

## PARTNERSHIP BRIEF

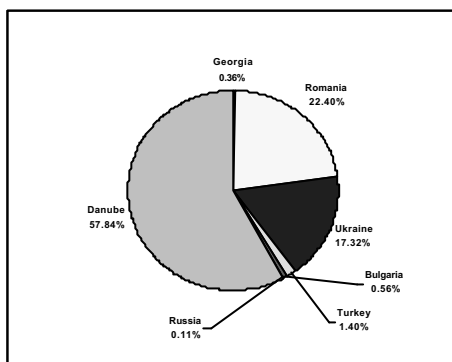
**GEF Strategic Partnership on the Danube/Black Sea Basin, Element 3 -  
World Bank -GEF Nutrient Reduction Investment Fund, Phase 1**

**The Challenge**

1. The Black Sea is facing a potential ecological disaster. Its fragile ecosystems, stable until the late 1960s, have gone into a steep decline caused by two events. The first of these was a disruption of the ecological balance due to the eutrophication in large areas of the sea, particularly the northern shallows, caused by increased nutrient loads from agricultural, industrial and municipal sources along the coast and tributary rivers, particularly the Danube. Second, native species have been destroyed by aggressive exotic species introduced through ballast waters of ships, which have thrived as a result of eutrophication. Together these events led to a sharp deterioration in coastal water quality, an acute decline in benthic communities and a rapid decrease in fishery yields.

Between the 1960s and today, Romania and Bulgaria have seen a tenfold drop in the Black Sea fishery catch; moreover, the catch is now skewed toward smaller less valuable species (only 6 of the 26 previously commercially fished species). Extremely valuable algae beds have been reduced from more than 10,000 square km to less than 1,500. Only a small fraction of 15 million potential tourists has been realized (reductions of more than 50% are common) with huge economic and employment losses to the littoral areas. Health impacts associated with environmental degradation and inadequate infrastructure are also evident across the region, with more than 21,000 cases of serious water-borne infections a year in littoral states.

2. The Black Sea and its main tributary the Danube River face additional threats from growing international shipping traffic and from potential discharges of polluting substances. The January, 2000 Tisza River cyanide spill, which originated in Romania and wove its way downstream toward neighboring riparian countries, is a prime example of how these shared water resources in Central Europe are vulnerable to the effects of individual incidents and decisions.



3. While the Black Sea littoral states (Romania, Bulgaria, Turkey, Georgia, Russia, Ukraine) quickly became aware of the economic losses caused by the ecological degradation of the Sea and the pollution originating in the Danube, it became evident that any possible solution would require a regional approach. The Danube River contributes the highest nitrogen loads to the Black Sea, with Romania being the largest source(Figure1).

Phosphorous loads from the Danube comprise a similarly large share relative to the contribution from littoral states. No state acting alone could rescue either the sea or the river, because all 17 states of the two wider drainage basins, including the riparian states of the Danube and other rivers such as the Dnipro, Dnister and Don, contribute to the cumulative nutrient and pollution bads. In response, the countries of the region drafted and signed the Bucharest and Sofia Conventions for the protection of the Black Sea and the Danube in the early 1990s and launched two complementary Regional Environmental Programs. The structure of the Conventions and the Programs, although complex, provides a framework for regional cooperation. It also allows the linkage of the many actions and instruments to effectively address the recovery of the ecological balance of the Danube River and the Black Sea.

4. Current poor economic conditions have resulted in a decline in the discharge of nutrients and other pollutants to the Danube and Black Sea, accompanied by a noticeable improvement in ecosystem conditions. This demonstrates that it is possible to reverse the current degradation of the Black Sea over the medium to long term if nutrient reduction measures are implemented. It also underscores the importance and urgency of taking steps to prevent a return to higher levels of nutrient and pollutant discharges now, before a more accelerated economic recovery and expansion occurs. The severity of ecological degradation could be aggravated to the point of irreversible damage, if the expected increase in economic activity is not accompanied by well planned and effectively implemented preventive environmental measures.

### **The Planning Process**

5. The Global Environment Facility (GEF) has played an important role in supporting the establishment of the Environmental Program for the Danube River Basin (EPDRB) and the Black Sea Environment Program (BSEP) since the inception of these programs in 1991 and 1993. GEF funding, with the support of the United Nations Development Programme (UNDP) and the World Bank, has been instrumental in helping establish regional coordination and institutional cooperation, critical to successful implementation of the long-term multi-country strategy supported by the two programs. GEF support has also been crucial in formulating the Strategic Action Plans (SAPs) for the Danube River Basin and the Black Sea. These efforts have raised awareness of the critical situation in the Black Sea, the pollution in the Danube and its significance in contributing nutrient loads to the Black Sea.
6. The Danube River Convention has been in force since October 1998 with its permanent Secretariat established in Vienna in 1999 and an operating budget of contributions from the Contracting Parties, including the European Union (EU). The Istanbul Commission, established in 1992 under the Bucharest Convention, has its Secretariat in Istanbul which is also functioning and operating with contributions from its littoral states. The two Secretariats have served as program implementing agencies and coordinators of parties working on common water basin issues. They also serve as primary information resource centers for Black Sea and Danube issues. With the support of EU TACIS and PHARE, regional institutions and regional

centers focused on priority international water technical issues needing focused attention (i.e. biodiversity, monitoring, oil spill control, etc..) have been established in various member countries, and their work has increased the regional implementation capacity for future interventions.

7. The Danube and Black Sea Programs, with support from GEF, have developed strategies and identified priority “hot spots” for investments where interventions are needed to address transboundary concerns, particularly nutrient reduction. However, to date, there has been limited investment in the priority projects identified by the two SAPs, and those which have been implemented are ad hoc in focus and impact. Black Sea and Danube “hotspots” have not yet figured prominently in national public investment priorities. This is understandable, because key environmental benefits of addressing these hotspots are primarily transboundary, and potential local benefits of the investment have not been highlighted, or fully understood. Also, the economic crisis has limited the availability of national funds.
8. For future interventions, the GEF and its implementing agencies (UNDP, UNEP, and the World Bank) have agreed to a Proposed *GEF Partnership on Nutrient Reduction for the Danube/Black Sea Basin* that supports next steps in implementing the Danube and Black Sea SAPs. The Partnership’s programmatic approach includes two regional projects to assist countries in their efforts to adopt policy, legal, and institutional reforms through the Danube and Black Sea Secretariats and an Investment Fund to co-finance nutrient reduction investments. Under this Partnership with GEF, the UNDP and UNEP will focus on implementing the two technical assistance projects, and the World Bank will administer the Nutrient Reduction Investment Fund.
9. The World Bank GEF Investment Fund for Nutrient Reduction was endorsed by World Bank ECA Management in May 2000. A concept paper was distributed at the May 2000 GEF Council meeting together with three model project types, with the understanding that the Partnership would be submitted to the November, 2000 Council for approval. The Partnership was presented to the Black Sea and Danube Commissions at meetings in June and September, 2000 where their endorsements of the proposal were received. The Partnership could not be submitted to the November 2000 GEF Council Meeting due to an unexpected GEF funding shortage. As a result, the Council was provided with a progress report for the November meeting. A decision on procedural arrangements between GEF and the two agencies in the light of funding shortages was reached in December, 2000 and posted on the GEF Secretariat’s web site. Council submission of the Partnership was deferred to May 2001 with funding of a reduced first tranche for the Investment Fund, and the remaining funding to be allocated against progress reports at future GEF Council meetings.
10. Within the World Bank, a Partnership Coordination team has begun to work with program team leaders in the Bank infrastructure, environment and agriculture sectors, as well as with Bank country units to raise awareness in regional client countries on the need for nutrient reduction in the Black Sea/Danube Basins and the availability of

the Investment Fund. These efforts have led to initial project proposals by several countries. The European Commission (EC) has declared its strong support for the restoration of the ecological balance in the Black Sea and its readiness to take the political lead in promoting the Partnership objectives. An interagency and donor meeting was hosted by the EC in February 2001, with the aim of establishing better coordination for nutrient reduction investment financing among IFIs, and multilateral and bilateral donors. The Commission has indicated its readiness to cooperate with the Investment Fund through its various regional investment programs (Phare, TACIS, ISPA, Europe Aide, SAPARD, MEDA Turkey) under a Memorandum of Understanding between the EC and the World Bank, signed in March 2000.

### **The Proposed Nutrient Reduction Investment Fund**

11. An Investment Fund funded by the GEF and implemented by the World Bank, focused on the recovery of the Black Sea, is proposed as a means for catalyzing an investment response necessary to accelerate urgent action by a wide group of stakeholders. This Investment Fund will provide a regional context under which countries can pursue investments aimed at common nutrient reduction goals, and help jump start and further accelerate key investments. As a part of this partnership, the GEF will commit to a targeted envelope of US\$70 million, approved in several tranches based on progress reports submitted to the GEF Council.
12. The World Bank's role in the Partnership will be to promote use of the Partnership funds in country-based dialogues with stakeholder governments; to promote inclusion of Black Sea/Danube issues in the ongoing Country Assistance Strategy (CAS) process; to promote policies that address nutrient reduction; and to use the Bank's convening powers to engage other donors and partners in helping meet financing needs. Grant funds provided under the Partnership will both help leverage World Bank investment lending with borrower countries, and attract additional resources from other international lenders and donors toward the same nutrient reduction objectives.
13. Four key elements of an Investment Fund are: (1) the up-front commitment to an envelope of funds by the GEF Council to signal the availability of a *predictable envelope* of grant financing for beneficiary countries and co-financiers to access; (2) delegated authority for project approval to the GEF Chief Executive Officer; (3) the bundling together of critical investment needs to promote *higher political visibility* and interest; and (4) a design framework that takes advantage of on-the-ground learning to *replicate* and transfer investment experiences throughout the region. These four key elements provide the backbone of the strategy proposed.
14. A strategic regional approach to investments has a number of important advantages. A regional investment framework provides a vehicle for focusing individual country investments on regional objectives, helps to transfer knowledge and share best practices, and promotes adoption of policies to achieve common objectives. Stakeholders in individual countries can gain satisfaction from knowing they are doing their part to contribute to wider regional investment. A regional framework

provides a better mechanism for cooperation with a multitude of diverse partners, for example, the EU has a significant role to play as a political mobilizer for action and cofinancier of investments in this region. A strategic versus individual project-by-project approach provides a more cost-effective vehicle to demonstrate benefits. A strategic approach will also help provide a targeted timeframe to promote action over a shorter period so that more tangible results can be achieved

### **Implementing the Investment Fund**

15. **Role of the Bank.** Overall program management and oversight responsibility will rest with the World Bank. In addition, the World Bank will commit to:

- Promoting the Investment Fund in country dialogues;
- Including the Black Sea and Danube perspectives in relevant World Bank Country Assistance Strategies (CASs) as they are updated;
- Promoting policies that address nutrient reduction as part of country dialogues;
- Being a champion and helping to mobilize funds for nutrient reduction investments in dialogue with countries and the donor community;
- Working closely with UNDP and UNEP to maximize coordination between the regional TA projects and individual investment projects; and
- Working closely with the Secretariats of the two Commissions on the project selection/preparation process, ensuring that the projects address priority hot spots and actions, and during implementation, keeping them informed on the project's progress and impact.

Administrative costs for management of the Partnership will be provided by standard GEF agency fees, which will be over and above the US\$70 million intended for direct investments.

16. **Types of Projects**<sup>1</sup>. Three types of projects (or a combination thereof) will be eligible for financing under the Partnership:

- Restoration or creation of wetlands that reduce nutrients discharge or loads.
- Reform and improvement of agriculture and land management practices with impact on nutrient use and/or non-point discharges through run-off.

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<sup>1</sup> Three model projects were presented with the proposed Partnership paper to the May 2000 Council: Russia-Rostov Reduction of Nutrient Discharges and Methane Emissions Project; Bulgaria Wetlands Restoration and Pollution Reduction Project; and Romania Black Sea Agricultural Pollution Control Project. The projects are at various stages of preparation. Draft Project Concept Documents are attached to this document.

- Wastewater treatment in communities and industries, for reduction of nutrient discharges.
17. **Leveraging.** A critical goal of the proposed Investment Fund will be to increase GEF grant leveraging against other project financing sources, and to increasingly encourage other partners to take over larger shares of nutrient reduction investments. A minimum leveraging ratio of 1 (GEF) to 0.5 (other) has been established and will only be allowed in very exceptional cases such as countries with the most significant resource constraints or wetland restoration projects. These will be offset by other investments, such as nutrient reduction at wastewater treatment plants, where the proportion of GEF incremental cost financing will be expected to be significantly lower. The total program leveraging target is a 1 (GEF) to 3 (other) ratio by the end of the program. Co-financing may be obtained from a combination of national sources, loans from the World Bank or other IFIs, or additional grant funds from the EU and bilateral sources. Participation in the Partnership does not necessarily require the use of loans, but it does require counterpart finance which will include in-kind contributions from countries or other donor support. Progress reports for approval of subsequent tranches will discuss progress toward leveraging goals.
  18. **Replicability.** A second important goal of the Investment Fund will be to promote replication of nutrient reduction investments within the Danube and Black Sea Basins. Since the Investment Fund will provide only a small portion of the investment needs to achieve significant reductions in nutrient loads – the proposed fund will specifically finance project components that promote wider replication of the investments. As an incentive for projects to include replication components targeting other countries - replication components up to US\$0.5 million per project will not be counted against the GEF amount for purposes of leveraging requirements. For example- communications campaigns, study tours, and other replication activities cooperating with other countries in the region will be encouraged.
  19. **Monitoring and Evaluation.** The Investment Fund will place a high importance on monitoring and evaluation of nutrient reductions from individual projects because of the role that this information can play in demonstrating benefits and encouraging replication of investments. Each individual project will have its own national monitoring indicators, benchmarks and monitoring plan to measure nutrient reduction. Monitoring indicators will be useful to retrospectively measure the actual cost effectiveness of investments and to guide future investment prioritization.
  20. **Progress reporting.** Joint progress reports to the GEF Council will be prepared on the Black Sea/Danube Strategic Partnership by the World Bank, UNDP, and UNEP periodically when resource commitments (tranches) are requested. For example, a progress report will be submitted to the Council with each tranche request to fund the Investment Fund or the Regional Projects. Reporting for the Investment Fund will consist of progress to date on program leveraging targets; a description of the project pipeline and the stage of development of each project proposal; and coordination of the fund with the regional projects and other key partners.

21. **Investment Program Eligibility.** Project proposals from countries in the Danube River Basin and the Black Sea will need to fulfill the following basic eligibility criteria for financing under the Investment Fund:

- Be of one of the three eligible project types (as described earlier in paragraph 16).
- Respond to regional priorities as identified by the respective SAPs adopted by the Danube and Black Sea Commissions, and be selected as a priority investment in the proposing country's Black Sea or Danube National Environmental Program. The project proposal should clearly explain what sources of nutrients are targeted and why this project area is a priority in the proposing country.
- Have secured financing for non-incremental project costs and ensure that the minimum leveraging requirement is met.
- Adhere to the principles of the GEF Operational Programs. Projects will follow the approaches of Water Body-Based Operational Program (OP 8) and Contaminant-Based Operational Program (OP 10), particularly in the selection of projects with crosscutting and demonstration potential and proven implementation capacity.
- Submit an endorsement from the proposing country's GEF focal point.
- Ensure that the country is up-to-date on its contributions to the Black Sea and/or Danube Commission(s) and Secretariat(s) to which they belong.

Additionally,

- Project proposals will be encouraged to include country-expressed commitment to policy, institutional, or legal reforms related to regional nutrient reduction and improved water quality management.
- Whenever a project has potential for additional global environmental benefits, such as conservation of biodiversity (for example, through management and/or rehabilitation of a site designated as of international significance under the Ramsar Convention) or reduction of greenhouse gas emissions, the existence of such additional benefits will be a positive factor, but not constitute *per se* an eligibility condition. In all cases, nutrient removal is the essential eligibility condition for projects.

### **Project Cycle**

22. Projects will be identified by the proposing country, with assistance from the World Bank and/or other eligible financiers and either the Danube or Black Sea Commissions.<sup>2</sup> No portion of the GEF grant will be earmarked for any individual

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<sup>2</sup> The World Bank would assist countries or mobilize donor support for strengthening their institutional capacity for project development.

country or specific project. All eligible countries will have an equal opportunity to benefit from the GEF allocation to the Investment Fund and will be encouraged to submit project proposals. Project proposals submitted by riparian countries will each be considered based on merit. In the interest of speedy advancement of investments, funds will be made available to countries on a "first come first served" basis in line with standard project processing procedures.

23. Eligible projects will be prepared and appraised under standard World Bank procedures before being submitted to the GEF Secretariat for GEF Chief Executive Officer (GEF CEO) approval. Project concept notes will be submitted to the World Bank Investment Fund Coordinators for screening against Partnership eligibility requirements and for assistance in elaboration of project designs. These notes will subsequently be submitted to the GEF Secretariat for approval by the World Bank GEF Regional Coordinator on a rolling basis following standard procedures for formal "pipeline entry". A project concept note should indicate whether or not a PDF-B (preparation grant) will be requested. Preparation grant resources will be allocated separately from Investment Fund resources. Projects under the Partnership will not be submitted to the GEF Council for approval through standard work programs at Council Meetings or Intersessionals. Rather, upon completion of project preparation, the World Bank will submit projects to the GEF CEO for endorsement following streamlined procedures similar to procedures for GEF medium sized projects. If found satisfactory, the GEF CEO will approve individual projects up to the funding limit of each Investment Fund tranche. Projects will be processed to the World Bank Board of Directors for final approval and implemented following standard World Bank procedures. The financial management, procurement and disbursement procedures of the World Bank will be used.
24. If the Investment Fund co-finances with another IFI which has executing agency status with the GEF (i.e. under the expanded opportunities policy such as EBRD), the management arrangements will follow existing procedures established for World Bank and Executing Agency Cooperation. For example, standard project appraisal procedures and fiduciary requirements of the applicant executing agency and not the World Bank will be in effect. PDF-B submissions to GEFSEC in this case will also be handled by the Executing Agency instead of the World Bank. The World Bank's role with respect to such Executing Agencies will be for the Investment Fund Coordinators to provide guidance to the applicant Agency on project eligibility, and reporting vis a vis the Partnership; to ensure coordination with the overall Investment Funds activities, to include the status of these projects in routine reporting of the Partnership; to ensure that monitoring and evaluation aspects of these projects are consistent with other Partnership proposals; to act as the GEF Implementing Agency for the project; and for the World Bank GEF Regional Coordinator to process projects for CEO Endorsement. When the Investment Fund co-finances with other donors and agencies where there is no prior agreement for cooperation on the GEF, the GEF components of these projects will be processed as a standard World Bank operation.



## Conclusion

25. Declaration of approval for the Investment Fund by the GEF Council will give a strong signal to potential recipient countries that grant funds will be made available. The declared Strategic Partnership for the Recovery of the Black Sea will also help begin to steer co-financing by other donors to the nutrient reduction investment objectives. It is expected that private sector interest and action will also be catalyzed through the presence of the Partnership. As a first model for a more programmatic investment approach in the International Waters Focal Area, it will serve as a model for the future, in line with GEF commitments and trends to move toward more strategic approaches.
26. Access to these funds in the medium and long term will give leverage to environmental governmental bodies, local governments and agricultural interests in their efforts to cooperate with their respective ministries of finance in implementing environmental protection measures. This should assist in moving the regional/global environmental agenda to a higher rank in national investment priorities. Moreover, a regional partnership will help lower perceived risk that the impact of investments for protection of international waters could be adversely affected by the behavior of neighboring states.
27. For more information on the GEF-World Nutrient Reduction Investment Fund contact:

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## Annexes:

- Annex 1:** PCD: Bulgaria - Wetlands Restoration and Pollution Reduction Project
- Annex 2:** PCD: Romania - Black Sea Agricultural Pollution Control Project
- Annex 3:** PCD: Russian Federation - Rostov Reduction of Nutrient Discharges and Methane Emissions Project

# **ANNEX 1**

## **Bulgaria** **Wetlands Restoration and Pollution** **Reduction Project**

### **DRAFT** **Project Concept Document**

BULGARIA

Wetlands Restoration and Pollution Reduction Project (GEF)

**Project Concept Document**

Europe and Central Asia Region  
Environmentally and Socially Sustainable Department Sector Unit (ECSSD)

<b>Date:</b> March 25, 2001		<b>Team Leader:</b> Rita E. Cestti		
<b>Country Manager/Director:</b> Andrew Vorkink		<b>Sector Manager/Director:</b> Marjory-Anne Bromhead		
<b>Project ID:</b> P068858		<b>Sector(s):</b> VM - Natural Resources Management		
<b>Focal Area:</b> I - International Waters		<b>Theme(s):</b> Environment		
		<b>Poverty Targeted Intervention:</b> N		
<b>Project 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>Total Project Cost (US\$m):</b> \$13.50		<b>Cofinancing:</b> Yes		
<b>Total Bank Financing (US\$m):</b> 7.50				
<b>Has there been a discussion of the IBRD financial product menu with the borrower?</b> No				
<b>Financing Plan:      Source</b>				
		<b>Local</b>	<b>Foreign</b>	<b>Total</b>
BORROWER		0.00	0.00	0.00
GLOBAL ENVIRONMENT FACILITY		7.50	0.00	7.50
BILATERAL AGENCIES (UNIDENTIFIED)		3.00	0.00	3.00
MULTILATERAL INSTITUTIONS (UNIDENTIFIED)		3.00	0.00	3.00
<b>Total:</b>		13.50	0.00	13.50
<b>Borrower/Recipient:</b> GOVERNMENT OF BULGARIA				
<b>Responsible agency:</b> MINISTRY OF ENVIRONMENT AND WATER				
Wetlands Restoration and Pollution Reduction Project - Project Preparation Unit				
<b>Address:</b> 22 Maria Luisa Blv. Sofia, Bulgaria				
<b>Contact Person:</b> Ms. Marietta Stoimenova, Project Manager				
Ministry of Environment and Water				
<b>Tel:</b> 359-2-940-6551		<b>Fax:</b> Fax: 359-2-980-5561		
<b>Wetlandsppu@yahoo.com</b>		<b>Email:</b>		
<b>Project implementation period:</b> 5 years				

## **A. Project Development Objective**

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

The global environmental and project development objective is to assist Bulgaria in meeting its national and international commitments to reduce transboundary nutrient loads and to conserve biodiversity in the Danube and Black Sea Basins through improved management and sustainable use of water resources and restoration of wetlands.

