

PROJECT BRIEF

1. IDENTIFIERS:

PROJECT NUMBER:

PROJECT NAME:

**RURAL ENVIRONMENTAL PROTECTION
PROJECT**

DURATION:

3 years

IMPLEMENTING AGENCY:

World Bank

EXECUTING AGENCIES:

Ministry of Environmental Protection,
Natural Resources and Forestry, the National
Fund for Environmental Protection and
Water Management (NFEP), and Ministry of
Agriculture and Food Economy (MAFE)

REQUESTING COUNTRY OR COUNTRIES:

Poland

ELIGIBILITY:

As per IBRD eligibility.

GEF FOCAL AREA:

International Waters

GEF PROGRAMMING FRAMEWORK:

OP#9: "Integrated Land and Water Focal
Area"

2. SUMMARY: The global objective of the project is to improve the quality of the water of the Baltic Sea by decreasing non-point sources of nutrient pollution from agriculture. The Baltic Sea Strategic Action Plan estimates that 30-40% of the nitrogen and 10% of the phosphorous entering the Sea come from agriculture, and the eutrophic conditions they cause represent the Baltic Sea's top priority transboundary water problem. The project will help Polish small farmers to adopt innovative waste management techniques and land use practices to reduce pollution releases. GEF funds will be used to buy down the cost of adopting these technical innovations in agricultural practices and waste management and help overcome barriers to moving from demonstration level activities to operations projects for agricultural non-point source pollution. Participating farmers will be expected to pay approximately one-third of the cost.

3. COSTS AND FINANCING (MILLION US):

GEF:	-Project	US\$3 million
	Subtotal GEF:	US\$3 million
CO-FINANCING:	-IBRD	US\$2 million
	-EU (Phare):	US\$3.9 million
	-NEFCO	US\$1 million
	-Government	US\$1 million
	-Beneficiaries	US\$3.5 million
	Subtotal Co-financing:	US\$11.4 million
TOTAL PROJECT COST:		US\$14.4 million

4. ASSOCIATED FINANCING (MILLION US\$) : US\$ 0.8 million

(other donor activities)

5. OPERATIONAL FOCAL POINT ENDORSEMENT:

Name: Wojciech Ponikiewski

Title: Senior Advisor to the Minister

Organization: Ministry of Foreign Affairs

Date: May 27, 1998

6. IA CONTACT:

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A: PROJECT DEVELOPMENT OBJECTIVE

1. Global and project development objectives and performance indicators (see Annex 1):

Global Environmental Goal. The long-term goal of the project is to improve the quality of the water of the Baltic Sea by reducing non point source pollution from agriculture. Project activities are directly linked to the implementation of the Baltic Sea Joint Comprehensive Environmental

Program which provides a framework for regional cooperation for protection of this important international water body. The project also supports Poland's move towards compliance with its national policies and with international legal agreements. These include the Helsinki Convention and the environmental directives of the European Union (EU), which will apply to Poland as part of the process of joining the Union.

Project Development Objective. The project's specific objective is to develop interventions which motivate farmers to reduce the release of organic matter and nutrients entering water bodies in target project areas. GEF funding will help remove institutional, financial and knowledge barriers which currently serve as disincentives to farmer adoption of environmentally sustainable agricultural practices.

Demand-Driven, Flexible Approach. The project is modeled on the approach taken by social investment funds which are flexible funding mechanisms that respond to requests from communities or local groups. Thus the project will respond to demands from eligible farmers for support, rather than targeting specific farms or farmers. It will be flexible, so that project design can be adapted during implementation according to feedback from beneficiaries and local communities. In this way, it takes a highly participatory approach by involving farmers and farmers' representatives in the decision-making processes.

The project is a "learning and innovation loan" (LIL), which emphasizes flexibility, testing and learning with the aim of scaling up the project into a larger program in the future. The Government plans to use the project implementation experience to develop a nationwide program to integrate environmental concerns into agricultural and rural development practices and improve the quality of Poland's water bodies.

Field Tested Technology. The technical issues involved are well understood and have been field tested in Poland under three internationally funded pilot operations - sponsored by the USEPA, EU (Phare) and Sweden - and by a major Polish NGO. This project will test barrier-removal mechanisms which over time will allow for scaling demonstration activities up into a comprehensive program. It will also test the beneficiaries' willingness to pay for services and investments to improve their agricultural management practices. The financial and economic impact of the adoption of new farming and other agricultural practices will be closely monitored and results will feed back into the program design.

Key Performance Indicators.

Key project and global environmental indicators will be:

- ∑ Number of applications for support from farmers.
- ∑ Satisfactory construction and maintenance of on-farm environmental infrastructure.
- ∑ Establishment of an adequate system for monitoring quality of international waters, particularly in the Vistula and the Odra Lagoons, and agreed baseline.
- ∑ Completed financial analysis of the impacts to farmers of improving their environmental management practices.

Monitoring arrangements are:

- ∑ The NFEP will monitor project effectiveness through beneficiary assessment, economic and financial evaluation, and monitoring of key indicators.
- ∑ The MEP and the Regional Water Boards (RWBs) will establish a baseline for ongoing long-term monitoring of the environmental effects of the interventions.
- ∑ Special monitoring programs and environmental indicators are currently being developed for the Vistula and Odra Lagoons which would be used for these special transboundary areas.

