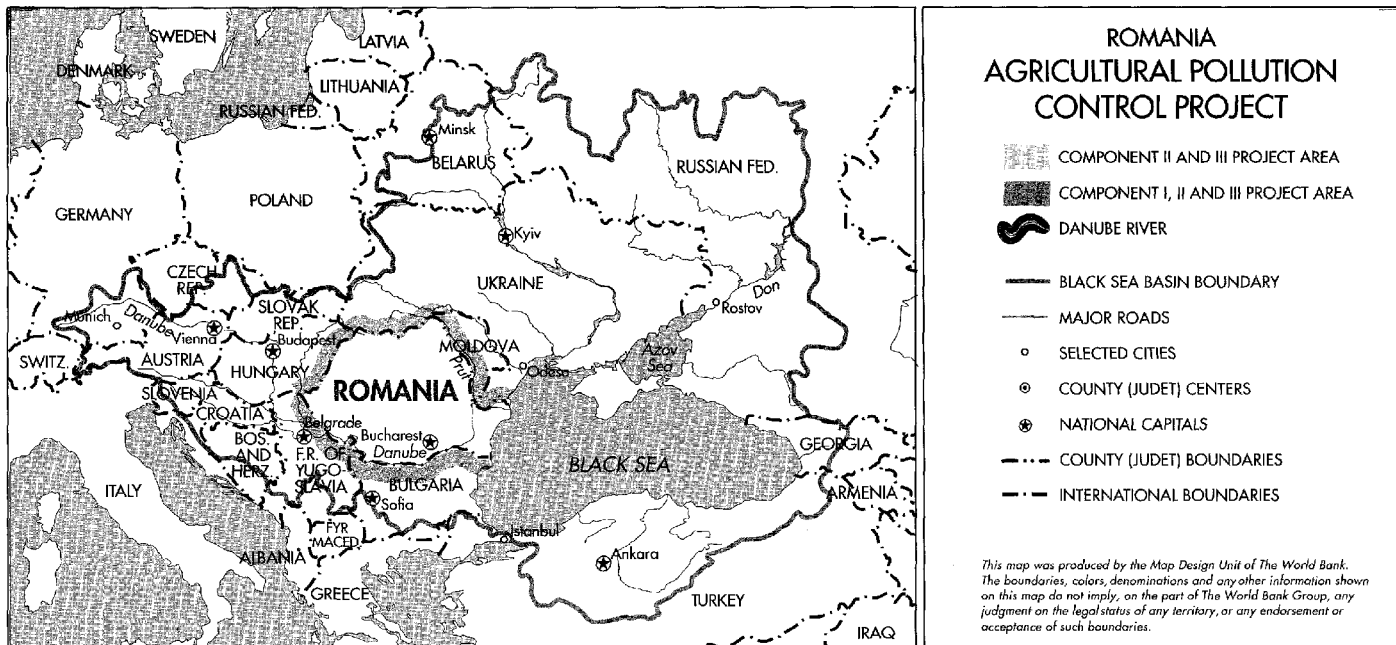


R A Kenchington  
31 May 2001



## MAP SECTION



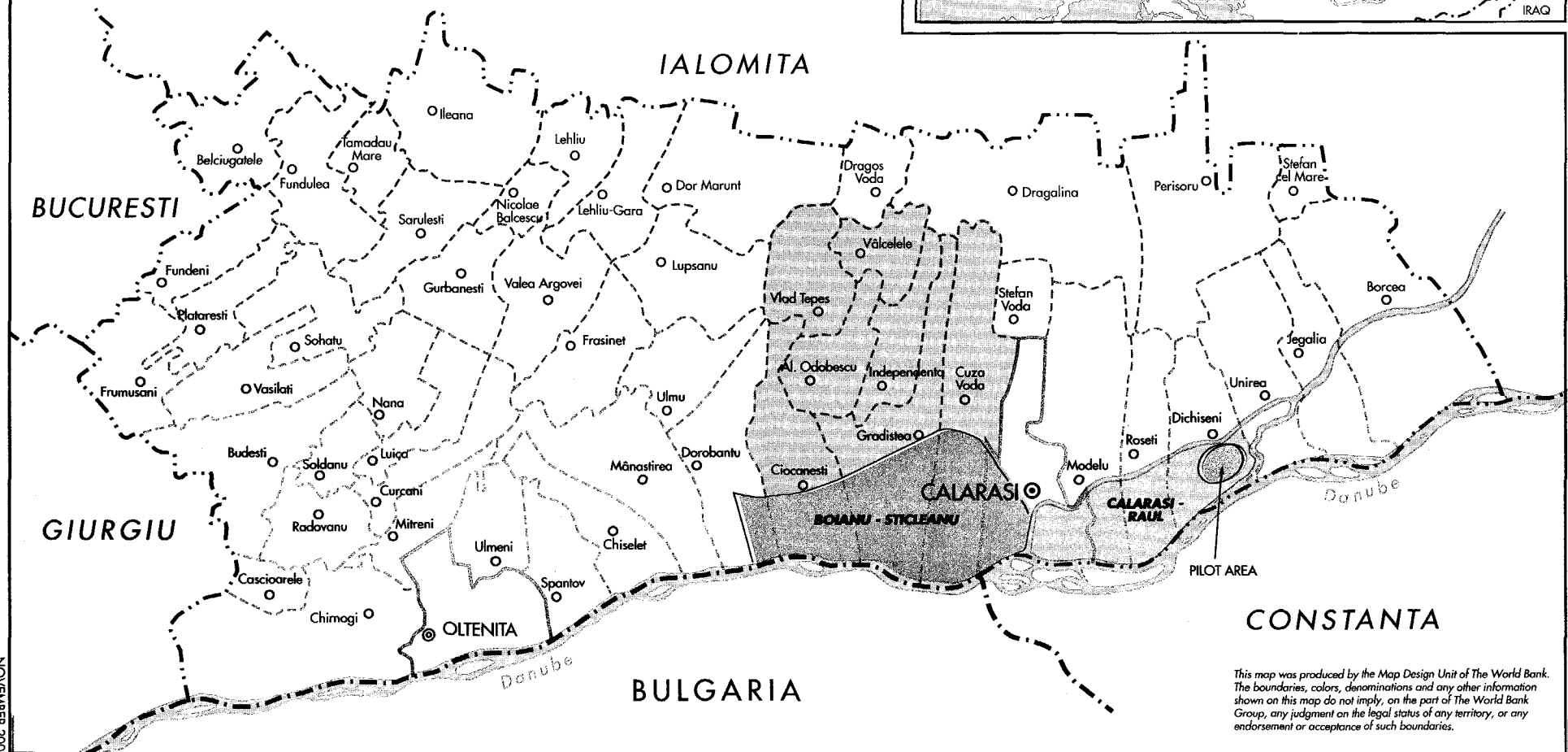
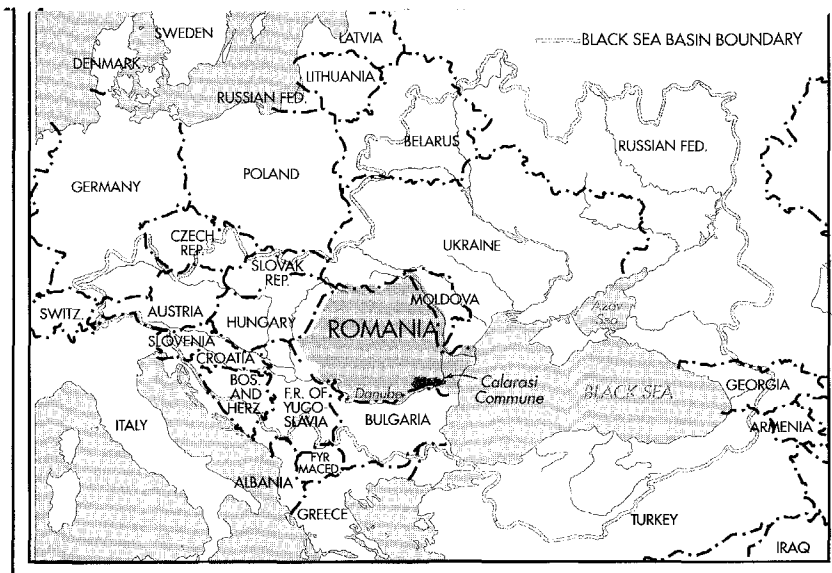




# ROMANIA COMMUNAS PARTICIPATING IN MANURE MANAGEMENT

PROJECT AREA - TERRACE  
BOIANU - STICLEANU POLDER  
CALARASI - RAUL POLDER

- COMMUNAS
- ⊙ TOWNS
- ⊙ COUNTY (JUDET) HEADQUARTERS
- - - COMMUNA BOUNDARIES
- TOWN BOUNDARIES
- . - COUNTY (JUDET) BOUNDARIES
- - - INTERNATIONAL BOUNDARIES



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