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

Key performance indicators include:

- Decrease in nutrient loads immediately downstream from the project sites in the Danube due to wetland restoration;
- Sustainable management and use of floodplain wetlands in demonstration sites on the Danube;
- Increased capacity of responsible institutions to formulate water sector-related policies, within a framework of sustainable river basin management plan; and
- Increased well-being –over the long term, of local communities who depend on the Danube River for their livelihoods;
- Globally significant biodiversity protected.

## **B. Strategic Context**

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

**Document number:** 17655-BUL

**Date of latest CAS discussion:** 04/09/98

One of the five pillars of the Country Assistance Strategy is protecting and enhancing the environment and ensuring prudent and rational utilization of natural resources. Of special note are: (a) pollution problems of the Black Sea; (b) the need for measures to conserve Bulgaria's globally significant biodiversity; (c) assisting the government to implement new legislation which complies with EU environmental directives. This project supports all of these areas.

First, it addresses the issue of non-point source pollution by reducing the nutrient load carried by the Danube which alone contributes almost 60% of the nutrient load reaching the Black Sea. Second, the selected wetlands harbor globally significant biodiversity, notably as spawning and feeding habitats for several endangered species of fish and waterfowl. Third, the project focuses on helping the government implement the newly enacted legislation on wetlands, water quality, and land-based sources of pollution. Project assistance will accelerate the process of meeting EU accession criteria in the water and natural habitats sectors.

This project demonstrates a clear poverty/environment link. The Danube region is one of the poorer areas in Bulgaria. The main reasons for this is the decreased economic productivity of the Danube River, which has seen a tenfold drop in fishery catch since the late 1960's, seriously affecting rural incomes. One of the underlying causes of the decrease is the destruction of riverine wetlands necessary for fish spawning. Hence, linking wetland restoration with sustainable use in the region will help increase the well-being of local communities.

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

The project is fully consistent with Global Environment Facility (GEF) Operational Program (8) under the International Waters Operational Strategy regarding water bodies. The project addresses the highest priority transboundary problem identified in the Strategic Action Plans (financed by the GEF and the EU) of both the Black Sea and the Danube River. Under the project, the Bulgarian Government will undertake a comprehensive program addressing the problem of nutrient loads in the basins. The increased capacity of the Government to plan and implement this program of river basin development, the development of a national wetland restoration strategy, and innovative pilot activities in wetland restoration have clear transboundary (global) as well as national benefits. The incremental costs associated with these benefits are additional to other actions which have clear domestic benefits which will be taken to reduce nutrient run-off

such as the construction of waste water treatment plants and introduction of low-impact agricultural practices. Taken together, these global and national benefits will lead to significant improvements in the health of the Black Sea.

The project also has significant biodiversity conservation benefits, consistent with eligibility criteria outlined in the GEF Operational Strategy OP2: conservation of coastal, marine, and freshwater biodiversity. Restoration of the original water flow patterns to wetlands and floodplains will help recreate natural habitats and conserve existing ones in three sites with globally significant biodiversity.

Bulgaria's National Biodiversity Strategy (1994) identifies the Danube wetland complex targeted by the project as the most representative of riverine wetlands and of international importance for waterfowl habitat. It has been proposed as a Ramsar site. Similarly, the Bulgarian National Plan for the Conservation of the Most Important Wetlands (1995) considers the two proposed project sites as high priority areas for restoration. One of the proposed project areas, Belene Island, is of particular international importance such as a breeding habitat for the endangered white-tailed eagle and nesting herons. The project sites also serve as nesting places for the Ferruginous Duck (*Aythya nyroca*) and the endangered Dalmatian Pelican (*Pelecanus crispus*).

*Consistency with World Bank/GEF Strategic Partnership.* The Government has requested assistance from the GEF/Bank to undertake an innovative approach to wetland/floodplain restoration linking land use change with sustainable use and economic development. While acknowledging that restoration should be undertaken in conjunction with other measures such as waste water treatment facilities and industrial water treatment, the critical role wetlands and floodplains can play has been well documented. (Floodplains are high efficiency water purifiers during both flood and dry periods. The self-purification action is a complex interaction of physical (sedimentation, filtration, absorption), microbiological (denitrification) and biological processes (nutrient reduction through aquatic micro and macrophytes and the roots of terrestrial vegetation). According to several studies in similar ecological conditions, floodplains can retain up to 90% of nitrates and up to 50% of phosphorous passing through.).

This project is being proposed to come under the umbrella of a proposed World Bank/GEF Strategic Partnership for Nutrient Reduction in the Black Sea/Danube Basin. This partnership is intended to help catalyze investment in priority hot spots for nutrient reduction within countries of the Danube and Black Sea Basins. Wetland restoration investments to promote nutrient filtration consistent with this project design, is one of three project types the Strategic Partnership would promote (it also supports agricultural investments to help control nutrient runoff; and industrial and municipal wastewater investments targeting point source nutrient discharges). As the first wetlands restoration project to be proposed under the Strategic Partnership - the Bulgaria project would play a critical demonstration role within the region and help to promote similar investments in the region. The Strategic Partnership framework will help ensure lessons learned during implementation of this project will be disseminated to enhance future project designs.

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

### **Overview**

The Black Sea, a critical regional resource, suffers severe environmental damage from eutrophication (i.e. choking and collapse of food chains due to loss of oxygen), declining water quality due to insufficiently treated sewage, introduction of exotic species, inadequate resource management, and loss of habitat -- all of which have led to long-term ecological change and a decline of its biological diversity. In-depth analytical work points to eutrophication, caused by an increase in nutrient flux down the major rivers, as the most serious problem facing the Danube River and the Black Sea over the medium to long-term. The effects of eutrophication on the northwestern shelf of the Black Sea at the mouth of the Danube have had particularly disastrous impacts to water quality, natural habitat, and fish populations on which both biodiversity and human populations depend.

The Danube River is one of the continent's largest and most important rivers linking Central and Eastern Europe. It flows about 2900 kilometers through ten countries including 300 tributaries, from Germany to the Black Sea, draining

817,000 square kilometers. The lower Danube is also one of Europe's most polluted rivers. It contributes approximately 60% of the nutrients of the Black Sea. Approximately 60% of the nitrogen compounds and about 66% of the phosphorous compounds originate from non-point sources within the Danube watershed.

*Regional action to clean up the Danube/Black Sea.* In response to growing concerns about the pollution of the Danube, and in recognition of the fact that significant nutrient reduction requires regional commitment, the thirteen Danube River riparian countries joined to draw up the *Convention on the Cooperation for the Protection and Sustainable Use of the Danube River*, signed in 1994 and entering into force in 1999. Implementation monitoring of the Convention is the responsibility of the International Commission for the Protection of the Danube River (ICPDR). Similarly, the six Black Sea countries decided that joint action to save the Black Sea was urgently needed, and in 1992, signed the Bucharest Convention for the Protection of the Black Sea Against Pollution (ratified in early 1994). The Bucharest Convention was given additional impetus in 1993 by the Odessa Ministerial Declaration on the Protection of the Black Sea Environment, also endorsed by Bulgaria. Nutrient reduction is the highest priority issue for both programs.

*Role of Bulgaria.* The Danube forms the border between Bulgaria and its northern neighbor Romania for 472 kilometers before continuing through Romania to the Black Sea. More than half the area on the Bulgarian bank of the Danube is floodplain, covering 1280 square km. Over the years, the wetlands and floodplain has been drained or dyked to create arable land or as an anti-malaria measure, such that today's wetlands cover only about 10% of the area that existed at the turn of the century and hence cannot perform their original ecological function. Although about half of the country drains into the Danube River, Bulgaria is not the largest contributor of nutrient loads to the river. The Transboundary Diagnostic Analysis (TDA) undertaken by the Black Sea 1993-99 indicates that Bulgaria places third of the Black Sea states in terms of the nitrogen (N) and phosphorous (P) it contributes to the Sea, and accounts for between 1%-5% of the total pollution.

Actions which Bulgaria might take to address the issue of transboundary pollution have to be matched with a program addressing real national priorities in order to be politically and financially justified. Government and local officials are eager to integrate interventions which address the issue of transboundary pollution and global biodiversity benefits with efforts towards meeting EU Accession requirements related to EU Directives on Water Policy and Environment. Other national benefits include opportunities for sustainable use of aquatic water resources and income generation for local communities. This approach which integrates global and national development objectives increases the likelihood of long-term project success.

### **Main Water Sector Issues**

Bulgaria faces a number of issues as it attempts to comply with its international commitments to reduce nutrients and generally clean up the Danube/Black Sea, and to meet national environmental standards for EU accession. These include:

(a) *Water quality and nutrient reduction.* Water in Bulgaria is a scarce resource, with per capita endowment less than half the average for European countries. One third of the country faces permanent or seasonal water shortages. Nitrogen content exceeds drinking water standards in a number of rural settlements. The water scarcity problem is aggravated by pollution from various sources, especially agricultural run-off, inadequately treated urban waste waters, changes in hydrological conditions and the decline of water ecosystems. The underlying causes of the pollution include lack of resources for the construction of waste water treatment plants with appropriate treatment capacity in a number of Bulgarian towns, inappropriate agricultural practices, industrial pollution, and to a lesser extent in the present economic situation. For example, 49% of all waste water generated (incl. 43% of industrial waste waters) are discharged directly into the environment without any preliminary treatment. Nationwide, half of the towns with population over 50,000, and about 75% of the towns with population over 10,000 people have no waste water treatment plants (WWTP). According to the Transboundary Diagnostic Analysis (TDA), Bulgaria contributes approximately 7,500 tons of nitrogen (N) and 720 tons of phosphorous (P) per year into the Danube. For the Black Sea, the numbers are significantly higher: 2,480

tons of N and 693 tons of P from domestic sources, and an additional 2,000 tons of N and 432 tons of P from its rivers flowing into the Black Sea.

*(b) Need for effective management of river basin development.* Legislation was recently passed requiring watershed-based management system be implemented for the four main river watersheds. Currently, water management responsibilities are split between a number of organizations with different priorities, lacking effective coordination. The Ministry of Environment and Water (MOEW) is charged with coordinating all environmental issues and implementing environmental policy. The Ministry of Agriculture, Forests and Agrarian Reform (MAFAR) is responsible for irrigation of agricultural land, for land registration, and for forest activities on the Danube islands. The Ministry of Regional Development and Public Works (MRDPW) manages the facilities for water supply and sewerage, while the Ministry of Health is responsible for the use of mineral waters. With the new legislation requiring that river basin authorities be set up, there will be a clear need to clarify roles and responsibilities of each of the actors. To meet EU accession requirements, the basins will need to develop nutrient reduction plans; a first step will be the analysis of the costs, benefits, and major opportunities for nutrient reduction in the short-and medium-term.

*(c) Biodiversity conservation and wetland restoration.* Bulgaria is one of the most biodiversity-rich countries on the Danube, particularly along the Danube and Black Sea coasts. The National Biodiversity Strategy (1994) as well as the National Wetland Strategy have identified priority areas for conservation and restoration of wetlands. Among those sites are areas on the Danube of international importance such as a nesting place of the Ferruginous Duck and the endangered Dalmatian Pelican. In its efforts to implement a wetland strategy consistent with EU directives on natural habitats and species, the Government has met with skeptical local community members who do not always appreciate the importance of wetlands for conserving globally significant biodiversity, for maintaining water quality, flood control and a variety of other environmental services. Public opinion has favored the draining of wetlands for other land uses, which is a direct result of the Government's policy over the last 50 years.

## **Government Strategy**

Bulgaria's strategy with regard to nutrient reduction has two main overarching objectives, namely, to:

Accelerate the process of EU accession. Early in its candidacy for membership in the European Union (EU), Bulgaria is evaluating (with Bank and EU assistance) what measures it needs to take to meet eligibility criteria, to analyze the costs, to explore cost-effective measures to meet the European Union accession requirements, and to plan a short and medium-term accession strategy.

Fulfill its obligations under several international agreements to which the county is a signatory. The country has committed itself to implement the Strategic Action Plans of the Black Sea and Danube Conventions. This includes participating in the development of a common Danube River Basin Management Plan in the framework of the Danube Convention. Efforts to restore water quality and water ecosystems are also relevant to the Ramsar Convention on Wetlands of International Importance, especially as waterfowl habitat, encouraging sustainable development and wise use of natural resources in wetland areas.

## **Recent and Planned Government Actions**

Actions which Bulgaria might take to address the issues of transboundary pollution have to be matched with a program addressing real national priorities in order to be politically and financially justified. Government and local officials are eager to integrate interventions which address the issue of transboundary pollution and global biodiversity benefits with efforts towards meeting EU accession requirements related to EU environmental directives. Other national benefits include opportunities for sustainable use of aquatic resources and income generation for local communities. This approach which integrates global and national development objectives increases the likelihood of long-term project success.

*Water quality and management.* In 1999, the Bulgarian Parliament adopted a new Water Act that reflects to a large extent the requirements of the proposed EU Water Framework Directive. It introduces a more integrated approach to water management based on river basins, ensuring better co-ordination among institutions (with assistance for training and implementation from the French Agence des Eaux, supported by an EU Twinning program.). The objective is to establish a river basin management authority and to train its staff to organize and manage the sector.

*Investments in point-source pollution.* The government has planned investments from the National Environmental Protection Fund for a small number of priority WWTP, identified according to a set of criteria. Virtually all cities on Danube tributaries are included in the *National Program for the Construction of WWTP for Settlements with More than 10,000 Inhabitants*. These resources, however are far from sufficient. Nutrient reduction investments are not address specifically by the plan. The Government will rely heavily on investment from international donors for the construction of WWTPs, in particular the EU PHARE Program and the EU ISPA instrument of the EC (Environment Strategy for ISPA, 1999). Hence the government is very interested in looking at low-cost technologies such as wetland restoration as a means of reducing nutrient loads and meeting water quality standards near smaller urban areas.

*Wetland restoration for biodiversity conservation and nutrient reduction.* The Government views wetland restoration as having several benefits: first, as a way to decrease transboundary pollution, second, as a means of preserving globally significant biodiversity, and third, as a possible source of revenue for local communities living in the poorer regions of Bulgaria. By restoring the spawning grounds for fish, the expectation is that the local fishing industry will make a comeback. Their strategy is based on the findings of the *Danube TDA* which includes an analysis of the potential impacts on the Danube of floodplain and wetland restoration.

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

The Project would support Government strategy on nutrient reduction and biodiversity conservation by addressing key sector issues and objectives by:

- Helping develop a program for nutrient reduction in the Danube/Black Sea Basin consistent with new policies and legislation;
- Undertaking an innovative and potentially high-impact wetland restoration program which combines conservation of biodiversity values, nutrient reduction, and sustainable management and use of aquatic resources;
- Assisting the Government meet its international obligations under the Bucharest Convention for the Protection of the Black Sea, the Danube River Protection Convention, the Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat.
- Assisting the Government to act on an accelerated schedule to comply with EU Directives — particularly on directives on water, nitrates, natural habitats and species—as part of the accession process; and
- Assisting the Government to develop institutional options for improving river basin management.



## C. Project Description Summary

### 1. Project components (see Annex 1):

The Project will support the restoration of critical wetlands in the Danube River Basin and the use of riparian zones as nutrient traps. It will also support sustainable management of selected areas in the floodplain of the Danube, improved water quality monitoring and public awareness. Identified components of the Project are as follows

Component	Sector	Indicative Costs (US\$M)	% of Total	Bank financing (US\$M)	% of Bank financing	GEF financing (US\$M)	% of GEF financing
Nutrient Reduction Plan and Policy Analysis	Natural Resources Management	1.50	11.1	0.00	0.0	0.50	6.7
Wetland Restoration		6.00	44.4	0.00	0.0	4.00	53.3
Water Quality Monitoring		1.70	12.6	0.00	0.0	1.00	13.3
Support to sustainable development activities		2.80	20.7	0.00	0.0	0.50	6.7
Public awareness		0.80	5.9	0.00	0.0	0.80	10.7
Project coordination		0.70	5.2	0.00	0.0	0.70	9.3
<b>Total Project Costs</b>			<b>13.50</b>	<b>100.0</b>	<b>0.00</b>	<b>0.0</b>	<b>7.50</b>
<b>Total Financing Required</b>		<b>13.50</b>	<b>100.0</b>	<b>0.00</b>	<b>0.0</b>	<b>7.50</b>	<b>100.0</b>

#### 1. Nutrient Reduction Plan and Policy Analysis

As part of Bulgaria's strategy to meet its international obligations as well as to comply with EU directives and new national legislation on water, the government is considering creating a new Danube and Black Sea Basin Authority (DBSBA). A major task of the new authority will be to develop an integrated plan for management of the Bulgaria Danube River Basin. As part of this plan, the project will assist in the development of a basin-wide strategy for nutrient reduction, led by the MOEW. The strategy will integrate all of the government's activities in support of nutrient reduction, including *the National Plan for Waste Water Treatment*, its low-impact agricultural programs, and its wetland restoration work. The plan will analyze the potential nutrient reduction impact of each activity (WWTP, agriculture, industrial pollution) undertake a financial analysis of the cost of implementing these measures (similar to the Bank/Government of Poland study, *Meeting the Costs of Accession to the European Union*, but focusing more directly on the water sector). The study will: (i) examine cost-effective measures which can be used to improve water quality, (ii) analyze the policy framework hindering introduction and use of cost-effective measures, and (iii) recommend changes in those policies to encourage adoption. Other donor financing, particularly the EU program for accession countries would finance complementary activities and related training. (*Approximate cost: \$1.5M; GEF Contribution: \$0.5M*)

#### 2. Wetlands Restoration

This is the most innovative activity to be financed under the project, and if successful, will have high replication value throughout Bulgaria and the region. The proposed project sites are among the 16 former floodplains with potentially high environment benefits recommended for restoration in the GEF-financed Pollution Reduction Program study of the Danube Commission. The Bulgaria sites all border larger potential restoration areas in neighboring Romania. Selection criteria for the sites targeted under the project included

- ecological potential
- floodplain type
- floodplain width
- current land use, and
- nutrient reduction potential.

The two proposed sites are briefly described below. More detail is available in annex 4.

(a) Kalimok and Brushlen Marshes (2,000 ha). The site is located about 60 kilometers east of Russe, the administrative capital of the Danube Region near the small town of Tutrakan. Up until the 1950's, the extensive marsh complex near Tutrakan was a key part of the region's valuable fish resources, providing the communities food, breeding grounds and nurseries. In the 1950's, a dyke was constructed between Russe and Tutrakan, cutting fish off from the marshes. Fish ponds were constructed, severely damaging the marsh ecosystem. In 1993, following the collapse of the state farming system, the fishponds were declared bankrupt and the system abandoned. The fishponds were purchased by Green Balkans and will be contributed to this project (560 ha.). The original marshlands are now state-owned, and much of this area has reverted to reed beds. Areas bordering the marshes are privately and municipality-owned and used for agriculture.

(b) the Belene wetland complex upstream from Tutrakan, situated 18 kilometers west of Svishtov. This is an extensive complex of two large islands (Belene Island is 15 km long) and 12 smaller islands. The land belongs to the Ministry of Justice, although MAFAR has the right to maintain plantation forests on the islands. Prior to 1991, the island was home to political prisoners; more recently, it is a regular prison. The island complex has enormous potential for wetland restoration, according to preliminary design work. However, in order to keep land issues as simple as possible, only land belonging to the state which not under agricultural production would be included in this project (approximately 1,000 ha., although the technical feasibility study will investigate options of up to triple this area).

The Kalimok site has the most advanced design prepared by the Green Balkans (Bulgarian NGO) and, financed by both EU Phare and World Wildlife Fund (WWF)/Danube Programme. Other donor financing is being sought to complete the technical design for hydrological work at the site. Under this project, the GEF would finance the civil works, including removal of parts of dikes, construction of sluices for emergency control, removal of existing levees, and reconnection of former river branches to the Danube river dynamics. Similar civil works are needed at the Belene Island which has a preliminary hydrological study and site restoration plan, but will need more detailed design work.

Several studies need to be undertaken during project preparation in addition to the detailed technical design work mentioned above. These include an economic valuation study to quantify the economic and nutrient reduction benefits of various flooding scenarios currently under discussion (see technical and social issues section). The land-use and social assessment studies are particularly important because if, as preliminary findings indicate, grazing and meadows are more economically attractive than low-productivity agriculture, the 59 land owners currently owning land on the outskirts of the project area may wish to switch to a different land use more complementary to wetlands, thus allowing the project to purchase these lands and expand the project zone. Secondly, a water modeling study will be undertaken at one site, probably Kalimok, to gain a better understanding of the nutrient stripping potential of wetlands under various management regimes. Final site designs will be agreed to with the local communities based on a synthesis of these study findings.

Management plans, including requirements for ecological viability and measures to ensure sustainable use of the restored site would be developed for each site. The plans will include a monitoring program to regularly assess water quality and ecological health. Once the initial technical design is agreed to, site plans will require detailed engineering designs for restoration (civil works) and maintaining the hydrologic and ecological conditions essential for nutrient uptake. Training for MoEW and local staff in the management of the wetlands will be included. While most training will be conducted on-site, staff will also visit successful restoration sites in Europe to see first-hand how these sites are restored, managed and monitored.

In this first stage, approximately 3,000 ha of government/municipality-owned land with uncomplicated ownership and land use will be restored. Total nutrient reduction potential from this area, using the most conservative estimates of nutrient reduction potential (see technical issues), is approximately 375 tons of nitrogen and 37 tons of phosphorous/year. This projects an incremental cost ratio of \$106/ton /year for nutrient reduction under the project.

At the national level, MoEW staff will synthesize and integrate the considerable wealth of information into a wetland restoration strategy and program for the Bulgarian Danube and Black Sea regions. Donor interest and availability of

government funds to finance these will be ascertained. With implementation funding secured, initial restoration plans for selected sites will be completed.

At the regional level, the wetland restoration work will benefit from working closely with wetland restoration activities proposed in Romania at the Calarasi wetland complex under the Romania Agricultural Pollution Control GEF project. (In addition, the Romanian Balta Graeca floodplain directly across from the Tutrakan site which was highlighted in the Danube TDA recommendations as an exceptionally promising restoration site may also be restored. It is one of the sites included in the WWF Lower Green Danube Corridor Project being submitted for co-financing from European donors. If this happens, a joint management plan for the broader complex will need to be formulated.) The Romanian Danube Delta Authority, which has considerable experience in the management of wetlands and of working with local communities on the Delta has also expressed interest in working with the Bulgarians to share expertise and lessons learned. (*Total cost: \$6M; GEF contribution \$4M*)

### **3. Water Quality Monitoring**

It will be critical to monitor water quality upstream from the demonstration sites, and just below the wetlands to determine the nutrient reduction and overall improvements in water quality achieved relative to expectations. A comprehensive, well designed, and functioning monitoring system is needed to enable identification of problems, to evaluate the cost effectiveness of management actions, and to identify the need for future measures. Other impacts, including anticipated biodiversity improvements will also be monitored. This project is setting the precedent and standard for other nutrient load monitoring systems in Bulgaria, and in other Danube/Black Sea countries. The results of this project will directly feed into a wider regional framework bringing together experience from individual country projects participating in the proposed World Bank/GEF Black Sea/Danube Strategic Partnership.

The monitoring system should be compatible with existing systems in Bulgaria, in other countries and particularly with regional standards established by the two Commissions. A water quality monitoring system is in place in Bulgaria—as in most Danube countries—but recent experience has highlighted some of the system’s shortcomings. Hence the first step will be to assess the short-falls in the existing system. This will be done as part of project preparation. Additional training in effective data collection, management and analysis of hydrologic data will be needed. (*Total cost: \$1.7M; GEF: \$1M*)

### **4. Support for activities to ensure long-term sustainability**

Experience throughout the world, and in particular Eastern Europe, demonstrates that people living in the project areas—and indeed people who are dependent on the natural resources of the area—need to be involved in project decision-making and to benefit from project activities. Otherwise, the long-term financial sustainability of the project sites is in jeopardy. Hence, issues of long-term financial sustainability as well as environmental sustainability need to be addressed immediately and simultaneously.

The management plans for the project sites will include a medium and long-term strategy for sustainable use of the wetlands. In preliminary discussions with local communities and officials in Tutrakan, sustainable development activities mentioned include: sustainable harvesting of bio-mass (including reeds and herbs) for subsistence or small-scale markets; revitalization of fisheries which formerly flourished in the river/wetlands complex; and tourism based on the natural attractions and other amenities that could be developed at each site. Resources would be allocated under the project to finance feasibility studies for economic activities outlined in the management plans. Co-financing from donors for micro-credit schemes and private sector development not eligible for GEF financing is under discussion. (*Estimated total cost: \$2.8M; GEF financing: \$0.5M*)

### **5. Public Awareness**

Government staff, local officials, and local NGOs with whom the project team has met consistently pointed to the need for public awareness, information, and stakeholder buy-in to project’s activities to enhance project sustainability at both the local and national levels. Public awareness campaigns will be directed at the general public to enhance their understanding of the importance of wetlands to Bulgaria’s natural heritage, as well as to maintaining their function in

water quality, flood control and a variety of other environmental services vital to Bulgaria's wealth. Environmental education will also be directed at local communities adjacent to wetlands to help them realize some of the tangible benefits from sustainable use of the goods and services that healthy wetlands provide. During project preparation, the possibility of establishing a wetland information/training center in one of the two sites will be explored. Information on project activities should be linked to similar activities in nutrient reduction being undertaken across the Danube, in Romania, for possible future collaboration or joint implementation. Funds will be earmarked for exchange visits, joint seminars, joint scientific ventures, and participation in Basin-wide programs such as Strategic Partnership-supported exchanges. *(Estimated total cost: \$0.8M; GEF \$0.8M)*

## **6. Project Management**

This component will finance activities of local, national, and international coordination required for the implementation and monitoring of project activities. The model proposed by the Government is to establish a Project Coordination Unit within the Water Directorate of MoEW to manage project activities. However, in an effort to build the capacity within each department/agency, technical staff working on project activities (financed by the Government) would remain with the appropriate department. However, the PCU would be responsible for project activities which cut across all components: formulating and coordinating a project training plan; coordinating public awareness activities with NGOs; coordinating cross-border collaboration with Romania and with the Commissions for the Danube and Black Sea. The PCU would also be responsible for project monitoring, financial accounting, and reporting. *(Estimated total cost: \$0.7m)*

## **2. Key policy and institutional reforms to be sought:**

Bulgaria is at the first stage of long process leading towards EU accession. As discussed in the issues section, the Government has already begun to enact policy changes (through new legislation) consistent with the EU Framework Directive on Water, and several other sectors. This project will assist the government to move quickly in drafting the enabling regulations and building the technical capacity needed to implement the new laws. The key policy change sought is related to the explicit consideration of transboundary impacts in the formulation of national water and land-use policy and reflected in the selection of high priority projects to be financed.

Secondly, the project will facilitate a change in the government —and particularly regional government — framework on land use policy and development planning. Following years of agricultural policy and massive investments in irrigation schemes which has favored the drainage of wetlands throughout the country, the challenge will be to demonstrate the economic benefits of wetlands. In particular, the project will help identify more appropriate land use options in wetland areas (e.g. extensive use of regularly flooded lands as meadows and pastures rather than as arable lands, use of biomass from wetlands, and nature-based tourism, etc.) that will be economically acceptable to local stakeholders. Once the economic and environmental impacts of wetlands are evaluated, the Bank would (a) urge the Government to modify its cumbersome procedures for changing land-use category, making it easier for local communities to undertake small-scale wetland restoration programs; and (b) work with the government to give priority to cost-effective measures to improve water quality. A related policy objective is to increase regional government's support and implementation of river basin management, which integrates environmental and economic development objectives in a basin wide approach to planning.

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

At the local level, the main beneficiaries will be people living in the communities located downstream from the wetland who will enjoy cleaner water. Local communities will also benefit from improved fisheries along the Danube. Fishing has traditionally been the mainstay for communities along the Danube. The deterioration of water quality and the destruction of breeding sites for fish has deprived a significant part of local people from their main source of food and living; where 60 years ago there were 5,000 fishermen, there are now 60. The restoration of wetlands is expected to have beneficial effects on fish populations and hence on the local fishermen's incomes. Small entrepreneurs interested in establishing businesses related to bio-mass processing, fish processing, and eco-tourism may also see increases in incomes.

The main global benefit is the reduction of transboundary pollution. Based on conservative estimates of 100 kg/ha/yr reduction of nitrogen, and 10 kg/ha/yr of phosphorous, 375 tons of N and 39 tons of P could be reduced yearly. This accounts for approximately 5% of Bulgaria's total nutrient contribution to the Danube. The primary beneficiaries are Bulgarians living downstream from the wetlands, other downstream riparians, and littoral states of the Black Sea who will benefit from cleaner water.

Finally, significant biodiversity benefits are expected. The wetland complexes are of international importance as a nesting place of the Ferruginous Duck (*Aythya nyroca*) and Dalmatian Pelican (*Pelecanus crispus*). The Black Sea site is of even greater importance globally since it is a critical feeding site on the most important bird migration flyway linking Europe with the Middle East and Africa.

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

Implementation arrangements will need to be further developed during the course of project preparation. The government has suggested that a project coordination unit (PCU) be established within the Ministry of Environment and Water to oversee day-to-day management of the project. Given the number of ministries (MOEW, Agriculture, Justice), municipal governments, and NGOs who will be involved in the implementation of the project, the Government has proposed that a Steering Group consisting of key agencies as well as representatives of the local communities and other donor agencies which are funding complementary activities be created. The Group would meet regularly to review project implementation and recommend adjustments as necessary.

The PCU would be headed by a Project Coordinator, reporting to the Minister of Environment and Water, assisted by two staff responsible for financial management and administration responsible for financial accounting. In an effort to build the internal capacity of the MoEW and to ensure that the work done under the project is fully owned by the respective agencies, each component would have a lead technical person working directly in the responsible ministerial department. The PCU would take the lead on designing and implementing a project-wide training activities, on collaboration with other riparian states—namely Romania on joint training programs—and with the wider Black Sea/Danube Basin Nutrient Reduction Program. The Unit would facilitate reaching institutional consensus required to execute the project, and it will be responsible for project monitoring and reporting to the Bank. We will discuss with MoEW the possibility of an in-house on-the-job training program with project staff responsible for the Bulgaria GEF Ozone Depleting Substances Phase-out Project. As well, other options for project management, including a decentralized management system for field activities operating under a PCU will be explored with the Government during project preparation.

## **D. Project Rationale**

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

*Scope of project.* Several alternatives for project design were considered before deciding on the current proposal. The first option was broadening the scope to include activities targeting non-point source pollution from agricultural run-off. This is similar to the approach currently proposed for neighboring Romania and has high potential returns. However, Government officials reassured us that agricultural issues were also subject to new EU Directives, and that they had requested (and been promised) support for introducing low-impact farming and other more environment-friendly appropriate agricultural practices from the EU through the SAPARD program and from bi-lateral donors, including the Danish Government. So while agricultural run-off is not being financed by this Bank/GEF operation, actions are underway in Bulgaria to address the problem. Commitments to these actions will be verified during the course of project preparation. The challenge will be to co-ordinate activities under the umbrella of the DRBA. Regular reporting on agricultural activities and water quality monitoring of agricultural run-off will be part of the Nutrient Reduction Strategy financed under the project and other mechanisms to achieve the synergies of various ongoing activities will be considered during the preparation stage.

*Point vs. non-point source pollution.* A second alternative was to focus on point-source pollution such as waste water treatment and industrial discharge. GEF funds would be available to finance incremental costs of nutrient reduction technology if governments were willing to borrow for baseline costs to the level (at least secondary) where these nutrients technologies could be added. This option is unaffordable by the Bulgarian government in its current economic situation. However, the current project offers a relatively low-cost opportunity to address water quality issues for smaller settlements along the Danube and its tributaries. Wetland restoration requires significantly lower construction and maintenance costs than nutrient reduction technologies at WWTPs, while at the same time providing a very effective system for the removal of nutrients from large quantities of water.

*Selection of sites.* Restoration sites were carefully considered in consultation with the MoEW. Such a wealth of analytical work exists on both the Danube and Black Sea, making decisions easier in some ways, but more difficult in others. Both the Bulgarian National Wetland Strategy and the Biodiversity Strategy identify key wetlands from a biodiversity perspective. In consultation with the Government and the Danube River Pollution Reduction Programme, specific criteria were established and each wetland site measured against these. Criteria include: nutrient reduction potential (based on their size and hydrological characteristics), current land use, and demonstration value. Several promising sites which might be considered for a follow-on project were not selected for some of the following reasons: limited nutrient reduction capacity, conflict over land use, or technical implementation difficulties.

**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> Environment	Environmental Remediation	S	S
Water	Water Companies Restructuring and Modernization Project	S	S
Social	Regional Initiatives Fund (LIL)	S	HS
Environment	Environmental Remediation Project	S	S
Environment	Environmental and Privatization Support Project	S	S

<b>Other development agencies</b>			
USAID	Black Sea-Danube Project (Hungary, Slovakia and Romania)		
USAID (1990-1998)	Environmental Initiatives Project (180-0004)		
WWF	Lower Green Danube Corridor Programme		
UNDP (1994-1997)	Establishment of a Land Information Management System (Bul/94/002)		
UNDP (1995-1999)	Ecological Monitoring and Pollution Control of Maritza River Basin (BUL/94/003)		
UNDP (1997-1999)	Biodiversity Action Plan		
FAO (1995-1997)	Rehabilitation of Inland Agriculture (focus on fisheries aquaculture)		
PHARE (1994-1999)	Environment Program 1994		
EIB (1998-2000)	Riverbank and Coastline Protection Project		
DEN (1997-1999)	Rehabilitation of Varna Waste Water Treatment Plant (124/008-0008)		
GEF (1996-1998)	Implementation of the Black Sea Strategic Action Plan (RER/96/006/RER/97/G3)		

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

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

 Sector & Themes  KM

Experience from wetlands restoration and pollution abatement programs in Europe and around the world suggest that:

- The early involvement in project concept design of key stakeholders from across the water, agriculture, and environment sectors as well as of local communities is essential in order to ensure ownership, build lasting commitment and achieve successful project implementation;
- The rationale, benefits and objectives of the project should be made known to all stakeholders, if not through active participation, on through effective public awareness programs. The benefits of sustainable land use needs to be demonstrated and the results widely disseminated;



- Problems should be solved jointly with clients and not for them. Capacity and skills transfer can only be achieved by working with clients, to do otherwise is to leave solutions that are unsustainable;
- Maintaining support for central governmental units, but emphasizing decentralized responsibility for financial and project management (e.g. Romania's Danube Delta Biodiversity and Agricultural Pollution Control Projects) helps to build local ownership and sustainability of project activities;
- Socio-economic and regional development issues need to be carefully considered in the design of the project, which in turn should provide support for the integration of environmental and sustainable development principles into regional planning exercises;
- Early on, the project needs to focus on activities which promote replication, sustainability and resource mobilization beyond the life of the project.
- World Bank experience with the Bulgaria country portfolio indicates that:
- In order to avoid delays in disbursements, forward planning of budget needs to be ensured early in project preparation and carefully monitored during each of Bulgaria's budget years
- Significant effort must be undertaken to ensure project management capacity is adequate to permit implementation of complex activities and policy measures with efficacy and speed; and
- While direct participation of sector ministries is essential for the implementation of individual projects, successful implementation relies heavily on good relationships and cooperation from central units such as the Ministry of Finance when it comes to dealing with issues such as counterpart funding, VAT, financial management, approval processes and procedures, technical exchange of views on legislation.

The proposed program will incorporate these experiences and build on them, specifically by: (a) continuing the inclusive and participatory approach; (b) effectively communicating the purpose and progress of the program to stakeholders through a public awareness campaign and (c) building national and local capacity for sustainable management of the country's water resources.

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

The Government of Bulgaria has taken a lead role in efforts to establish a network of wetland and floodplain sites in the Lower Danube. The Ministry of Environment which represents Bulgaria on the Danube Commission has worked closely with WWF to prepare the restoration programs Lower Danube Program. Subsequently, the Bank joined WWF and the Ministry to move forward on investment operation which met the criteria for inclusion in the GEF/Bank Strategic Partnership for Nutrient Reduction.

The project scope expanded from the original request focussed on wetland restoration to include national level activities for improved water resources management, assistance in developing national restoration and rehabilitation strategies and policy formulation/implementation for nutrient reduction. The Government views these as an integrated package of measures needed to address water and land-use issues at their interface, and has asked the Bank, through the GEF, for assistance.

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

The Bank is currently assisting the Government formulate a strategy to comply with EU environment legislation—and to meet the expected high costs. The main issues involve policy frameworks and financing. The proposed project may provide an alternative to high-cost investment in infrastructure if the expected improvements in water quality from non-point source pollution are forthcoming. The Bank is in a unique position to help the government synthesize experiences and lessons learned from this project and from several other related projects in the water and agriculture sectors (ASAL, Land Cadastre), as well as its considerable experience in regional integrated river basin planning and management, to help implement the new water policy and assist the Government in its negotiations with the EU.

Secondly, the Bank plays an important role in helping coordinate donor assistance. Given the number of donors assisting Bulgaria, this role is needed to coordinate investments, technical assistance, and policy advice. The Bank can do this within the context of the CAS and through its regular participation in donor coordination dialogue.

In addition, the World Bank/GEF has built experience over the past decade involving numerous coastal zone, wetland and water quality projects related to the Black Sea and Danube River. Experience garnered through such projects as the Romania Danube Delta and Georgia Integrated Coastal Zone Management Projects and coordination with the Black Sea Environment, Danube River Basin Environment and Danube Pollution Reduction Programs is being shared with newly started projects.

## **E. Issues Requiring Special Attention**

### **1. Economic**

To be defined

Economic evaluation methodology:

#### **Incremental Cost**

There are two possible ways of undertaking an economic analysis which would meet GEF requirements. First, utilizing the typical incremental cost (IC) assessment, we estimate the IC of achieving global benefits in this project are \$7.5M of a total project costs of \$13.5M. This total cost are restricted to those expenditures directly related to the nutrient reduction program focusing on wetlands, and does not include government or donor financing of WWTPs in the Danube or its tributaries, nor of agricultural activities aimed at reducing non-point source pollution, all of which would be part of broader a nutrient reduction program for the Danube Basin and which should be considered as ‘leveraged financing’.

The second methodology currently under discussion with the GEF Secretariat involves a formula to be applied to all projects which fall under the Strategic Partnership for Nutrient Reduction in the Black Sea and Danube. This formula would likely include (a) a ratio of \$cost/ton of nutrient reduced; and (b) a leveraging ratio to determine appropriate levels of co-financing of total project costs. Co-financing would be used to cover costs of sustainable development activities. Currently, there is not enough information relevant available for the Danube/Black Sea region to scientifically establish the appropriate ratios. This project, along with a similar nutrient reduction project in Romania, will provide important information for establishing the ratios to be used for future projects under the Strategic Partnership. Consequently, the monitoring component of the project is particularly important since the monitoring information gathered will serve as one of main sources of data to establish these ratios.

### **2. Financial**

To be defined

Government budgetary contribution to the project is not expected to significantly exceed current budgetary allocations to the sector.

The technical/economic studies may indicate that the most appropriate solution for wetland restoration involves flooding private lands. In that case, the government may compensate land owners for these lands. The MoEW would consider using funds from the National Environment Fund to cover these costs. This solution has been raised with the Ministry of Finance and MOEW and will be discussed again if the technical design recommends the higher flooding alternative.

### 3. Technical

#### Summarize issues below

Estimation of the nutrient reduction potential was carried out on the basis of international experience in other regions, with data adapted to the size and general characteristics of the selected demonstration sites. Experience in Denmark and Sweden achieved reductions of 400 kg/ha N and 40 kg/ha P (source: RAMSAR International). Using conservative figures based on international experience similar to Bulgaria's, expected nutrient reduction is 100-200 kg/ha/year for nitrogen and 10-20 kg/ha/yea for phosphorous. Applying a 125kg/ha N and 13kg/a P estimate to a low-case land area scenario, approximately 375 tons of N and 39 tons of P could be removed yearly from the proposed project sites. The real quantities could be 2-3 times this amount, depending on various hydrological factors and the management regime. The water modeling exercise to be undertaken as part of project preparation will refine and validate these preliminary estimates.

### 4. Institutional

While MOEW is the lead implementation agency, the active participation of several other Ministries, agencies, local government and scientists will be critical to its success. In this context, the composition and mandate of the Steering Committee is important and will be given close consideration during project development.

*Capacity and institution building.* Training and capacity building has been incorporated into every component. MoEW will be trained in the management and monitoring aspects wetland restoration and hydrological monitoring. These areas complement the strong technical background and professional training of many staff working on water issues. Other training needs will be identified as part of a training needs assessment undertaken during project preparation. These will likely include training in environmental education, socio-economic analysis, and policy analysis with regard to water policy formulation. The project will work to build up the capacity of existing directorates in the MOEW, rather than create new ones, given that staff are already overstretched. A conscious effort will also be made to facilitate synergies between this and related projects, to optimize MOEW staff time in project supervision and reporting. On-site training will be complemented with site visits to successful restoration sites in Europe. During project development, possible joint training with Romanian counterparts will be investigated. The relationship with the Strategic Partnership with regard to replication to other Partnership activities and to the links between this component and the Regional Projects which include regional training funds will be clarified in final documentation.

#### 4.1 Executing agencies:

TBD

#### 4.2 Project management:

TBD

#### 4.3 Procurement issues:

TBD

#### 4.4 Financial management issues:

TBD

### 5. Environmental

5.1 Summarize significant environmental issues and objectives and identify key stakeholders. If the issues are still to be determined, describe current or planned efforts to do so.

The long-term impacts of the proposed project is expected be entirely positive. The project has been specifically designed to address national, global and transboundary environmental issues (water quality and nutrient loads in Danube River and Black Sea, biodiversity protection and habitat restoration, improved management and sustainable use of water resources.

Short-term impacts may result during the construction or removal of civil works (removal of existing dikes or levees, construction of sluice gates, reconnection of waterways). Some of these activities may involve the movement of earth (e.g. reconnection of waterways) or removal of infrastructure which may cause temporary influx of soil into waterways during heavy rainfall.

### 5.2 Environmental category and justification/rationale for category rating: **B - Partial Assessment**

While the project is expected to have mainly positive environmental impact, it is proposed as a Category B due to the likelihood of short-term impacts during construction / de-construction phases.

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

EA start-up date: 04/15/2001  
Date of first EA draft: 08/01/2001  
Expected date of final draft: 09/30/2001

5.4 Determine whether an environmental management plan (EMP) will be required and its overall scope, relationship to the legal documents, and implementation responsibilities. For Category B projects for IDA funding, determine whether a separate EA report is required. What institutional arrangements are proposed for developing and handling the EMP? The design of actions needed for the restoration of wetland habitat and hydrological functioning will be completed during project preparation. The Terms of Reference for the design of alternative approaches for this sub-component will include a section on the analysis of potential environmental impact. This report will also propose options for mitigation and any long-term environmental management issues that will need to be considered during project implementation and beyond (e.g. appropriate management actions during floods)

5.5 How will stakeholders be consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed EMP?

The Terms of Reference for the environmental assessment calls for consultation and disclosure.

5.6 Are mechanisms being considered to monitor and measure the impact of the project on the environment? Will the indicators reflect the objectives and results of the EMP section of the EA?

One of the project components will deal with monitoring and evaluation of project impacts, in particular those on the environment.

## 6. Social

6.1 Summarize key social issues arising out of project objectives, and the project's planned social development outcomes. If the issues are still to be determined, describe current or planned efforts to do so.

Wetland restoration may potentially may affect agricultural lands and private property that were drained in the past . This is particularly the case for the Kalimok wetlands. If a change in land use designation is required, this can be a time-consuming and difficult process. MAFAR is responsible for agricultural lands in the country, as well as for the irrigation and drainage facilities on these lands, and has been consulted by the project team on the issues of land ownership and designation. After discussions with local government officials and community members, three different restoration scenarios were devised, ranging from a 13.5 meter flood zone affecting only municipal and state owned land, to a maximum flooding scenario of 14.5 meters affecting about 60 land owners who farm on adjacent land (a total of 59 hectares, though no one lives on the land in question). The economic/technical analysis will be critical to formulating a development program. If the analysis shows that the land has a greater economic value as a wetland, several alternatives need to be explored. These include purchasing of private land by the government , i.e. the MoEW through the National Environment Fund, by an NGO for the purposes of the project; or modifying land-use sub-category from arable to meadows and pastures (a much simpler step than changing category).

According to initial discussions with local people in Tutrakan, several land owners seemed interested in finding alternative productive uses for their lands, since much of the land is subject to periodic flooding and loss of crops. Decisions will be taken in close consultation and with the approval of land owners and government authorities.

### 6.2 Participatory Approach: How will key stakeholders participate in the project?

The primary beneficiaries of the proposed project are the local communities living on the Danube River in the two project sites, and the local community living on the Black Sea where the third site will be located. As part of a preliminary social assessment undertaken by the NGO Green Balkans, they have been involved in technical discussions on flooding of land and on issues of management/maintenance arrangements. They have been very vocal about the need to link sustainable livelihood activities to the wetland restoration components. This has refocused the basic objectives of the project to go beyond global objectives of nutrient reduction, national objectives of meeting EU directives, to include activities directly related to poverty alleviation and sustainable development. Local groups will continue to be involved in various roles at all stages of project design and implementation as part of local Management committees and the national Steering Committee.

The project activities have long been identified as top priorities for not only Bulgaria, but for all countries in the Black Sea/Danube Basin. The Strategic Action Plans, formulated using a broad participatory process dating back to 1991 and agreed to by all riparian governments, identify non-point source pollution as a top priority, and specifically, propose wetland restoration as one of the most effective ways to reduce nutrient loads into the Danube and Black Sea. As the lead agency for project implementation MOEW has been involved since the earliest stages of project identification which was undertaken by WWF as part of its Lower Danube Green Corridor Program. At the request of the MOEW the scope of the project was broadened to include national level activities related to nutrient reduction.

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

TBD

### 6.4 What institutional arrangements are planned to ensure the project achieves its social development outcomes?

TBD

### 6.5 What mechanisms are proposed to monitor and measure project performance in terms of social development outcomes? If unknown at this stage, please indicate TBD.

TBD

## 7. Safeguard Policies

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

<b>Policy</b>	<b>Applicability</b>
<b>Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)</b>	Yes
<b>Natural habitats (OP 4.04, BP 4.04, GP 4.04)</b>	
<b>Forestry (OP 4.36, GP 4.36)</b>	
<b>Pest Management (OP 4.09)</b>	
<b>Cultural Property (OPN 11.03)</b>	
<b>Indigenous Peoples (OD 4.20)</b>	
<b>Involuntary Resettlement (OD 4.30)</b>	TBD
<b>Safety of Dams (OP 4.37, BP 4.37)</b>	
<b>Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)</b>	
<b>Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)</b>	

## 7.2 Project Compliance

(a) Describe provisions made by the project to ensure compliance with safeguard policies which are applicable.

(b) If application is still to be determined, describe current or planned efforts to make a determination.

The application of OD4.30 will be determined during the preparation of the social assessment.

## 8. Business Policies

8.1 Check applicable items:

Financing of recurrent costs (**OMS 10.02**)

Cost sharing above country 3-yr average (**OP 6.30, BP 6.30, GP 6.30**)

Retroactive financing above normal limit (**OP 12.10, BP 12.10, GP 12.10**)

\_ Financial management (**OP 10.02, BP 10.02**)

\_ Involvement of NGOs (**GP 14.70**)

8.2 For business policies checked above, describe issue(s) involved.

NGOs are currently being involved in project preparation, and mechanisms will be put in place to ensure NGOs involvement during project implementation.

## **F. Sustainability and Risks**

### **1. Sustainability:**

*Institutional sustainability.* At the national level, long-term institutional sustainability is linked to the country's compliance with EU Directives. Given the importance of meeting these directives, the Government has requested assistance in training and capacity building to enable staff to formulate and implement the new laws and regulations. The project will help finance training (along with other donors, notably the EU) related specifically to nutrient reduction and water quality monitoring. At the local level, a management structure for the maintenance of water facilities and decision making on different issues in the wetland area will need to be established. For the Kalimok Marshes, a committee of local stakeholders is already at work. . Similar arrangements for the Black Sea site will need to be established. For the Belene marsh, since this is land belonging to the Ministry of Justice, MOEW will be responsible for the management and maintenance of the restored sites.

*Poverty Reduction and Sustainable Development.* For long-term ecological and financial sustainability of the wetlands, it is of utmost importance to link wetland restoration to sustainable use and local economic development. A community assessment has already been carried out at two project sites (Kalimok, completed; Belene under preparation). Based on the results from the community assessment, the opportunities of greatest interest to local people include fisheries development, small business development related to bio-mass processing and tourism. While GEF funds cannot be used to finance the credit or other start-up capital needed to undertake such activities, the project team will seek co-financing from other donors to ensure that these activities are funded either directly or in parallel with this project. Given the technology being introduced, recurrent cost will be model in relation to the Government's current budgetary allocation to the water sector.



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

Risk	Risk Rating	Risk Mitigation Measure
<p><b>From Outputs to Objective</b> Transboundary nutrient load does not decrease due to: (a) lack of serious effort from upstream riparian, and (b) increases in agricultural activity in Bulgaria as economy improves</p>	M	Concerted action by all riparian countries, supported by Black Sea and Danube Commissions, GEF Regional projects, and other donors to decrease nutrient pollution. Strong public awareness campaign aimed at informing local farmers; incentives provided by EU accession timetable; and donor-financed projects in eco-farming
Nutrient stripping potential of wetlands not as great as originally expected	S	Project development includes technical water modeling study for one wetland site to refine estimates
Sustainable economic development activities supported in project sites not sufficient to: (a) ensure long-term sustainable use of wetland resources; and (b) increases in incomes of local communities	M	Management plan for wetlands includes socio-economic development activities, financial projections. Strong public awareness campaign and training of local staff in benefits of wetlands. Close collaboration with other donors who can finance micro-credit and sustainable livelihood activities
<p><b>From Components to Outputs</b> River Basin Authority is slow to be created and is not capable of managing nor does it have the legal authority to enforce a nutrient reduction program, leading to increases or no decreases in pollution</p>	M	The incentives created by EU accession provide an impetus which will likely carry the project through. However, the project will provide technical assistance and training to MOEW as well as staff assigned to the newly created Danube RBA thereby building its capacity to formulate and manage a new institution. In addition, the GEF Regional program which is linked to this operation will provide TA on policy issues, conduct regional training workshops.
Land ownership in the project area is more complex than preliminary analysis would indicate, necessitating a low-case scenario for flooding and thereby reducing potential ecological benefits	M	Discussions on land issues are already underway with local authorities and the Ministry of Justice. Local officials and NGOs are also involved. This process must continue to build trust among stakeholders. The economic and technical evaluation of alternatives in land-use will be discussed in depth with all stakeholders prior to the government taking a decision. Even in a low-case scenario, ecological, biodiversity, and nutrient-stripping benefits are justified.
<b>Overall Risk Rating</b>	M	

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



## G. Project Preparation and Processing

### 1. Has a project preparation plan been agreed with the borrower (see Annex 2 to this form)?

Yes - date submitted: 03/20/2000

The project preparation plan was formulated in collaboration with our counterparts in the MOEW during the Dec'2000 mission. A list of the studies to be undertaken with GEF PDF B financing are listed in annex 2.

### 2. Advice/consultation outside country department:

Within the Bank: Steve Lintner; Isabel Braga; Manuel Marino, John Hayward, Adriana Damianova, Karin Shepardson (ECSSD); Paul O'Connell (RDV); Tony Garvey (SASEN)

Other development agencies: WWF-Danube Programme, Danish Aid, USAID, Ramsar International Secretariat, Wetlands International (the Hague)

### 3. Composition of Task Team (see Annex 2):

Jocelyne Albert, Former Task Team Leader

Rita Cestti, Senior Water Resources Economist, Current Task Team Leader

Marea Hatzios, Environmental Specialist

Andreas Wurzer, Environmental Specialist, WWF-Danube Programme

Rayka Doubleva, Environmental Consultant

Kerstin Canby, Environmental Specialist

Robert Robelus, Senior Social/Environmental Specialist

### 4. Quality Assurance Arrangements (see Annex 2):

Karin Shepardson (ECSSD), Steve Lintner (ENV), Gonzalo Castro (ENV), Ariel Dinar (RDV)

### 5. Management Decisions:

Issue	Action/Decision	Responsibility

**Total Preparation Budget:** (US\$000) **Bank Budget:** US\$46,000 (02/08/2001) **Trust Fund:** US\$ 37,000 (02/08/2001)

**Cost to Date:** (US\$000) \$15,000

Preparation costs at the time of the PCD review were less than \$15,000 of BB/GEF plus \$7,000 drawn down from the Austrian Trust Fund. The team was able to draft the PCD thanks to the preparation work undertaken by EU Phare and WWF, in collaboration of the Water Directorate of the MOEW. In order to complete project preparation, the team requested the following budgetary allocation: Bank/GEF Administrative Budget: \$120,000; GEF PDF B: \$350,000

**GO** **Further Review** [Expected Date]

Rita E. Cestti  
**Team Leader**

Marjory-Anne Bromhead  
**Sector Manager**

Andrew Vorkink  
**Country Manager**

*Annex 1: Project Design Summary*

**BULGARIA: Wetlands Restoration and Pollution Reduction Project (GEF)**

Link to good practice examples

<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>	<b>Sector Indicators:</b>	<b>Sector/ country reports:</b>	<b>(from Goal to Bank Mission)</b>
Protecting and enhancing the environment	Improvement in water quality of Danube as evidenced by a decrease in nutrient loads downstream from project sites.  Sustainable management of wetlands.	Danube and Black Sea Monitoring reports.  National water quality statistics.	Improved institutional capacity to implement and monitor water legislation.
Fighting poverty	Reduced poverty in Danube Region.	National statistics.	Sustainable economic development activities supported by government and donors.
<b>GEF Operational Program:</b>			
International Waters Operational Program (8): water-body based transboundary program or program? and biodiversity operational program (2): conservation and sustainable use of globally significant biodiversity in wetland, coastal and freshwater ecosystems.	Improved water quality in the Danube River below the project sites.	Danube water quality monitoring reports.	Other upstream riparian countries do not initiate water quality actions.
	Globally important biodiversity conserved and/or sustainably used.	Ecological surveys.	
<b>Global Objective:</b>	<b>Outcome / Impact Indicators:</b>	<b>Project reports:</b>	<b>(from Objective to Goal)</b>
Improve water quality of Black Sea Basin.	same as above		Nutrient-stripping potential of wetlands as good or better than similar wetlands in other parts of the world.

Improve conservation of globally significant biodiversity in selected wetland sites through sustainable management and use.			Donors finance micro-credit and other sustainable livelihood activities.
<b>Program Development Objective:</b>	Improved water quality from Bulgarian sources into the Danube River.	Danube and Black Sea Commission Monitoring Reports Ecological surveys.	
Reduce transboundary water pollution and conserve biodiversity in the Danube River through improved management and use of the water resources and restoration of wetlands.	Improved biodiversity habitat.	Socio-economic and ecological surveys.	
Assist Bulgaria in meeting its international commitments related to environmental aspects of water resources management.	Sustainable use of floodplain wetlands in demonstration sites.		
	Increased well-being of local communities who depend on Danube River.		
	Increased capacity of responsible institutions to formulate water-sector policies, and to manage water resources <i>consistent with EU Directives and other international conventions.</i>		

Hierarchy of Objectives	Key Performance Indicators	Monitoring & Evaluation	Critical Assumptions
Output from each Component:	Output Indicators:	Project reports:	(from Outputs to Objective)
1a. Preparation of integrated management plan for Danube Basin, focusing on wetland use and nutrient reduction of transboundary pollution; improved policy framework for reduction of non-point source pollution.	1a. Plan consistent with EU Directives on wetlands and non-point source pollution; includes strategy for achieving long-term targets.  2 a. Selection of priority wetland restoration site based on national plan.  b. Water quality from wetland areas improved.  c. Indicator species thriving d. healthy wetland e. increase in fish catch in local areas.	1a. Management plan.	1a. Continued strong Government support for Basin-wide wetland plan.  b. Wetlands potential as nutrient strippers consistent with estimates.  c. Public awareness campaign successful; Local Steering Committee operating effectively.
2a. Completion of comprehensive plan for Danube / Black Sea Basin for wetland restoration.  b. Two priority sites restored and removing nutrients.  c. Natural habitats improved and sustainably used by local communities.		2a. Management plan  b. M&E Reports on water quality.  c. M&E Reports – species.	2.
3. Effective water quality monitoring system compatible with other systems in region.	3. Quality data on water quality and wetland functions; Data shared with other country systems	3. M&E Reports.	3. Government gives priority to training activities in first years of project implementation.
4. Technical and managerial staff of MoEW trained (hydrological monitoring, wetland management, project management, land-use planning etc).	4. M&E system well-design and producing quality information; social aspects of land-use integrated into management plans: well managed wetland sites.	4. Socio-economic assessment (at MTR); Project monitoring reports; Supervision Reports.	

<p>5. Economic activities identified within management plans which contribute to long-term sustainability.</p> <p>6. Increased awareness and appreciation by local communities of wetland functions and their economic value.</p>	<p>5. Feasibility studies prepared; Micro-credit fund established by other donors.</p> <p>6. Consultation and workshops with community groups. Educational materials developed and in use in local schools.</p>	<p>5. Project reports; Supervision Reprints.</p> <p>6. Socio-economic assessment.</p>	<p>5. Donor co-financing secured.</p> <p>6. Wetlands begin to recover and undertake ecological functions quickly to local communities can quickly see benefits.</p>
<b>Project Components / Sub-components:</b>	<b>Inputs: (budget for each component)</b>	<b>Project reports:</b>	<b>(from Components to Outputs)</b>

# **ANNEX 2**

## **Romania Agricultural Pollution Control**

**DRAFT  
Project Concept Document**

**ROMANIA**  
**AGRICULTURAL POLLUTION CONTROL**  
**PROJECT CONCEPT DOCUMENT**  
**EUROPE AND CENTRAL ASIA REGION**

**ECSSD**

<b>Date:</b> September 2000	<b>Team Leader:</b> Jitendra P. Srivastava
<b>Country Manager/Director:</b> Andrew N. Vorkink	<b>Sector Manager/Director:</b> Kevin M. Cleaver
<b>Project ID:</b> P066065	<b>Sector(s):</b> VY - Other Environment
<b>Lending Instrument:</b> GEF Grant	<b>Theme(s):</b> ENVIRONMENT, AGRICULTURE
<b>Focal Area:</b> Pollution Control / Waste Management	<b>Poverty Targeted Intervention:</b> N
<b>Project Financing Data : GEF Grant</b>	
<b>For Loans/Credits/Others:</b>	
<b>Total Project Cost (US\$m):</b> 12.78	<b>Cofinancing:</b> To be determined
<b>Total GEF Financing (US\$m):</b> 5.50	
<b>Borrower/Recipient:</b> GOVERNMENT OF ROMANIA	
<b>Responsible agency:</b> MINISTRY OF WATERS, FORESTS AND ENVIRONMENT PROTECTION	
<b>Project Implementation Period:</b> 5 years	

## A. Project Development Objective

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

1. *Project Development Objective*: The overall project development objective is to increase significantly the use of environment-friendly agricultural practices in the project area and thereby reduce pollution 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 seven comunas of the Calarasi Judet (county); (ii) promote ecologically sustainable land use in the Boianu-Sticleanu Polder including a conservation management plan for the Iezer Calarasi water body; (iii) strengthen national policy and local regulatory capacity; and (iv) promote regional level collaboration. The project, envisaged as a pilot activity in the Calarasi county in the southern part of Romania, along the lower Danube, will be replicated in similar sites in Romania which will, in the long term, reduce the discharge of nutrients and other agricultural pollutants and yield substantial benefits in terms of improved quality of Romanian surface and ground waters and the Black Sea.

*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 management of the Calarasi region, by combining better on-farm environmental management and ecological rehabilitation of an agricultural polder. These activities are directly linked to "Strategic Action Plan for the Protection and Rehabilitation of the Black Sea" (BSSAP), formulated with the assistance of the Global Environment Facility (GEF). BSSAP has identified non-point sources of agricultural pollution as the most serious problem facing the Black Sea. By improving agricultural practices, through relatively low cost investments, changes in consumer practices and by sustainably managing a high priority former floodplain area, the Project would also complement the Danube River Pollution Reduction Program and assist the Government in meeting its international obligations under the Bucharest Convention -- Convention for the Protection of Black Sea from Pollution, signed in April 1992 by all six coastal countries and enforced regionally in April 1994. In addition, the Odessa Ministerial Declaration on the Protection of the Black Sea was signed in 1993 by Ministers of Environment from all six Black Sea coastal countries to adopt a series of actions which would collectively support the rehabilitation and protection of the Black Sea. The Danube River Protection Convention was signed in 1994 and came into force in December 1998. The International Commission for the Protection of Danube River (ICPDR) is responsible for its implementation as well as moving towards meeting the 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 manures and crop residues and ecologically sustainable land use in the polder, carbon sequestration will occur. The improved farming practices envisaged by the project will result in a decrease in methane emissions from farmyard manure.

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



## **B. Strategic Context**

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

**Document number:** 16559 RO

**Date of latest CAS discussion:** 05/09/97

Protecting and enhancing the environment is one of the four main development challenges identified in Romania Country Assistance Strategy (CAS). Towards this, the Bank will (i) continue its joint work alongside the EU and other partners to help the Romanian counterparts implement the National Environment Action Plan (NEAP) through institutional strengthening of the Ministry of Waters, Forests and Environmental Protection, further research work and development of regulations to facilitate the EU accession process; (ii) ensure that environmental issues are fully addressed in the Bank's work in other sectors such as private sector development, energy and agriculture; and (iii) support selected investments, including GEF operations.

In support of this development challenge, the project will (i) promote environment-friendly agricultural practices; (ii) promote ecologically sustainable land use in a high priority floodplain area; (iii) assist with relevant legal and regulatory framework; and (iv) raise public awareness. The 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 generating a supply response and increasing private sector involvement. The proposed Project builds on the measures to be implemented under the Agricultural Support Services Project (ASSP) to promote environmentally benign practices for the storage, management and application of manure, use of buffer strips, crop rotation and cover crops to reduce over the long-term the discharge of nutrient load into the Romanian ground and surface waters as well as the Black Sea.

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

*GEF Operational Strategy/Program Objective Addressed by the Project.* The Project will implement priority actions identified in the 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 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 transboundary 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 transboundary environmental concerns". The Project's holistic approach on combining good agricultural practices with ecologically sustainable land use management of a high priority former floodplain area, 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." Projects under this Operational Program address the "types of measures needed to ensure that the ecological carrying capacity of the water body is not exceeded" 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 source agricultural pollution to the Danube River and Black Sea. The Project builds on the Rural Environmental Protection Project in Poland and the Agricultural Research, Extension and Training (ARET) Project in Georgia and is expected to serve as a model for similar operations to be launched in the other littoral countries for which a strategic partnership between the GEF and the Bank is envisaged. The World Bank is preparing a Black

Sea/Danube River Strategic Partnership (BSDRSP) for review by the GEF Council in the Spring of 2000. Under the Partnership, riparian countries would be eligible for GEF funding for projects that would control or mitigate nutrient inflow to the Black Sea in one or more of the following ways: (i) restore or create wetlands that would reduce nutrient discharge; (ii) reform or improve agricultural and land use management practices to reduce nutrient load and/or diffuse discharges through run-off; and (iii) treat wastewater from small communities and industries. The proposed project would serve as a model for future projects under this Partnership Program.

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

*Main Sector Issues:* The Black Sea, a critical regional resource, is one of Europe's newest seas, formed a mere seven to eight thousand years ago. Despite its uniquely fragile natural physical and chemical characteristics, the Black Sea ecosystem had been relatively stable until recent times. During the past decades, however, the Black Sea suffered severe environmental damage, due mainly to coastal erosion, eutrophication, insufficiently treated sewage, introduction of exotic species, inadequate resource management, loss of habitat, all of which led to a decline of its biological diversity and long-term ecological changes. There is general agreement that eutrophication, caused by an increase in nutrient flux down the major rivers, particularly in the late 1960s when fertilizer and chemical use increased markedly as a result of the "Green Revolution" and subsidization of these inputs, is the most serious problem 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 forth 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.

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%.

Nutrient flow from Romania : 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 nitrites, 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.<sup>3</sup> 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).<sup>4</sup>

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. Nevertheless, the overall discharge of nutrients is still higher than what it was in the 1960s. 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. 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 to move toward 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, which may be summarized thus:

The long term goal is for all Black Sea basin countries 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.

As an intermediate goal, urgent control measures should be taken by all countries in the Black Sea basin, in order to avoid that discharges of nitrogen and phosphorus to the Black Sea exceed those levels observed in 1997.

Government Strategy for Agriculture: 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. However, as few of the new owners have farming experience, measures are expected to be initiated shortly under the proposed 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.

<sup>3</sup> Romania Vadineanu, A et al, 1999 - *Targets concerning socio-economic restructuring emerged from the material accounting analysis at the National Scale.*

<sup>4</sup> Report prepared by Directorate of Public Health, Calarasi for the proposed project.

Government Strategy for Environment: Reduction of nutrient run-off (nitrogen and phosphorous) into the Danube and Black Sea from agriculture was identified as a priority action by the National Environmental Action Plan, and both the Black Sea and Danube River Basin Strategic Action Plans. Wetland restoration along the Danube River was identified as one of the most effective ways to reduce nutrient loads into the Danube and Black Sea and the project's selected site, Boianu-Sticleanu agricultural polder, is listed as a high priority area both in the NEAP and in the Danube River Pollution Reduction Program. The project will build upon the experience in polder restoration during four years of implementation of the GEF-financed Danube Delta Biodiversity Project. The Ministry of Waters, Forests and Environmental Protection is in the process of harmonizing the environmental legislation with that of the EU, as a condition for accession, and the Nitrates Directive is one of the most important Directive.

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

#### ***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, domestic waste management and riparian forest buffer strips, to reduce over the long term the discharge of the nutrient load into the Romanian ground and surface waters as well as the Black Sea;

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.

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

#### **1. Project components (see Annex 1):**

The pilot project area comprises seven comunas in *Calarasi Judet*, a compact area of about 74,200 ha with 64,000 ha as arable land, in the southeastern part of Romania. The southern part of this area, bordering the lower Danube river, includes the Boianu-Sticleanu polder (approx. 23,000 ha), formerly a 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 Iezer Calarasi waterbody. Iezer Calarasi, with a surface of 3,200 ha is proposed 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 MWFEF, as a high-priority area to be rehabilitated in the Lower Danube River Basin.

## 1. Project components : (See Annex 6 for a detailed cost breakdown)

The four project components would build on experiences in related existing and planned initiatives, and will support activities to be implemented over five years as follows: (Please note that costs for each component / sub-component are tentative and will be finalized at the next preparation mission in November 2000).

### Component 1: Activities in the Calarasi Judet (US\$10.69m):

- **Promotion of Environment-friendly Agricultural Practices (US\$2.51)** 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: (i) the promotion of environment-friendly agricultural practices, such as crop rotation, conservation tillage systems, cover crops, riparian buffer strips and improved livestock management; and (ii) efficient application application of organic and inorganic fertilizers based on soil tests. These 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.
- **Manure Management Practices (US\$3.0m)** to include collection, storage, handling and use of animal manure at the village level. Under this sub-component, the U.K. Know How Fund will finance community training and awareness on good practices for waste collection and manure management, including composting, testing, and field application.
- **Integrated management of Boianu-Sticleanu Polder (US\$1.47m):** The project proposes to develop and support 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 which will be based on the results of the baseline survey to be undertaken in the preparation phase, would include: (i) afforestation of the degraded lands adjacent to the Iezer Calarasi and of the unproductive riparian land; (ii) implementation of the code for good agricultural practices on the arable land; (iii) promoting sustainable use of pastures and other grazing areas; and (iv) conservation management plan for the proposed Iezer Calarasi nature reserve. The component will, therefore, complement the restoration activities on the Bulgarian side (Oriahovo, Bulgarian Danube islands and the floodplain west of Belene and Tutracan).
- **Water and Soil Quality Monitoring (US\$0.45m):** The project would strengthen the capacity of EPA and Public Health Department in Calarasi to carry out water and soil quality monitoring. 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.
- **Public Awareness and Replication in Calarasi Judet (US\$0.23m):** The project will support the promotion of public awareness activities to achieve replicability of this component in Calarasi Judet. The public awareness activities will be undertaken in the seven pilot comunas and will be delivered through cost effective, traditional and innovative vehicles

which should lead to awareness among the population of the contamination of their drinking water supplies and the potential of the practices being demonstrated to produce health, ecological and commercial benefits. Co-ordination on timing of message delivery and availability of resources to implement suggested improvements will be essential. Cooperation with local authorities and other local leaders in the communities is also essential for an effective campaign, to reach the majority of the population in the communes concerned. Farmers and other stakeholders will be presented the benefits of the activities in order to consolidate the new behaviour patterns. Personnel from the Judet's agricultural consultancy office (OJCAC) will receive training in the use and benefits of environmentally friendly agricultural practices. They will participate in the demonstrations and field trials and thereby become a major vehicle for encouraging the adoption of these practices throughout Calarasi.

- ***Wastewater Treatment at Olenita (US\$3.03m):*** EU is favorably considering support through PHARE 2000 Regional, the MWFEP request for a wastewater treatment plant in Olenita, located upstream from Calarasi at an approximate cost of 3.07 million euro. There is also a possibility that under PHARE 2001, EU will support a wastewater treatment plan in Calarasi town at an estimated value of 15 million euro. These water treatment plants will help reduce pollution to the Danube River from Calarasi county, thus furthering the objectives of the proposed project.
- The component includes a “needs assessment” activity under a parallel-financed U. K. Know How Fund to determine main constraints and priorities of raising profitability of farming at village and individual farm levels. Such financing will also provide technical assistance to extension agents in organic farming, vegetable growing, and livestock production, especially to female farmers.

## **Component 2: National Level Activities (US\$1.18m)**

***Strengthening National Policy and Regulatory Capacity (US\$0.98m):*** which would include support to the Ministry of Water, Forests and Environmental Protection (MWFEP) and Ministry of Agriculture and Food (MAF) for: (i) harmonizing relevant legislation with the requirements of the European Union, specifically the Nitrate Directive; (ii) developing the Strategy for Nutrient Reduction as part of the good practices for environment protection in agriculture which is currently being prepared by MAF; (iii) strengthening the capacity of the proposed National Agency for Ecological Agriculture in its efforts to promote scientific organic farming and land use management; (iv) training personnel of The National Consultancy Agency for Agriculture (ANCA) in the methods of environmentally-friendly agriculture. The project will also support the MWFEP and MAF to develop and implement a Code for Good Agricultural Practices in Calarasi and use this as a model for a national code.

***Public Awareness Activities and Replication Strategy (US\$0.20m):*** A broad, nationwide public information campaign will be undertaken to disseminate the benefits of proposed project activities. 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 good-will 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.

**Component 3: Regional collaboration (US\$0.15m):** 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.

**Component 4: Project Management Unit (US\$0.75m).** The project would support a Project Management Unit (PMU) to be established in the DGA offices, Calarasi. The PMU would comprise Project Manager, Procurement Specialist, Project Financial Management Specialist and Project Administrative Assistant. 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.

<b>Component</b>	<b>Activity</b>	<b>Indicative Costs (US\$M)</b>	<b>% of Total</b>	<b>GEF financing (US\$M)</b>	<b>% of GEF-financing</b>
Calarasi	Promotion of environment-friendly agricultural practices	2.51	19.6	1.05	41.7
	Manure management practices	3.00	23.5	1.62	53.9
	Integrated management of the Boianu-Sticleanu Polder	1.47	11.5	1.04	70.5
	Water and Soil Quality Monitoring	0.45	3.5	0.20	45.3
	Public Awareness activities and Replication	0.23	1.8	0.20	86.1
	Wastewater Treatment Plant	3.03	23.7	0.00	0.0
National	National Policy Framework	0.98	7.6	0.38	38.8
	National public awareness activities and Replication	0.20	1.6	0.20	100.0
Regional	Regional Cooperation	0.15	1.2	0.10	67.7
Project Management Unit (PMU)		0.75	5.9	0.71	94.7
<b>Total Project Costs</b>		<b>12.78</b>	<b>100.00</b>	<b>5.50</b>	<b>43.1</b>

## **2. Key policy and institutional reforms to be sought:**

Key Policy reforms to be sought:



With the proposed competitive leasing out of the agricultural land in the Boianu-Sticleanu Polder, the intensity of agriculture could increase with a concomitant rise in the quantity of inputs used, particularly inorganic fertilizers and pesticides. The preparation mission raised the issue of how to ensure that the new owners/lessees will follow the code of conduct that is agreed in the land management plan. Both MWFEP and MAF representatives gave assurances that, within the context of Romanian legislation, the people responsible for farming in the polder would be obliged to follow the guidelines of the land management plan. The preparation mission advised that the Bank would require the government to ensure the leasing agreements contain provisions for lessees to follow the guidelines and mechanisms would be established for enforcement. Both the ministries assured the mission of jointly signing a side-letter reflecting this agreement. MAF also confirmed to a follow-up preparation mission that the leasing agreements would contain a clause to require farming companies leasing the land to adopt the Code of Good Agricultural Practices along with specific provisions for the use of sustainable practices in the Polder. The leasing agreements would also contain provision for regular monitoring of the quality of both irrigation and drainage water to check for changes in the nutrient balance.

With respect to the introduction of agro-forestry, windbreaks and buffer strips in the project area, the mission sought assurance from the MWFEP and MAF that the current tax on change of land use from agricultural land to forest land would not be applied. Both Ministers made reference to the Land Law 18/1991, article 2, paragraph (a), according to which, the lands covered by forestry vegetation which are not included in existent forest management plans represent agricultural lands, so for degraded lands where agro-forestry is going to be practiced, the land will belong in the same land-use category and no tax will be applied, provided that they will not be a part of the forestry planning and will be administered by the comunas, farmers' associations and not by the Territorial Forestry Units.

This project will support the MWFEP and MAF to develop and implement a Code for Good Agricultural practices in Calarasi, which will include the implementation of land use management plan.

Institutional Reform to be sought:

The project would pilot the establishment of inter-sectoral cooperation between MWFEP and MAF in the implementation of the project. The institutional arrangements agreed between MWFEP, MAF and the Ministry of Finance during project preparation, which would include setting up of the Project Preparation Unit in Calarasi, would establish the necessary collaborative requirements for implementation. The project would also strengthen 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 as well as assist Romania in implementing the EU Directives as part of the EU accession process. Further the project would contribute to the on-going decentralization process and help Romania build local institutional capacity to absorb EU accession and structural funds

### **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: (i) through a continual 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) improving habitat for migratory waterfowl and a variety of endangered species;(iii) by sequestering carbon in the grasslands, cropland and forests.

Nationally: (i) through improvements in quality of the 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; and (iii) progress towards compliance with EC Directives; and (iv) increased agricultural productivity through improved agricultural practices.

Locally: (i) at the farm level, additional income from the use of manure as fertilizer, rotations, and improved livestock grazing practices; (ii) improvement in health and sanitation as there will be an improvement in the drinking water and general hygiene of the villages; and (iii) through terrestrial and aquatic habitat enhancement increase populations of birds and fish species of local economic and social importance.

The private farmers and rural households are the primary beneficiaries of the Project.

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

Project Oversight Committee: A Project Steering Committee will replace the current Inter-Ministerial Working Group. The Steering Committee will be established by the two Ministers, MWFEP & MAF, and will consist of seven members, one representative from each Ministry (MWFEP, MAF and MOF) and four to be nominated by MWFEP and MAF. In order to strengthen the linkages with other projects supported by World Bank, the Chairman of the Competitive Grant Scheme Board of the Agricultural Support Service Project would be one of the members of the Steering Committee. The committee will be responsible for providing project oversight, advice and assistance in resolving issues associated with project implementation. The Ministers of MWFEP and MAF will co-chair the Steering Committee. MWFEP has been designated by the Ministry of Finance as the line Ministry with overall responsibility of project implementation.

Project Management Unit (PMU): MWFEP 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, the monitoring and evaluation of all project activities. The PMU would co-ordinate the implementation of activities by the different local and national agencies, including the field agencies of MAF and MWFEP. The PMU, which would comprise Project Manager, Procurement Specialist, Project Financial Management Specialist and Project Administrative Assistant, has initially been established as a Project Preparation Unit. The Project Manager and the Procurement and Financial Management Specialists have been appointed. The Project Manager will report to the Minister, MWFEP.

The implementation arrangements are summarized in Organization charts for (a) project preparation and (b) project implementation in Annexes 7 and 8 respectively.

Financial Management: A Financial Management System approved by GOR and the World Bank will be procured as part of establishing the Project Preparation Unit and will be used throughout the project. The system would be developed to cover the operating procedures, audits and reporting requirements of the GOR, World Bank and other international donors. Prior to negotiations, the Bank's Financial Management Specialist will issue the Financial Management Certificate (Annex 4 of the Bank's Financial Management Manual available at the World Bank Resident Mission, Bucharest) together with an action plan agreed with the Borrower.

Project Monitoring and Evaluation – 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 have been collected and the Public Health Department and the EPA-Calarasi have provided baseline data for soil and water quality levels. During project preparation, the Project Preparation Unit will also develop a project monitoring and evaluation plan with performance indicators using Annex 1 as the basis. The PMU would annually monitor and evaluate project performance through conducting beneficiary surveys.

#### **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) reduce nutrient run-off by promoting environmentally-friendly farming practices in the main agricultural areas of Romania; (iii) work primarily on wetland restoration along the lower Danube river; and (iv) link proposed project to the Agricultural Support Services Project under preparation.

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, conservation tillage systems, riparian buffer strips, soil testing, application of fertilizers, monitoring of water quality.

Options (ii) and (iii) were rejected in favor of a more comprehensive approach that would involve a combination of environment-friendly agricultural practices as well as wetland management in one compact, high priority area along the Danube river. Thus, the project preparation team selected Calarasi region, in the southern part of Romania, along the lower Danube which would include the Boianu-Sticleanu polder for the following reasons: (i) poor agricultural practices, including inappropriate management, storage and application of mineral fertilizers, pesticides, manure and domestic waste; (ii) lack of septic tanks in most of the rural settlements; (iii) soil erosion resulting from unsustainable land use; (iv) destruction of the former floodplain areas; and (v) lack of waste water treatment plants for both small human settlements and intensive animal production. Groundwater pollution with nitrogen and phosphorous from agricultural practices in this region is high. In 1997, a general pollution of groundwater with nitrites, nitrates and phosphates was observed in more than 30 % of investigated wells. Subsequent sampling of drinking water wells indicate higher levels of contamination with nitrogen compounds (79%) as well as microbials (76%). All of these in excess of health standards. This had strong ramifications on human health with 15 infants diagnosed and hospitalized in 1997 with acute intoxication with nitrites. In some villages in the region, the Ministry of Health still maintains the interdiction for children under 3 years old to drink water from the wells. Over the period 1995-1999 the incidence of Acute Diarrheal Diseases has exceeded rates for the rest of the country. The Boianu–Sticleanu polder was 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 (iv), initially it was decided to tie the proposed project to the ASSP that was under preparation at the time. The proposed project would ensure that the research, extension and training undertaken under ASSP would promote the**

**adoption of environment-friendly agricultural practices among newfarmers. However, this approach was rejected and it was decided to make the proposed project self-standing. This would allow the project to have a more focused approach in one selected area than ambitiously target the entire country. It would serve as a pilot activity, a model that could be replicated in other similar sites of Romania. Wherever possible, the proposed project will work together with ASSP.**

**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	<u>Romania</u> : Agricultural Support Services Project (ASSP) Biodiversity Conservation Management Project Cultural Heritage Project <u>Bulgaria</u> : Wetlands Restoration Project <u>Georgia</u> : Agricultural Research, Extension and Training (ARET) Project Municipal Infrastructure Rehabilitation—MIRP National Environment Action Plan (IDF/Bank) Forestry Biodiversity Project	S           S	S           S
<b>Other development agencies</b> USAID	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 proposed 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;

working directly with the beneficiaries is essential for developing ownership, which is a precondition for the sustainability of an operation.

environment-friendly agricultural activities should establish a link between the objectives of environmental protection and tangible benefits for key stakeholders, specifically including local communities;

the benefits and objectives of the project should be made known to key stakeholders, if not through active participation, then through effective public awareness and outreach programs;

where consumptive use of natural resources is an issue, (e.g., grazing, hunting, fishing, and use of agricultural land), resource users must be substantively involved in the design of sustainable resource management systems, and effective monitoring and control mechanisms need to be developed and applied;

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;

applied research and monitoring programs should be site-specific and targeted to provide direct support for effective conservation management;

substantial capacity exists at the local and national levels, but 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 will incorporate these experiences and build 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, Forests and Environmental Protection (MWFEP) and the Ministry of Agriculture and Food (MAF) have requested the World Bank assistance – both technical and financial – in their efforts to promote the adoption of environment-friendly agricultural practices by farmers in Romania and to restore part of the former floodplain areas along the lower Danube River that will reduce further deterioration of the waters of the Black Sea. The Government, through a letter signed jointly by the Ministers of Agriculture and Food and of Waters, Forests and Environmental Protection, has requested GEF assistance for the Project. This is the first instance when the Ministries of Waters, Forests and Environmental Protection as well as Agriculture and Food have come together to jointly support project preparation and cooperate to jointly implement the project. The project preparation team has received full support from both ministries in project preparation.

In view of the importance of these issues an Inter-ministerial Working Group<sup>5</sup> was established on July, 8, 1999 under the leadership of MWFEP and MAF to (i) identify geographical distribution of priority non-point sources of agricultural pollution and the underlying economic and social

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<sup>5</sup> Inter-ministerial Working Group is composed of representatives of MWFEP, MAF, ISPIF, ICPA, ICIM, ICAS, NFA and University of Bucharest

causes for these practices; (ii) establish criteria for selecting among the priority regions and possible activities, areas and interventions that would address national and regional needs most strategically and effectively; (iii) propose possible activities to reduce nutrients discharge from agriculture in the selected region; and (iv) agree on institutional arrangements for project implementation. The composition of the inter-ministerial working group is in Attachment 1, and the criteria for selection of possible project areas and activities is in Attachment 2. The project preparation team found excellent commitment and support for the project from the Ministry of Waters, Forests and Environmental Protection, Ministry of Agriculture and Food, and Ministry of Finance. As the project moves towards final preparation and implementation, a Project Steering Committee will replace the Inter-ministerial Working Group.

#### **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 transboundary water issues. Also, 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. It would lack a mechanism to coordinate the financing, approaches and geographical targeting of activities. In addition, the Project would lack sufficient resources to develop capacity national and local capacity to promote and accelerate the program, to demonstrate the holistic approach to controlling nutrient loads and to undertake a public outreach program. The GEF is thus leveraging funds from donors and stimulating a program to coordinate activities, increase coverage and generate a larger impact. In this regard, the EU, British Know How Fund, France, and USAID have indicated their interest in directly assisting project preparation and/or supporting the project through parallel investment activities.

The GEF has already added value by supporting the Poland – Rural Environmental Project and the Georgia – Agricultural Research, Extension and Training (ARET) Project, in addition to the Black Sea Environmental 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. This is particularly important, as agricultural pollution and conversion of the former floodplain areas into agricultural polders are major local and transboundary problems in most countries in the ECA region, particularly those in the Black Sea, Danube River and Baltic Sea drainage basins. Some level of financial support from the public sector and the international community will continue to be necessary, particularly in lower income countries, because these activities address externalities, affect transboundary pollution and involve an element of public good.

## **E. Issues Requiring Special Attention**

### **1. Economic**

None

Economic evaluation methodology:

Incremental Cost

Under preparation

### **2. Financial**

Summarize issues below

The total government financing during the project implementation period is estimated at US\$2.1 million. This is approximately 1% of the combined annual budgets of MAF and MWFEF. 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.

Financial implications of the farm environmental improvements will be reviewed during project implementation. 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. Financial rates of return to be done during project preparation.

### **3. Technical**

Summarize issues below

The project is technically justified on the basis of the urgent need to address growing threats to the ground water quality in the Calarasi region of Romania as well as the Black Sea and the absence of effective pollution control measures. The project seeks to mainstream environmental considerations in agricultural practices, a comprehensive strategy that will have a far greater impact in improving water and soil quality along the lower Danube and reducing nutrient loads entering the Black Sea. This will have the added benefit of improving health and sanitation conditions in the villages in the Calarasi region and parts of southeast Romania.

The project will establish a functioning model of best practice to reduce nutrient run-off from agricultural practices and build national capacity to replicate this practice in other parts of Romania. Skills will be acquired from international experience through a combination of study tours, workshops, networking, training, establishing linkages among various relevant institutions. Technical issues include buffer strip identification and species to be planted, contour ploughing, crop rotations, manure and nutrient management, crop marketing and organic farming. These will be identified during the project preparation phase. A land use suitability map for the Boianu-Sticleanu Polder will be developed during project preparation identifying, inter alia, lands to be planted with trees, the land suitable for retaining under arable farming and lands to be returned to seasonal grazing. An integrated management plan for the polder would be developed and supported during the project. Wherever possible, the project will cooperate 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**

Summarize issues below



A Project Steering Committee will replace the current Inter-Ministerial Working Group. The Steering Committee will be established by the two Ministers, MWFEP & MAF, and will consist of seven members, one representative from each Ministry (MWFEP, MAF and MOF) and four to be nominated by MWFEP and MAF. In order to strengthen the linkages with other projects supported by the Bank, the Chairman of the Competitive Grant Scheme Board of the Agricultural Support Service Project (ASSP) will be one of the members of the Steering Committee. The committee will be responsible for providing project oversight advice and assistance in resolving issues associated with project implementation. The Ministers of MWFEP and MAF will co-chair the Steering Committee.

MWFEP has been designated by the Ministry of Finance as the line Ministry with overall responsibility of project implementation. MWFEP 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, the monitoring and evaluation of all project activities, as well as co-ordination of implementation activities by the different local and national agencies, including the field agencies of MAF and MWFEP. The PMU has initially been established as a Project Preparation Unit.

## 5. Social

### Summarize issues below

A baseline survey at the communa and village level has been conducted and is available. A more detailed questionnaire has been developed which will be completed during project preparation. Subsequently, such a survey will be undertaken annually to monitor progress of the project.

The project site has 21 villages grouped in seven communes with a population of 25,700. The average village population is 1,200 and there are just over 2.1 people per household – mainly elderly. There are nearly 90 farming associations, out of which 59 are family associations, that supply some inputs to their members. However, the bulk of farmers do not have access to such services and farm work is carried out manually or with the help of a horse. Four state farms still remain and these have some equipment. However, due to insufficient funds they cannot purchase the necessary fertilizers, fuel and spares and are therefore currently working below capacity.

The land is divided into farms, fields and plots; the farm and plot numbers change every year 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 within rural areas, very little knowledge of the practices for efficient storage, management and application of plant nutrients and a very high concentration of domestic waste disposed near the watercourses. In 1997, a general pollution of groundwater with nitrites, nitrates and biologicals was observed in more than 30 % of investigated wells. This had a strong impact on human health 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. 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

support economic opportunities for key stakeholders that are linked to the objectives of the project.

## 6. Environmental

### a. Environmental Issues:

Summarize issues below (distinguish between major issues and less important ones)

Major: None

The major environmental issue is reducing the amount of nutrients leaching into the groundwater or flowing directly into the river systems and then into the Black Sea. The thrust of this project is to decrease this flow through polder restoration, appropriate manure and solid waste management and improved agricultural practices. The project cannot be successful without the full co-operation of the farmers. Therefore, it has been designed and will be implemented in a participatory manner so as to have the maximum environmental (and financial) impact on the area. Hence, no major adverse environmental impacts are envisaged.

As part of component 1, the project will construct and install manure storage tanks. The environmental concerns under this component may include leakage of the manure (if construction is not according to specifications), inappropriate manure spreading and inadequate cleaning of the manure storage tanks. To mitigate these environmental issues, the project will undertake environmental assessments during preparation. Also, an environmental management plan will be developed to ensure that activities undertaken under this component will be closely monitored with regular inspections by the local environmental agency(ies). Farmers will be advised on measures to address any adverse environmental impacts arising out of inappropriate manure management.

All civil works that the project will support will be subject to review and approval by the local environmental authorities.

Other:

Environmental Category: B

## 7. Participatory Approach

### a. Primary beneficiaries and other affected groups:

In meetings with the preparation mission, stakeholders from the seven communes expressed their full support for the project objectives and gave first priority to the introduction of waste management systems at the village level. In addition, they were particularly interested in the planting of wind breaks, in establishing buffer strips in degraded areas along water courses, as well as in promoting better use of the livestock grazing areas. The mission found that there was good awareness of the needs for developing more sustainable agriculture in the area, but a limited knowledge of the techniques involved.

### b. Other key stakeholders:

Participation in project pre-identification: The components of the proposed project were identified as top priorities in both national and regional action plans and strategies which were prepared in a participatory manner involving all institutions concerned with environment and agriculture. Reduction of nutrient run-off in the Danube and Black Sea from agriculture was identified as a priority action by the National Environmental Action Plan, the Strategy for



Environmental Protection in Agriculture and both the Black Sea and Danube River Basin Strategic Action Plans. Wetland restoration along the Danube River was identified as one of the most effective ways to reduce nutrient loads into the Danube and Black Sea and the selected site, Calarasi polder, is listed as high priority area both in the NEAP and in the Danube River Pollution Reduction Program. In addition, the Inter-Ministerial Working Group, composed of key national institutions concerned with mainstreaming environment into agriculture, identified the proposed components as ones that would be most effective in addressing nutrient pollution of the Danube and Black Sea. The Advanced Project Concept document was finalized in collaboration with Government counterparts and various research institutions that are continuing to actively pursue options for co-financing and establishing links between the proposed project and related national and international initiatives.

Participation in project identification and preparation: Structured meetings will be organized in the next stage by a trained facilitator to solicit the views of all relevant stakeholders on the rationale and design of the Project based on experiences gained in the pre-appraisal of the GEF Biodiversity Conservation Management Project and development of the vision for reform of the forestry sector

c. Describe issue(s) involved not already discussed above:

Given that the land ownership in the Polder will not be resolved in the next six months, the preparation mission raised the issue of how to ensure that the new owners/lessees will follow the code of conduct that is agreed in the land management plan. The mission received assurances from the Ministers, MWFEP and MAF, that, within the context of Romanian legislation, whomsoever is responsible for the farming in the Polder would be obliged to follow the guidelines of the environmental land management plan. The mission agreed to proceed with the project preparation on this basis. However, the mission advised the Government that the Bank would require that the leasing agreements contain provisions for lessees to follow the environmental guidelines and an enforcement mechanism should be established. The mission was assured that the MAF and MWFEP will jointly sign a side-letter reflecting this agreement.

## F. Sustainability and Risks

### 1. Sustainability:

#### *Institutional sustainability*

**The local government agencies and the communa councils led by elected Mayors, are in full support of the project. The project preparation team will work closely with the extension service (ANCA), which has only been recently established and supported through the World Bank Agricultural Support Services Project (ASSP). The project seeks to strengthen the policy and regulatory framework and build capacity of national and local institutions, including the Ministry of Waters, Forests and Environmental Protection and the Ministry of Agriculture and Food towards project preparation and implementation. Also, the PMU will be located in the Calarasi branch of the General Directorate for Agriculture (DGA) bringing project management to the local level. Both the DGA and the Environmental Protection Agency, 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.**

#### *Social sustainability*

**Early involvement of key stakeholders in project preparation and implementation, including policy makers, local public officials and community leaders, farmers, their associations, NGOs, will ensure social sustainability of the project. The technology provided will be responsive to the needs of the farmers and end-users. They will help in identifying issues and possible measures to address them. Farmers will participate in installing on-farm field trials and community waste containment structures. This will give the farmers and beneficiaries a sense of ownership and contribute to social sustainability. The Farmer's associations and individual farmers have pledged their support and are looking forward to working with the project staff.**

The project has been designed as a pilot, small-scale project for demonstrating good environmental practices that will act as a model and demonstration for adoption in other areas. Under the EU Nitrate Directive, Romania has to identify vulnerable areas and to develop and implement a Code of Good Agricultural Practices and Action Plans for each vulnerable area. The activities to be implemented under the Project (which is seen as the first pilot project in Romania to reduce the nutrient load) could be replicated at both local and national level. This replication will be promoted by the series of on-farm trials and demonstrations in the project area, by the training programs that will be conducted, including seminars and workshops at different levels, by articles in professional journals, as well as by the public awareness program, and by the involvement of NGOs and private sector in the village level activities. Furthermore, the project has been designed as a model for a regional program to reduce nutrient loads in the Danube and Black Sea. This is a priority that has been identified in both the Strategic Action Plan for the Protection and Rehabilitation of the Black Sea and the Strategic Action Plan for Pollution Reduction in the Danube River basin, supported with GEF assistance.

### ***Financial Sustainability***

The main focus of activities at the village and individual farm level is the introduction of environment-friendly agricultural practices that maintain or increase farm profitability and household revenues. Farmers will be contributing to-wards the installation and operating expenses of the demonstrations and be involved in the planning and execution from the start. A sense of ownership with cost sharing plus attention to positive impact on profitability will ensure that farmer adoption of these practices will become self-sustaining. Practices to be tested would include conservation tillage, crop rotation, nutrient management, pesticide management and agro-forestry, among others. Thus the major thrust of activities at the local level is the development of sustainable solutions. Moreover, with regard to the Boianu-Sticleanu Polder, the proposed integrated land management plan would designate the land use suitability of the different areas and a plan for their management on a sustainable basis. Finally, the assistance for capacity building in policy and regulatory matters will enable MWFEP and MAF to establish a sound basis for management of the various agro-ecological systems in Romania.

**The Government has demonstrated consistent financial commitment to implementing the ongoing GEF Danube Delta Biodiversity Project and the Biodiversity Conservation Management Project. This project is a logical extension of these initiatives. Additionally, the Government is enthusiastic about this project, because it is the first time that the MAF and MWFEP will be working together to solve pressing environmental and agricultural problems. Government recognizes that a holistic approach combining good agricultural practices, ecologically**

sustainable land use management of former floodplain areas and an appropriate legal framework is the most efficient way to contribute to the reduction the nutrient loads into the Danube River and Black Sea and have committed to contribute to the incremental costs of the project, and to financially support replication of this model in other areas of Romania after completion of the project. The project would also benefit the farmers by promoting cost-saving yield-enhancing agricultural practices. In addition, the promotion of organic farming has the potential to open new markets for the local farmers.

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

<b>Risk</b>	<b>Risk Rating</b>	<b>Risk Minimization Measure</b>
<b>From Outputs to Objective</b>		
Increased pollution of the Danube River and Black Sea and failure of national and local authorities to avert further damage.	N	National awareness public program targeted at key audience, including policy makers.
Low/inadequate commitment from national and local governments and institutes.	N	Public awareness campaign 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.	M	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.
<b>From Components to Outputs</b>		
Farmers are less willing to accept improved, environment-friendly agricultural practices.	M	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.
New private sources of funding do not come forward.	N	Ensure donor participation in project design.
<b>Overall Risk Rating</b>	<b>M</b>	

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

## G. Project Preparation and Processing

### 1. Has a project preparation plan been agreed with the borrower?

Under preparation

### 2. Advice/consultation outside country department:

Within the Bank: ENV, ECSIN

Other development agencies: World Wildlife Fund, UNDP, PPC, Iowa State University, Chesapeake Bay Foundation

### 3. Composition of Task Team (see Annex 2):

Jitendra Srivastava - Task Team Leader  
 Doina Rachita - Projects Officer  
 Adriana Dinu - Consultant  
 Meeta Sehgal - Project Analyst  
 Srish Kumar - Financial and Economic Analyst  
 Naushad Khan - Procurement  
 Keith Openshaw - Consultant  
 Mahesh Sharma - Environment Specialist  
 Dana Dobrescu - Consultant  
 Bogdan Constantinescu – Financial Management Specialist  
 Sharifa Kalala - Team Assistant

### 4. Quality Assurance Arrangements (see Annex 2):

John Hayward, Julia Bucknall (ECSSD); Manuel Marino (ECSIN); Mahesh Sharma (GEF)

### 5. Management Decisions:

<b>Issue</b>	<b>Action/Decision</b>	<b>Responsibility</b>
PCD Review Meeting	Cleared for project preparation mission	Jitendra Srivastava, Task team Leader

**Total Preparation Budget:** US\$421,000

PDF-B Grant : US\$300,000

GEF Funds: US\$121,000

**Cost to Date:** US\$119,900

**Further Review** [Expected Date]

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>	<b>Sector Indicators:</b>	<b>Sector/ country reports:</b>	<b>(from Goal to Bank Mission)</b>
<p>Protection and enhancement of the environment</p> <p>Assist Romania in implementing the National Environment Action Plan (NEAP)</p> <p>Institutional strengthening of the Ministry of Water, Forests and Environment Protection</p>	<p>Improvements in water quality</p> <p>Capacity to address environmental degradation of the Black Sea.</p>	<p>Agricultural statistics</p> <p>National reports</p> <p>Periodic EU assessments</p>	<p>Stable Macro-economic framework in light of EU membership and improved agricultural practices contributing to decreased poverty</p>

<b>GEF Operational Program</b>			
The Project's objective of reducing non point source pollution 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 water bodies from trans-boundary non-point source pollutants.	Regional Surveys	Government's ability to mobilize resources to reduce threats to water bodies
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.	High percentage of farmers, local and national governments aware of financial and environmental impacts of adopting environment-friendly agricultural practices	Regional Surveys	Sustained effort to raise the public awareness and demand for protection and improvement to environmental factors
<b>Global Objective:</b>	<b>Outcome / Impact Indicators:</b>	<b>Project reports:</b>	<b>(from Objective to Goal)</b>
To significantly increase the prevalence of environment-friendly agricultural practices among farmers' associations, family farms and other eligible farmers in target project areas.	Increased area of adoption of environment-friendly farm practices, and manure management at village level.	Agricultural statistics	Project-developed interventions are replicated on a wide scale.
<b>Output from each component:</b>	<b>Output Indicators:</b>	<b>Project reports:</b>	<b>(from Outputs to Objective)</b>
<b>1. Calarasi level</b> A well documented pilot completed and evaluated for replication	high level of participation (all comunas, all villages and 65 % of individual farmers) in target areas where nutrient management plans have been developed	Quarterly reports	Technologies respond to farmer's needs.
Packages developed for manure management	high level of participation (all comunas, all villages and 65 % of individual farmers) in target areas that have built manure storage pits/tanks.	Quarterly reports	New private sources of funding might not be forthcoming after the life of the project.
Restored acreage of polders.	High level of restored polder area.	Supervision mission reports	Continued land use based on plans developed. Other

			government programs do not conflict with project goals.
Good monitoring system for water and soil quality	Better soil and water quality	Annual monitoring reports from EPA and Calarasi Department of Public Health	Farmers continue to practice unsustainable agricultural practices
Increased awareness of ways to reduce non-point source agricultural pollution.	High level of public awareness to: a) environment-friendly agricultural practices & policy on non source pollution; and b) Economic & financial impacts of adopting environmentally responsible practices.	Social assessment sample surveys	Support from local and national government continues for carrying out the components.
<b>2. National Level</b>			
Improved policy framework drafted for non-source pollution control	Draft policy framework for non-source pollution meets EU criteria.	Adopting the Policy framework	Continued support and enforcement of policy
Increased Awareness and demand for replication in other Judets	Awareness of farmers outside project area about the potential to improve income while protecting the environment.	Demands from other local governments for replication of project investments	Provide resources to monitor and regulate standards.
<b>3. Regional Level:</b>			
Increased knowledge & awareness of ways to reduce non-point source pollution among regional participants.	Awareness of farmers, NGOs, and officials of other countries of the impact of the project to the Calarasi Judet	Visits of farmers, NGOs, and officials of other countries in the region	Farmers and leaders in other countries become interested in the topic to allocate resources to replicate
<b>4. Project Management</b> Well managed project.	Continued support from the project steering committee	Supervision Reports	Adequate availability of necessary institutional support government agencies.
<b>Project Components / Sub-components:</b>	<b>Inputs: (budget for each component)</b>	<b>Project reports:</b>	<b>(from Components to Outputs)</b>
<b>1. Calarasi Level</b> <b>US\$ 10.69 million</b>			.
testing and demonstrating environment-friendly agricultural Practices	US\$ 2.51 million	Progress Reports (quarterly)	Project incentives are sufficient to motivate farmers to participate in the project

Matching grant for manure management practices	US\$ 3.00 million	Progress Reports (quarterly)	Local government support the pilot initiative by contributing resources.
Ecological restoration of the Boianu-Sticleanu Polder.	US\$ 1.47 million	Progress Reports (quarterly)	Enforcement of land-use plan
Monitoring	US\$ 0.45 million	EPA and Public Health annual reports of soil and water quality. Annual social assessment sample survey	Implementing agencies may be unable to attract and retain qualified staff
Public awareness and replication	US\$ 0.23 million	Annual social assessment sample survey	Timely availability of counterpart funds
Waste water treatment Plant (PHARE 2000 parallel Financing)	US\$ 3.03 million	EU Report	Approval of EU funding
<b>2. National Level US\$ 1.18 million</b>			
Draft policy framework for non source pollution	US\$ 0.98 million	Draft agriculture policy to include non source pollution of water	Continued support and will for enforcing policy
Public awareness, and replication	US\$ 0.20 million	Sample Survey	
<b>3. Regional Level US\$ 0.15 million</b>			
Regional cooperation for replication	US\$ 0.15 million	Progress Reports (quarterly)	Ability to interact with each other for mutual benefit.
<b>4. Project Management, Unit US\$ 0.75 million</b>	US\$ 0.75 million	Progress Reports (quarterly)	Ability to maintain staff, offices and support from local governments and communities





# **ANNEX 3**

## **Russian Federation Rostov Nutrient Discharge & Methane Reduction**

**DRAFT  
Project Concept Document**

**RUSSIAN FEDERATION**

**ROSTOV NUTRIENT DISCHARGE & METHANE REDUCTION GLOBAL ENVIRONMENTAL FACILITY**

**Project Concept Document - (DRAFT)**

Europe and Central Asia Region  
ECSIN

<b>Date:</b> March 31, 2001	<b>Team Leader:</b> Kari Homanen
<b>Country Director:</b> Julian Schweitzer	<b>Sector Manager:</b> Walter Stottmann
<b>Project ID:</b> P071473	<b>Sector(s):</b> WS - Sewerage
	<b>Theme(s):</b>
<b>Focal Area:</b> I - International Waters	<b>Poverty Targeted Intervention:</b> N

<b>Project 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>Financing Plan:</b>	<b>Source</b>	<b>Local</b>	<b>Foreign</b>
			<b>Total</b>
BENEFICIARY		20.00	0.00
			20.00
GLOBAL ENVIRONMENT FACILITY		10.00	0.00
			10.00
<b>Total:</b>		30.00	0.00
			30.00

<b>Borrower/Recipient:</b> RUSSIA
<b>Responsible agency:</b>
Ministry Of the Natural Resources of Russian Federation
Address: 4/6 Bolshaya Gruzinskaya, 123812, GSP, Moscow, Russia
Contact Person: Amirkhanov
Tel: (095) 2547029
Fax: (095) 2548283
Email:

**Other Agency(ies):**

Rostov Oblast Administration

**Address:** Rostov**Contact Person:** Ivan Stanislavov, Deputy Governor**Tel:** 8632-653202**Fax:** 8632-653202**Email:** rrfsp@aaanet.ru

Bolshaya Sadovaya 51, 344 000 Rostov, Russian Federation

**Implementing Agency****Address:** Rostov Vodokanal, Gorky Street 293, 344019 Rostov, Russian Federation**Contact Person:** Boris Persidski, Director, and Sergei Shneider, PIU Director**Tel:** 8632-652580, 8632-653202**Fax:** 8632-518318**Email:** rrfsp@aaanet.ru**Project implementation period:** 2002-2004

## **A. Project Development Objective**

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

#### **(i) Sub-Project: Reduction of Nutrient Discharges**

##### **Objectives**

The key objective of the proposed sub-project is to reduce the discharge of nutrients (nitrogen and phosphorous) into the Don River and Azov Sea/Black Sea through: (i) rehabilitation and improvement of the wastewater treatment plant of the city of Rostov-on-Don (RVK WWTP); (ii) configuration of sewage network to reduce untreated wastewater overflow into the Don Tributary Temernik; (iii) policy reform and pilot activities to promote phasing out of phosphates and polyphosphate discharges into the Don River watershed; and (iv) replication of a comprehensive nutrient reduction approach in other parts of Russia and riparian countries of the Black/Azov Sea.

#### **(ii) Sub-Project: Reduction of Methane Emission**

##### **Objectives**

The key objective of the proposed sub-project is to reduce the greenhouse gas (GHG) emissions from RVK WWTP through (i) rehabilitation and extension of sludge digesters; (ii) capture and combustion of methane gas; (iii) electric generation displacement; (iv) heat generation displacement; (v) completion of the full chain of the sludge treatment process and final disposal; and (vi) promotion of replication of methane emissions reduction in municipal wastewater utilities in other parts of Russia and CIS countries.

#### **(iii) Global Objectives**

In a period of only three decades (1960's-1980's), the Azov/Black Sea basin has suffered the serious degradation of a major part of its natural resources. Water resources of the basin are facing particularly acute problems generated as a result of pollution from nutrients, organic material, oil products and solid wastes. The Strategic Environmental Action Plan for Greater Rostov (GRESAP) names the RVK municipal wastewater facility as the principal source of pollution of the Don River and particularly as an emitter of phosphorus and nitrogen substances that are responsible for the stimulation of aquatic plants and for contributing to eutrophication of the Don River and Azov/Black Sea. Estimates show that the city of Rostov-on-Don discharges annually about 2,000 tons of nitrogen measured as Total Kjeldahl Nitrogen (TKN) and about 200 tons of phosphorus into the Don river, which constitutes about 10% of the overall nutrient Don river flux into the watershed of Azov/Black Sea. Also, due to inadequate network capacity and its insufficient configuration, 20-30,000 thousand m<sup>3</sup>/day of municipal wastewater is being discharged untreated into the Don's River tributary Temernik, few kilometers upstream from its confluence with the Don. The estimated amount of nutrient load reduction into the Don (and thus into Azov/Black Sea) is about 1000 tons of nitrogen and about 100 tons of phosphorus per year corresponding to a reduction of about 27,000 tons of nutrients over the project life.

The existing sludge handling technology results in substantial (estimated at 24,000 m<sup>3</sup>/day) emissions of GHG, particularly methane, from the WWTP facilities (GHP of methane is 21 times the GHP of carbon dioxide). Low environmental fines for the methane discharges (\$0.09 per 1000 m<sup>3</sup>) do not give a proper incentive for the methane collection. Released methane can be collected and utilized for power generation for the WWTP needs, thus substantially reducing the

GHG release. The estimated reduction of GHG emissions will be about 771,000 tons of carbon equivalent over the project life.

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

The implementing agency will prepare a set of monitoring (physical/technical) and performance indicators (operational, financial and environmental), including the key indicators that will be monitored and reported upon on timely basis in the context of project management reports (PMRs). The list of monitoring indicators, acceptable to the Bank, has to be submitted to the Bank by Rostov-on-Don Municipal Unitary Water and Wastewater Utility (Rostov Vodokanal, RVK) at the appraisal stage for review and the final list at negotiations. The indicators are expected to include at least the following:

- Annual discharges of nutrients (P and N);
- Annual methane utilization at WWTP; and
- Improvements in service delivery, operational and financial efficiency primarily in: (i) financial targets, particularly the increases in revenue collection and cash collection; (ii) wastewater effluent quality; (iii) operational improvement; and (iv) energy savings also expressed in terms of CO2 reductions.

RVK, municipality and Rostov Oblast authorities have agreed comply with the same procedures and conditions as those agreed for the Russia Municipal Water and Wastewater Project of the World Bank approved in December 2000. Those include *inter alia* a RVK direct contribution of 10% of the GEF grant amount to the project investment fund, and payment of all taxes and duties related to the project.

## B. Strategic Context

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

**Document number:** 19897

**Date of latest CAS discussion:** 02/06/2001

Protecting and enhancing the environment is one of the nine main development challenges identified in the Russian Federation CAS. The latest CAS appraises the situation in the Russian Environment and Natural Resource Management as follows:

"42. Its tough, pro-environment laws and regulations notwithstanding, decades of inefficient development have left Russia with a costly legacy of environmental damage. Based on relative threat to human health (which is a reasonable proxy for losses to the economy) or direct linkages to losses of productivity to the Russian economy as the principal criteria, the most critical environmental problems facing Russia today are:

- (i) air pollution in urban areas caused by heating, power generation, transportation and industry;
- (ii) progressive deterioration of drinking water quality due to inadequate maintenance of water supply systems and the pollution of water resources;
- (iii) an increasing risk of environmental accidents and emergencies, caused by decaying public, industrial and transportation infrastructure and massive accumulation of hazardous industrial waste and radioactive materials in "hot spots" of high concentration of industry and population; and
- (iv) widespread degradation of land, fisheries, and forests.

43. Pollution has declined since 1990 because of declining output, but by less than the decline in output. Pollution intensity and energy intensity have both increased over the period. Fragmentary data suggest that the incidence of the costs associated with these environmental/resource management problems falls heavily on the poor. Russia, as a rich repository of biodiversity, as the worldwide third largest emitter of greenhouse gases with a significant potential for greenhouse gas reductions through energy efficiency, the use of renewable energies and carbon sinks, and as a nuclear power, is also a critical partner in international efforts to address priority global environmental issues."

Accordingly the CAS outlines Bank Group Strategic Priorities as follows:

"68. Environment and Natural Resources. Bank Group support will emphasize interventions that address the priority domestic and global problems outlined in paragraphs 42-43. Within these areas, priority will be given to activities that leverage limited Bank resources. An Environmental Strategy Note is under preparation and will be discussed with the Government and other donors, which will be used as a basis for the development of the next phase of our program.

The ECSSD country team elaborated an Environmental Strategy Note in January 2000. This note clarified also global environmental pressures in Russia: "Given the size and ecological diversity of the country, priorities differ from region to region. In addition to these local and national environmental issues, Russia has to deal with trans-boundary (primarily international waters, such as the Caspian and Black Sea) and global environmental problems (primarily ozone depletion and climate change)". The note specifies as one of the key objectives to help Russia contribute to the global environment agenda while improving national-level environment conditions through control of greenhouse gas emissions and through pollution reduction to international waters.

Consistent with the CAS and the Russia Environmental Strategy Note, the proposed project addresses critical climate change, wastewater treatment and water pollution problems. Globally, Russian Federation is the third largest emitter of greenhouse gases and a critical partner in international efforts to address global environmental issues, and Rostov Oblast is one of the largest dischargers of nutrients responsible for eutrophication of the Don River and Azov/Black Sea watersheds. Thus, the project by capturing methane for heat and power generation, and by reducing nutrient discharges into international waters will efficiently reduce global environmental pressures and will complement local efforts of the Rostov Oblast Administration to improve the environmental conditions in the region.

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

By improving wastewater treatment schemes through an integrated investment program and changes in consumer practices, the project would complement the regional Don River pollution reduction program and assist the Government in meeting its international obligations under the Bucharest Convention and the Odessa Ministerial Declaration on the Protection of the Black Sea.

The improvement of wastewater sludge operations and reduction and utilization of the methane gas emissions from the RVK wastewater treatment plant will assist the Government in the implementation of both Russian Federal Energy and Environmental Programs and the Russian Federation 1st and 2nd National Communications to UNFCCC (1994, 1998).

The project will demonstrate effective mechanisms for rehabilitation of wastewater schemes to reduce the nutrient loads into the Don River and Azov/Black Sea, and methane emissions from

the wastewater operations, and will facilitate replication of this comprehensive approach in other parts of Russia and in neighboring CIS countries.

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

### **Background**

Today, most critical environmental problems in Russia relate to air pollution in urban areas caused by heat and power generation, transportation and industry; progressive deterioration of drinking water quality, due to inadequate maintenance of water supply and wastewater treatment systems and pollution of water resources; and increasing risk of environmental accidents caused by decaying public infrastructure.

A Water Sector Study prepared jointly by the Government and the Bank in 1996 points out that the past system of central command and control and the state subsidy policies are responsible for the disincentives and distortions which prohibit efficient sector management and development. These reasons resulted in: (i) poor state of repair of facilities; (ii) inefficient operations; (iii) lack of incentives for water conservation; (iv) lack of financial viability; (v) institutional and regulatory weakness; and (vi) lack of an adequate information of Vodokanal's operations. Moreover, the sector study proposes the initiation of a comprehensive program of sector reforms. The Government as part of its overall program of reform of the communal services sector has formally endorsed the reform principles for the municipal sector. These reform principles include the following elements: (i) transformation of present Vodokanals into independent "corporatized" utilities regulated by local government; (ii) gradually turning Vodokanals into financially self-sufficient institutions through tariff reform and better collection; (iii) reformation of the investment policies by introducing least-cost strategies giving preference to plant and network rehabilitation and efficiency enhancements; and (iv) bringing in the consumers as a participating party in the Vodokanal decision making.

### **The main sector issues relevant to this Rostov Vodokanal (RVK) project are:**

Russia carried out major environmental policy reforms to accompany the transition to market economy. However, given the historical development of Russian economy, it still remains very pollution and resource intensive, and decades of insufficient development have left Russia with a costly legacy of past environmental damage. Thus, the challenges to reach an environmentally sustainable economic growth remain to be solved. In a number of industrial regions of the Russian Federation, like Rostov, anthropogenic pollution loads have exceeded the established norms long ago. This has induced significant changes in the landscape, loss of natural resources, and worsening in the living conditions of the population.

Despite sharp reductions in CO<sub>2</sub> emissions, Russia remains the world's third largest emitter of CO<sub>2</sub> after the USA and China. According to the First National Communication to UNFCCC (1995), the policy and measures aimed to reduce greenhouse gases emissions and to improve quality of their sinks are under development in the Russian Federation. The general attention in anthropogenic GHG sinks is devoted to practical measures aimed at control and to limit countrywide technogenic GHG emissions of energy sector in all branches of the economy, including municipal sector. Methane emissions from RVK wastewater treatment plant are a significant GHG emission source.

The physical condition of the RVK facilities is rapidly reaching the status where risk of environmental accidents will catastrophically increase; this is especially valid for the wastewater treatment facility that is currently, the principal source of pollution of the Don River. According to the Federal Report on the Status of the Environment in the Russian Federation 1999, only 6



percent of wastewaters discharged to the Don River were treated in compliance with existing norms. In addition, the existing wastewater treatment capacity was only 47 percent of the actual amount of wastewaters discharged (3.5 billion cubic meters). Correspondingly, the water quality of Don River near Rostov-on-Don has remained nearly unchanged for several years, and the concentration of main pollutants exceed 23 times the actual compliance limits. On several occasions (1990-1998), poor drinking water quality, especially during summer season, has caused water related diseases like cholera in regions near Rostov.

### **Government's Strategic Response**

The Government of the Russian Federation has responded to the environmental pressures caused by sector issues stated above, by elaborating and adopting: Russian National Environmental Action Plan (NEAP) for 1999-2001; National Action Plan for Environmental Hygiene of the Russian Federation for 1999-2002; 1st and 2nd National Communication to UNFCCC; Basic Trends in Social And Economic Policy of the Government of the Russian Federation over the Long Term (issued June 2000); and Russian Energy Strategy 2020. Moreover, Russia has already ratified the Convention on the Protection of the Black Sea Against Pollution in 1993.

The Russian National Environmental Action Plan (NEAP) for 1999-2001 was considered by the Government in November of 1998, and was recommended to the executive bodies for practical use in environmental protection activities. In addition, the recently adopted new long-term economic development program and a new energy strategy until 2020, clearly recognize the need to reduce environmental load from economic activities, and to increase the use of non-traditional, renewable sources of energy like biomass and biogas. On regional level, Greater Rostov Environmental Strategic Action Plan (GRESAP) was adopted by the local administration in 1998.

### **Russian National Environmental Action Plan (NEAP) for 1999-2001**

Implementation of drinking water quality and water pollution abatement measures has second highest priority on the national environmental agenda after air pollution abatement. The plan foresees implementation of measures to decrease polluted wastewater discharges into water bodies, and stresses the importance to ensure compliance of drinking water quality with hygienic norms. Thus NEAP proposes that all regional environmental actions plans (REAPs) will in the future include water bodies' protection section. The Russian NEAP also supports the implementation of projects directed to reduction of GHG, and specifically methane collection.

**National Action Plan for Environmental Hygiene of the Russian Federation for 1999-2002** proposes to: (i) adopt a Federal Law on Drinking Water and Drinking Water Supply; (ii) adopt a Federal Program on Drinking Water Supply for the Russian Population; (iii) elaborate Hygienic Norms and Guidelines for the Protection of Ground Waters; (iv) update guidelines on recreational water usage; (v) introduce economically viable tariffs for drinking water supply; and (vi) enhance the methodologies to evaluate public health risks related with low quality drinking water supply.

### **1st and 2nd National Communication to UNFCCC**

Development of Renewable Energy Resources including utilization of methane emissions from wastewater treatment plants for power generation and district heating occupies a significant place in the 2nd National Communication to UNFCCC. The State Interagency Commission of the Russian Federation on Climate Change Problems was established in 1994. Recently, good progress has been made in actions to completely phase-out ozone depleting substances. However, the actual implementation of needed policy measures and investment projects to boost significant rise in non-traditional energy resources utilization, including methane biogas, has progressed slowly. Currently, projects and programs on limiting of the methane emissions to the atmosphere are at the stage of development and pilot implementation. In addition, Russia's vast GHG reduction potential offers tremendous opportunity to generate substantial revenues, and to

attract investment flows for environmentally sustainable and energy efficient projects also in the municipal water sector.

**Basic Trends in Social And Economic Policy of the Government of the Russian Federation over the Long Term** outline the long term overall policy goals as well as short term priority objectives and urgent measures for social and economic development of the country. According to this program, Russia will continue to use its abundant natural resource assets as a basis for future economic development.

- The economic policy part of the report states that it is advisable to include in regional taxes, payments for use of timber and water resources, and other environmental payments.
- The transport sector development would include (part 3.4.3. Development of the Commercial Fleet and Transport Aviation) expansion of the use of inland waterways, deltas and freshwater ports for passenger transportation, import-export and transit freight. Especially, for Azov and Black Seas, this means increased water bodies environmental loads and risks from port infrastructure development projects in the port of Novorossiysk (container terminal in the southeastern part of the port, the Sheskharis deep water oil terminal for the shipment of oil in large-tonnage tankers, complex for the export of mineral fertilizers), and in the port of Tuapse (universal wharf for transshipment of metals, oil-loading terminal for tankers with capacities of 100,000 tons for export of oil and petroleum products).
- Additional pressures to reduce waste water loads in Don River come from the development of the Volga-Don canal to access by way of the Black Sea to Southeastern Europe, and on to the center of the continent by way of the Danube. The long term plan development scenario forecasts that the creation of the Volga-Don-Danube water corridor, according to preliminary estimates, will provide Russia with transit revenues in the amount of \$1 billion. However, the plan recognizes the need to review the possibility of establishing direct, non-transfer technologies and verifying the possibility of using hybrid-navigation vessels in these waterway
- As for pricing policy, the plan explicitly states that any practice of cross subsidizing must cease after the completion of the reform within the residential public utilities system in 2003.

### **Russian Energy Strategy 2020**

Both the National Communication and the Russian Energy Strategy 2020 target increased share of renewable energy resources in energy production as one of the priorities.

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

The principal sector issues addressed by the Project are those of (i) environmental sustainability; (ii) improved financial management system and cost-recovery of the water/wastewater operations; (iii) improved operational efficiency; (iv) improved energy efficiency of operations; and (v) developed project implementation and management capacities at RVK, thus supporting the development of the overall environmental strategy for the Azov/Black Sea region.

The main strategic choices for the project include:

- Focus on wastewater operations - as the most part of the investment in the water sector are already being included into Community and Social Infrastructure Project investment program;

- Consider comprehensive approach on wastewater management operations from wastewater collection to the wastewater sludge utilization and WWTP effluent discharge;
- WWTP rehabilitation and modernization, and implementation of new technologies for nutrient discharges and methane emission reduction;
- Increase of the RVK ownership and participation in the investment projects;
- Cost reduction programs and energy saving targets for wastewater treatment reconfiguration program; and
- Discipline in financial management to improve the financial position of RVK.

### C. Project Description Summary

#### 1. Project components (see Annex 1):

Component		Indicative Costs (US\$M)	% of Total	Bank Financing (US\$M)	GEF Financing (US\$M)	% of GEF Financing
1.1 Sewage Network Reconfiguration		6.58	26.8	6.40	0.00	0.0
1.2 Construction of the High Pressure Pumping Station		4.48	18.2	4.48	0.00	0.0
2.1 Rehabilitation of the Wastewater Treatment		7.50	30.5	0.00	5.50	52.4
2.2 Rehabilitation of Digesters		2.00	8.1	0.00	1.80	17.1
2.3 Construction of Gas-Holders		0.50	2.0	0.00	0.40	3.8
2.4 Construction of the Methane Power Generation Plant		2.00	8.1	0.00	1.80	17.1
3.1 Project Management and Monitoring		0.76	3.1	0.46	0.30	2.9
3.2 Technical Assistance for Replication		0.40	1.6	0.00	0.40	3.8
3.3 Policy Reform Programs		0.35	1.4	0.00	0.30	2.9
<b>Total Project Costs</b>		24.57	100.0	11.34	10.50	100.0
<b>Total Financing Required</b>		24.57	100.0	11.34	10.50	100.0

RVK will contribute 10% of project base cost (CSIP funds not included) and pay all taxes and duties.

#### Project Components (see Annex 1):

##### (i) Sub-Project: Reduction of Nutrient Discharges

**1.1 Sewage Network Reconfiguration (\$8.0 million).** The component will finance the completion of the underground tunnel from sewerage pumping station (SPS) Severnaya-1 to the existing siphon. The length of the proposed tunnel will be 6.6 km of which 1.0 km has already been built with municipal funds. The proposed solution will result in conversion to the gravity flow of the main part of the sewerage network and closure of 15 wastewater-pumping stations, and will result in energy and labor cost

savings. It will also reduce direct overflows reducing organic and nutrient substances into the Temernik and Don rivers. This component will be funded by CSIP Loan and co-financed with municipal funds and is directly connected to the next component.

**1.2 Construction of a High-Pressure Pumping Station (\$5.6 million).** This component will finance the construction of the high-pressure pumping station at WWTP to pump wastewater directly to the processing units. This will be funded by CSIP loan funds and co-financed by Rostov Oblast Administration and Rostov-on-Don municipality.

**1.3 Rehabilitation and Improvement of the Wastewater Treatment (\$7.5 million).** This component will finance the rehabilitation of the treatment facilities and the implementation of new technology for phosphorus and nitrogen removal. The rehabilitation will include the reconstruction of primary treatment units, aeration tanks, reconstruction of secondary sedimentation units, and reconfiguration of the treatment process. For nitrogen removal, reconfiguration of the secondary treatment process will be implemented (using combined carbon oxidation nitrification-denitrification process). Second, the nitrates are converted to nitrogen gas (denitrification). Phosphorus removal will be carried out either by biological methods or chemical precipitation. This component proposed to be funded through the GEF grant with co-financing from Rostov Oblast and municipal authorities and RVK.

**(ii) Sub-Project: Reduction of Methane Emission**

**2.1 Rehabilitation of old methane digesters and construction of new digesters (US\$2.3 million).** This component will finance the rehabilitation of the methane digesters and construction of new ones. This will facilitate the treatment of all generated sludge and capture most of the methane previously discharged into atmosphere. Necessary corrections between WWTP and digesters will also be constructed. The rehabilitation of methane digesters will include the reconstruction of four existing digesters with total capacity of 16,000 m<sup>3</sup> and construction of several new ones. At the engineering stage, it is necessary to analyze several options of the technology for sludge processing. The preference will be given to the simplest and most cost-efficient one. This component is proposed to be funded through the GEF grant and co-financed by Rostov Oblast Administration, and Rostov municipality (civil works) and CSIP (dewatering unit lines \$100,000).

**2.2 Construction of two gasholders for 3,000 m<sup>3</sup> each for maintaining the pressure in the gas combustion system (US\$0.5 million).** This component will finance the construction of two 3,000-m<sup>3</sup> gasholders to maintain the pressure in the combustion system. This component is proposed to be funded by GEF grant and co-financed by Rostov Oblast Administration and Rostov municipality (civil works).

**2.3 Construction of the methane power generation plant, installation of the gas turbines and the heat utilization equipment (US\$2.0 million).** This component will finance the power generation plant that will use the methane. Two power generation turbines of 930 kW each will produce the electric power that will replace the grid currently imported by WWTP from Rostov Combined Heat/Power Generation Station. The heat will be used for the technology needs at WWTP and will replace some currently produced by WWTP boiler. This component is proposed to be funded by GEF. The municipality will co-finance civil works.

**2.4 Rehabilitation of the existing process lines and connection with the existing WWTP technological facilities (primary and secondary settlers, and sludge dewatering process), set-up and testing (US\$800,000).** This component will finance the rehabilitation of sludge lines between digesters and other parts of WWTP. This component is proposed to be funded by GEF and partially by CSIP (connection lines from digesters to dewatering unit, about \$100,000).

### **Project Management and Technical Assistance**

**3.1 Project Management and Monitoring (US\$760,000).** The project management and monitoring will be conducted by the existing personnel of RVK with the help from the Rostov Bureau for the CSIP implementation (PIU) in coordination with the PIU of EMP. These units both have extensive experience in implementation of the World Bank projects and the Rostov Bureau has a number of professionals that manage the CSIP water and sanitation project component, including pre-design and procurement. Project supervision monitoring will include procurement, supervision of construction, economic and financial assessment of RVK, and environmental monitoring. About one-third of this component (three staff persons per year, or US\$300,000) is proposed to be funded by GEF.

**3.2 TA for Replication (US\$400,000).** The sub-project will fund the replication of the project findings in the Azov/Black Sea region. Specifically it is related to the cities of Odessa, Zaporizhye, Yalta and Mykolayiv (Ukraine), Constanta (Romania), Varna and Burgas (Bulgaria), Poti and Batumi (Georgia), Sochi and Novorossiisk (Russian Federation). This component is proposed to be funded by GEF.

### **3.3 Policy Reform Programs (\$350,000)**

**(i) Discontinue Phosphates and Polyphosphate Discharges into the Don River Watershed.** As a first step, the possibility of phasing-out domestic use of polyphosphate detergents and substitute them with non-phosphorous ones in Rostov will be studied. If found feasible, the other towns in Rostov Oblast located in Azov Sea watershed will follow this approach. This could significantly reduce the phosphates load to wastewater. The program will also include a public awareness campaign to increase the understanding of the proposed environmentally sound restrictions. This component is proposed to be funded by GEF.

**(ii) Proper Wastewater Collection from Low-Rise Housing.** Rostov municipality will conduct a joint study with RVK on reasons and solutions to discontinue illegal wastewater discharges from low-rise domestic housing into storm water sewer systems. The study will propose institutional and/or legal changes for the wastewater management from small private housing with the special attention to poverty issues. This will help RVK to reduce maintenance problems of sewer system and to collect more revenues for wastewater treatment. This component is proposed to be funded by GEF.

## **2. Key policy and institutional reforms to be sought:**

The project would contribute in the following areas:

- (a) Formulation of an environmentally friendly and financially feasible alternative for the existing wastewater and sludge management scheme;
- (b) Formulation of a program to phase out phosphorous from household detergents and to introduce affordable septage collection and management system;
- (c) Institutional, financial and management strengthening of RVK with an aim to gradually achieving full cost recovery of the operation and investment costs;

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

**Benefits:** (a) Health benefits: discontinue of the untreated wastewater discharges will improve the quality of the raw water for the downstream municipalities; (b) Economic benefits: reduction of nutrient discharges (by 60% with phosphorus and by 50% with nitrogen) will reduce the Azov/Black Sea eutrofication and improve its recreational value and potential for the retrieval of its fish stock; and (c) Urban Development: improvement of the sewerage services for the western part of the city will support the economic development and increase the property value.

**Target Population:** Rostov-on-Don population will have improved wastewater services. The western part of the city will get additional resource for the development and expansion. The closure of the sewer overflow will improve the recreation possibilities in the city center and will help to clean up the historical part of the Temernik River. The project will improve the quality of drinking water for the 100,000 of people living downstream on the River Don.

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

*Implementation period:* 2002-2005

*Executing agencies:* Rostov-on-Don Municipal Unitary Water and Wastewater Company (Rostov VodokanalRVK).

The Ministry of Finance (MOF), and the Ministry of Natural Resources will be responsible for the overall direction and strategic oversight of the Project. Overall management and supervision of the project will be the responsibility of both the Rostov Oblast Administration and Rostov-na-Donu municipality.

Day-to-day implementation and administration of the project will be executed on behalf of the Rostov Oblast Administration by the RVK itself. RVK will be responsible for all aspects of project administration, management and coordination, including project-related financial management, accounting, procurement, disbursement, engagement of outside auditors and preparation of appropriate auditing reports and their dissemination, and preparation of progress reports and annual reports with respect to the Project. RVK will conclude contracts with the existing Bank PIUs for the preparation of the necessary documents and reports. During project implementation, RVK will maintain a department, which would be appropriately staffed by personnel with qualifications, and under terms of reference satisfactory to the Bank, to lead and supervise the implementation of the Project. RVK has already appointed the Project Coordinator.

The implementation specifics, including reporting, audit, financial management and accounting, and monitoring and evaluation arrangements will be determined later.

## **D. Project Rationale**

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

The fundamental rationale for the Project is to combine investments that provide local benefits with grant that will combine it with substantial global benefits.

**The selection of Rostov can be justified because:**

- The city/region is among the cities in Russia with serious environmental problems (ambient air, drinking water), deteriorating public health and damaged ecosystems and is determined as a hot spot for the Azov/Black Sea Strategic Action Plan;
- Has a mix of air pollution problems which are typical for Russian municipalities;
- Offers a possibility to mainstream environment in cross-sector agendas (environment, energy, urban, transport);
- Presents a window of opportunity to make economic growth environmentally sustainable;
- Has a high innovation and replication/dissemination potential;
- Has strong support from the regional government, adequate local capacity and good institutional cooperation;
- Has experience in implementing and preparing World Bank projects. Is a logical extension of on-going operations in line with ECSSD, ECSHD and Russian environmental strategy; those projects offer additional synergies in addressing multi-sector issues.

**Development of the different project components (nutrient removal, methane reduction) by the separate programs** would be inefficient. The beneficiary and the implementing agency of the project is Rostov Vodokanal.

**Local short-term solutions vs. comprehensive wastewater management approach:** construction of the local wastewater treatment facility to prevent the untreated wastewater discharges is very costly and inefficient, and most of such solution will not resolve the main problems of the project such as nutrients discharges and methane emission reduction.

**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)
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<b>Bank-financed</b>		<b>Implementati on Progress (IP)</b>	<b>Development Objective (DO)</b>
Water and Wastewater	Russian Federation: Municipal Water and Wastewater Project	S	S
Water and Wastewater	Russian Federation Community Social Infrastructure Project	S	S
Water Supply	Azerbaijan: Baku Water Supply	S	S
Water Supply and Sanitation	Atyrau Water Supply and Sewerage Project	S	S
Waste Heat Utilization	Czech Republic: Kijov Waste Heat Utilization Project	S	S
<b>Other development agencies</b>			

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

### **3. Lessons learned and reflected in proposed project design:**

One of the main lessons in Bank's water sector operations worldwide is that poor quality at entry may result in unrealistic expectations, disbursement delays, and projects may fall short of meeting development targets. Through generous donor support the project preparations include detailed economic, technical, environmental and social studies which all aim at designing a project which is supported by all stakeholders and public at large. In addition, this support also covers funds for designs and at the time the project is expected to be approved all design and tender documents would be ready for implementation.

The GEF project will be coherent and consistent with the other projects that are being implemented with the Bank in the water sector in Russia. Accordingly, the Grant conditions for RVK (payment collection, proper operation and maintenance) would be similar to those set for Vodokanals, participating in the MWWP. Implementation of the first steps (adequate tariff levels, cash collection ratios and cost recovery levels) is needed prior to project implementation. Those are required to demonstrate the commitment of RVK, municipality and Oblast Administration to the project objectives.

The project would inevitably result in increase of the operation costs. RVK needs to take actions to reduce costs, improve finances and adjust the tariffs. The support from the Oblast Administration for this work is critically needed for the project success.

The implementation of the new wastewater technology requires careful design and evaluation to ensure least cost solutions. Foreign consultants will be engaged for both the sub-projects to assist in the project design due to the shortage of local expertise.

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

The Federal government and the regional government of Rostov Oblast have indicated their strong commitment to the necessary reforms during the first steps of project preparation. The Federal Ministry of Natural Resources has issued an endorsement letter for the project. The Rostov municipality and RVK have shown their interest and commitment to the project, and are willing to improve water and wastewater services quickly and cost-effectively. The RVK is working with consultants in the preparation of all the necessary studies and the Oblast government has assigned project coordinator to facilitate all preparation activities. PIU agreement for the project coordination has been achieved, and RVK has appointed a Project coordinator. The GEF approved the PDF Block B grant for the project preparation in response to the request of the Federal Government.

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

The Bank supported the government strategy in the development of the environment protection and social services, including water and wastewater services through a combination of policy support, technical assistance and lending operations. The Project is in line with the objectives of the following projects:

- Community Social Infrastructure Project (CSIP, Loan 4009-RU);
- Environment Management Project (EMP, Loan 38060-RU); and
- Municipal Water and Wastewater Project (MWWP, Loan 08832-RU).

MWWP seeks to support the most critical and immediate investments needed to improve the operation of the water and wastewater systems, while achieving improvement of system operations, reduction of operational costs, improvement of service quality; and implement of set of reforms aimed at improving physical system operations and financial performance of vodokanals. The proposed project will support the development and sustainability of RVK. CSIP, among other components, finances the water supply and wastewater rehabilitation in the city of Rostov-on-Don. The water supply and wastewater component is focusing on the rehabilitation and renewal of the existing infrastructure. One of the central objectives of the CSIP is to sustain and restore basic water/wastewater services, and to improve the technical and economic efficiency of the water utilities in Rostov Oblast. EMP implements the Integrated Environmental Strategy and Action Plan for Greater Rostov (GRESAP), developed with the financing from GEF. It has identified priority environmental investments, and provides TA for the environmental studies and small-scale project development.

In addition to the active lending program, the Bank has undertaken a major effort in combining its energy and environment sector work in Russia. The focus of the second phase of the Bank's Energy and Environment work in Russia will be on Rostov. The Bank is currently planning to support a Rostov Initiative for a Clean Environment, which may cover all major environmental issues (air pollution, water). With regard to improving the air quality, the following areas have been selected: (i) improving the air pollution monitoring network; (ii) developing an energy and a transport strategy through an initial rapid assessment; and (iii) supporting the city in its participation in the Bank's ECA Clean Air Initiative.

GEF involvement in this project provides incentive to develop the CSIP supported water and wastewater improvements investments to a full-scale alternative with important global environmental benefits. The Bank/GEF involvement makes possible to internalize the nutrient and GHG externalities and provide substantial global and local benefits. The comprehensive

scheme will cover all wastewater operations from wastewater collection to effluent discharge and sludge processing.

The GEF/Bank participation will increase RVK ownership in the development and implementation of capital investment projects formerly implemented by Federal, regional or municipal agencies, and transfer it from a passive recipient to an active participant and decision maker.

## **E. Issues Requiring Special Attention**

### **1. Economic**

Economic evaluation methodology:

#### **Incremental Cost**

The incremental cost analysis compares baseline scenario and the project alternative. The baseline includes wastewater scheme reconfiguration during the following decade and provides some rehabilitation works at WWTP but does not include any nutrient and methane emission programs.

The proposed project accelerates wastewater scheme reconfiguration, provides collection of most of the wastewater and septage to the WWTP, improves secondary wastewater treatment process that will reduce the nutrient discharges, and sludge processing with biogas collection and utilization for heat and electricity.

The estimated benefits for the nutrient sub-project are presented below. The incremental abatement cost for the removal of nutrients is \$0.29 per kg, which is much below the GEF yardstick of \$6 per kg.

#### **Nutrient Discharges**

##### ***Proposed Alternative***

<b>Item</b>	<b>Units</b>	<b>Quantity</b>	<b>Reference Years</b>
Nitrogen from WWTP and Temernik Outfall	tN/year	1,142	2003
Phosphorus from WWTP and Temernik Outfall	tP/year	307	2003
Nitrogen from Domestic Septage	tN/year	0	2002
Phosphorus from Domestic Septage	tP/year	0	2002
Twenty-Five Year N&P Discharges	tN&P	46,331	2000-2025
Twenty-Five Year N&P Reduction (vs. baseline)	tN&P	55,223	2000-2025

The estimated benefits for the methane sub-project are presented below. The incremental abatement cost for the GHG reduction is \$2.72 per ton of carbon equivalent, which is below the GEF yardstick of \$10 per ton.

**Methane Emissions**  
***Proposed Alternative***

<b>Item</b>	<b>Units</b>	<b>Quantity</b>	<b>Reference Years</b>
CO2 Emissions from the WWTP Boiler and Sludge Dryer	tCO2/year	25,500	2000
Electric grid CO2 emissions per WWTP's total electric demand	tCO2e/year	58,700	2003
CO2 emissions due to WWTP's heat demand	tCO2e/year	6,800	2000
CO2 emissions by the methane-fired turbines	tCO2e/year	7,200	2003
Total CO2 emissions	tCO2e/year	2,825,000	2000-2025
Same in Carbon-eq.	tCe	770,000	2000-2025
<b>Twenty-five Year Reduction (vs. baseline)</b>	<b>tCO2e</b>	<b>2,621,000</b>	<b>2000-2025</b>
<b>Same in Carbon-eq.</b>	<b>tCe</b>	<b>714,710</b>	<b>2000-2025</b>

## 2. Financial

The operational costs for RVK are estimated to increase from \$15.9 million (2000) to \$18.9 million (2004). The tariff will grow from \$0.09 to \$0.20 per m<sup>3</sup> for water and from \$0.05 to \$0.1 per m<sup>3</sup>. Total estimated tariff increase would be about 100% during the coming four years, if the appropriate measures were not taken to improve payment collection and to reduce operations cost. RVK, Rostov Municipality and Oblast Administration need to have a strong commitment and political will, to achieve the necessary cost recovery.

## 3. Technical

The proposed nutrient removal technology is not commonly used in Russia. Also Russia has very limited experience with the sludge digestion and biogas utilization process. Careful supervision at the design stage and during implementation is critical for the project success. Comprehensive training package needs to be included in the contract package to ensure effective operation of the new facilities. Verification protocols for the operation of both units (nutrient removal and methane collection and utilization) will be needed and has to be agreed with RVK and Oblast Administration.

## 4. Institutional

### 4.1 Executing agencies:

The implementation of the project will be RVK responsibility. The project management and monitoring will utilize the existing personnel of the Rostov Bureau for the CSIP implementation (PIU) in coordination with the PIU of EMP.

### 4.2 Project management:

RVK will manage the project implementation with support of the two PIUs.

### 4.3 Procurement issues:

To be determined (TBD)

#### 4.4 Financial management issues:

TBD

### 5. Environmental

5.1 Summarize significant environmental issues and objectives and identify key stakeholders. If the issues are still to be determined, describe current or planned efforts to do so.

Project is expected to have a positive benefit to human health, and reduce adverse environmental impacts through improvement of the wastewater services in Rostov-on-Don. The long-term impacts of the Project are clearly positive both in terms of local and global benefits. The investments financed by the Project will not affect any known archeological or historical site or any natural habitat, nor will it affect indigenous people. No dams are in the project scope.

Works associated with sewerage network may have following negative effects:

The groundwater table in the city area may drop due to new tunneling works and result in soil subsidizing and damage to existing buildings.

One family has to be resettled and one gardening plot needs to be taken over for construction period.

The final disposal of accumulated (past and future) sludge needs to be found out. Current practice of lagooning it at the WWTP area poses a risk to the environment.

Construction works and associated increased traffic will cause inconvenience to people living close to construction sites. In addition, inappropriate disposal of construction debris and other materials related to construction activities may cause some environmental impacts.

#### 5.2 Environmental category and justification/rationale for category rating: **B - Partial Assessment**

Category B is proposed for this project, as it is not likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. The potential adverse environmental impacts on human population or environmentally important areas — including wetlands, forests, grasslands, and other natural habitats are site-specific; few, if any of them are irreversible. The mitigation measures can be designed and planned at the project preparation stage.

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

EA start-up date:	January 2001
Date of first EA draft:	March 2001
Expected date of final draft:	April 2001

5.4 Determine whether an environmental management plan (EMP) will be required and its overall scope, relationship to the legal documents, and implementation responsibilities. For

Category B projects for IDA funding, determine whether a separate EA report is required. What institutional arrangements are proposed for developing and handling the EMP?

Public consultations for the tunneling works were conducted on November 28, 2000. Representatives of mass media, TACIS, NGOs (Society against Rostov Nuclear Power Plant, Oversan, and Rostov Environmental Society) were present at the meeting. The Environmental review and mitigation plan for the tunneling works were released to the public in December 2000. The municipality is already conducting negotiations with the property owners that will be affected by the works under Component 1. Mitigation/compensation measures to address the effects of potential drop in ground water table will be included into the Environmental Management Plan (EMP).

Consultants financed by UK (DFID) started the environmental assessment of the investment for WWTP in January 2001. EMP will be prepared and it will also address the issue of sludge storage at the site and final disposal of sludge.

5.5 How will stakeholders be consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed EMP?

The EMP for the project will contain all information on potential environmental impacts, proposed mitigation measures and monitoring actions. The consultations will be conducted with the representatives of municipal and Oblast authorities, universities, research and design institutes, NGOs and general public. All these meetings will be documented in the annexes to the EMP.

5.6 Are mechanisms being considered to monitor and measure the impact of the project on the environment? Will the indicators reflect the objectives and results of the EMP section of the EA?

Environmental Management Project (EMP), supported by the Bank, is currently being implemented in the area. It has a substantial component for environmental monitoring. It is likely that it can be used to monitor the project impacts.

## **6. Social**

6.1 Summarize key social issues arising out of project objectives, and the project's planned social development outcomes. If the issues are still to be determined, describe current or planned efforts to do so.

The social analysis will be carried out under the study financed by DFID.

6.2 Participatory Approach: How will key stakeholders participate in the project?

The project is being prepared in close cooperation with the Oblast Government, municipality, RVK, and local PIUs for two other Bank's projects. General public and NGOs have already been involved in the preparation of the sewerage system configuration and will be involved in the preparation of the wastewater treatment components through environmental and social assessment process.

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

The project provides systematic information briefs to local NGOs and general public. The project objectives and activities are open for the public via operations of CSIP and EMP PIUs. Close working relations with local PIUs are planned along the project preparation and implementation.

6.4 What institutional arrangements are planned to ensure the project achieves its social development outcomes?

TBD

6.5 What mechanisms are proposed to monitor and measure project performance in terms of social development outcomes? If unknown at this stage, please indicate TBD.

TBD

## 7. Safeguard Policies

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

	<b>Policy</b>	<b>Applicability</b>
	<b>Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)</b>	Yes
	<b>Natural habitats (OP 4.04, BP 4.04, GP 4.04)</b>	No
	<b>Forestry (OP 4.36, GP 4.36)</b>	No
	<b>Pest Management (OP 4.09)</b>	No
	<b>Cultural Property (OPN 11.03)</b>	No
	<b>Indigenous Peoples (OD 4.20)</b>	No
	<b>Involuntary Resettlement (OD 4.30)</b>	TBD
	<b>Safety of Dams (OP 4.37, BP 4.37)</b>	No
	<b>Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)</b>	Yes
	<b>Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)</b>	No

7.2 Project Compliance

(a) Describe provisions made by the project to ensure compliance with safeguard policies which are applicable.

TBD

(b) If application is still to be determined, describe current or planned efforts to make a determination.

The comprehensive Environmental Review and Social Assessment are integral part of project preparation. Provisions to ensure compliance with safeguard policies will be made after completion of the studies at appraisal at latest.

## F. Sustainability and Risks

### 1. Sustainability:

**Long-term commitment of the implementing agency:** RVK, Municipality and Oblast Administration are all committed to the project. This has been demonstrated through direct financial support to the project including tariff increases.

**Difficulties on the Federal level.** According to the Russian Federation legislation, all foreign financial assistance, included GEF grants, has to be processed through the Federal Ministry of Finance. Lack of familiarity with the GEF procedures in this agency may create some obstacles. Approval of major project changes such as grant amendment may be time consuming.

**Cost recovery for the WWTP operations .** RVK financial situation requires special attention, as its revenues do not cover full operation costs. Oblast Administration and RVK are committed to the tariff and service reform along with the other measures to stabilize the RVK financial situation.

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

<b>Risk</b>	<b>Risk Rating</b>	<b>Risk Mitigation Measure</b>
<b>From Outputs to Objective</b>		
RVK, municipality and Oblast Administration will lose interest to the project	N	Increased local public participation
Insufficient water tariff adjustment to ensure long-term financial performance of RVK	M	Consistent effort to improve the financial management of RVK, implementation of the IAS and modern financial management mechanisms in RVK.
The nutrient discharges and GHG emission reduction are less (and/or more costly) than expected	M	The risk of inappropriately chosen baseline assumptions is minimized by thorough and conservative incremental cost analysis.
Unforeseen environmental impacts from implementing the Project	M	Ongoing TA from internationally recognized technical experts; Environmental Management Project PIU will be heavily involved in the Project preparation assuring its environmental consistency; and Environmental Management Plan, including a Mitigation Plan and Monitoring Plan, acceptable by the Bank will be developed during the Project preparation by international and local experts.
<b>From Components to Outputs</b>		
The WWTP capacity is not sufficient for the wastewater load	N	Final designs will be conducted by international engineering firm with participation of the local design institutes



The sludge amount is lower than expected	M	Same as above
<b>Overall Risk Rating</b>	M	

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

## Annex 1: Project Design Summary

**RUSSIAN FEDERATION: ROSTOV NUTRIENT DISCHARGE & METHANE  
REDUCTION GLOBAL ENVIRONMENTAL FACILITY**

<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>	<b>Sector Indicators:</b>	<b>Sector/ country reports:</b>	<b>(from Goal to Bank Mission)</b>
Contribute to achieving environmental sustainability	Improving environmental quality (nutrients reduction and air pollution)	Government reports on the state of the environment	Achieving the goals of the environmental sustainability in Russia contributes to increased economic well-being
		Environmental Management Project reports	
		National Communications and other reports to UNFCCC	

<b>GEF Operational Program:</b>			
Conservation and sustainable use of water bodies, including watersheds, river basins, and coastal zones, and prevention of pollution of globally important aquatic ecosystems	Overall reduction of the nutrient discharges	National Reports to Istanbul Conference, NGO reports	Proper environmental management strategy will be implemented in the region and the country
Reduction of net emissions of greenhouse gases	Overall reduction of GHG in Russia, implementation of the similar projects in other parts of Russia	National Communications and other reports to UNFCCC	Achieving the UNFCCC objectives contributes to increased economic well-being of the Russian Federation population.

<b>Global Objective:</b>	<b>Outcome / Impact Indicators:</b>	<b>Project reports:</b>	<b>(from Objective to Goal)</b>
To achieve substantial reduction of the nutrient discharges from WWTP and help Russia to execute the Bucharest Convention obligations	Nutrient discharges reduction achieved (calculated) tons/year; Cost per kg of nutrients reduction	Monitoring protocol for the nutrient reduction	The Government and Oblast Administration remain committed to the project goals; RVK revenue collection covers cost; Methane as the energy source remains to be important for RVK.
To achieve cost-effective reduction of the GHG emissions in order to help Russian Federation to meet its international obligations under UNFCCC	GHG emission reduction achieved, methane collected and utilized (ton of carbon-eq./year) Cost per ton of carbon-eq./year	Monitoring protocol for the GHG reduction	

<b>Output from each Component:</b>	<b>Output Indicators:</b>	<b>Project reports:</b>	<b>(from Outputs to Objective)</b>
Reconfiguration of the wastewater network	Closure of all outfalls of the untreated wastewater, closure of all unnecessary wastewater mains and sewerage pumping stations	Project progress report, project evaluation reports, CSIP supervision mission reports	Same as above
Rehabilitation and modernization of the secondary stage of the WWTP, which includes nutrients removal and anoxic reduction of nitrates	Completion of the WWTP rehabilitation, implementation of the new technology.  Concentration of the nutrients in the WWTP effluent	Project progress report,  Reports from the Municipal Sanitary Inspection	
Rehabilitation of the anaerobic sludge digestion process, biogas utilization for heat and electricity	Operation of the digestion process,  kWh generated at the biogas power generator	Project progress reports, Reports from the Oblast Electric System Operator	

<b>Project Components / Sub-components:</b>	<b>Inputs: (budget for each component)</b>	<b>Project reports:</b>	<b>(from Components to Outputs)</b>

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