2. GEF Program Objective addressed by the Project

The Joint Comprehensive Environmental Action Program for the Baltic Sea, a regional strategic action plan developed under the leadership of the Helsinki Commission, provides a sound technical basis for a project under GEF Operational Program Number 9, “Integrated Land and Water Multiple Focal Area Operational Program.” The objective of this Operational Program is to support “more comprehensive approaches for restoring and protecting the international waters environment.” This is often accomplished through measures to support “better use of land and water resources management practices on an area wide basis and in which land degradation is an important element.” Consistent with this approach, the project would support innovative activities which address the role of agriculture, through direct activities with farmers in waste management and ecological protection of watercourses, coastal zones and marine environment.

Projects in this program area address the “types of measures needed to ensure that the ecological carrying of the water body is not exceeded,” which is the focus of this project, as it supports measures to incrementally reduce the input of nutrients from agriculture. The project provides an opportunity for the GEF to be a “catalyst for action to bring about the successful integration of improved land and water resource management practices on an area wide basis” by supporting implementation of a model project. GEF support would buy down the cost of adopting innovations and help overcome barriers in moving from demonstration level activities to operational projects for agricultural non-point source pollution. The project has been designed specifically to provide a model activity which can be replicated at other locations in Poland, the Baltic Sea region and Central and Eastern Europe. It is anticipated that the experience gained from this project can be applied in the ongoing GEF supported programs for the Danube River Basin and the Black Sea, in which non-point source pollution from agriculture is a major transboundary issue. Therefore, the proposed project also provides an opportunity to assess the usefulness of the Strategic Action Program (SAP) concept and to derive lessons learned which can be applied in other locations.

Project activities will support complementary linkages with measures being undertaken by both government and nongovernmental organizations for the “conservation of important biological diversity” in wetlands and coastal lagoons. Activities would be linked with the management of the transboundary Vistula Lagoon shared between Poland and Russia, and later the Odra Lagoon shared between Germany and Poland. Implementation of the project will include as an integral element “community involvement and stakeholder participation” through the direct involvement of rural communities and farm families in the cooperative identification of measures to be undertaken at the watershed level, the adoption and use of Good Agricultural Practices, and their role in the financing, construction and operation of on-farm investments (see Annex 4 for transboundary analysis).

B: STRATEGIC CONTEXT

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

CAS document number: **16484 - POL** Date of latest CAS discussion: **April 14, 1997**

One of the CAS’s four overarching objectives is to achieve environmental sustainability. Specifically, the CAS describes the Bank’s objectives of helping the Government to increase the focus on reducing pollution from non-point sources and to move towards compliance with EU directives and international agreements in a cost-effective manner. This project directly addresses each of those objectives.

2. Main sector issues and government strategy:

At the international level, Poland as a Contracting Party to the Helsinki Convention has an obligation to undertake measures to reduce pollution of the Baltic Sea from both point and non-point sources. In this context, the recent “Recommendations for Updating and Strengthening” of the

Baltic Sea Environmental Action Program prepared by the Helsinki Commission identifies actions to reduce non-point source pollution from agriculture and rural settlements as a high priority for regional and country specific actions in the context of the Program. More recently, as part of the preparations for joining the European Union, much of the domestic policy agenda is being driven by the need to move into compliance with the EU environmental directives. The EU has a directive specifically aimed at reducing nitrate pollution from agriculture (the Nitrates directive). Furthermore, the draft Framework Directive for Community Action in the field of Water Policy includes measures for classifying the quality of water in certain water bodies.

At the national level, Poland is committed to managing and conserving its water resources and coastal zone. In the nine years since the transition to a market economy it has made significant progress through a sustained commitment to environment as an integral part of its national priorities. Poland has domestic legislation to reduce pollution from agriculture and a draft law is under review which would require farmers to invest in proper manure and slurry storage. In the National Environmental Strategy issued in 1990, the Government set an objective of reducing pollution entering the Baltic Sea from Polish rivers by 80 percent by the year 2020. In order to realize these objectives the Government has actively sought international cooperation to develop the required knowledge and experience for preparation and implementation of agricultural non-point source pollution programs based on Western European and North American experience.

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

This project will address the following sector issues:

- Σ Assisting integration of environmental concerns into agricultural practices in order to reduce nutrient pollution entering Polish surface and ground waters.
- Σ Moving towards compliance with both the Helsinki Convention and the EU Nitrates directive in a cost-effective manner.
- Σ Strengthening water management at the level of the river basin, through a basin-based approach to the strategy study and by working with the RWBs to monitor the environmental effects of the project.

C: PROJECT DESCRIPTION SUMMARY

1. Project components (see Annex 2 for a detailed description and Annex 6 for a detailed cost breakdown):

The project has two components. The first will provide technical assistance to farmers, to encourage them to improve their environmental management practices, and financial support for on-farm investments. The second involves public outreach, developing a strategy for replicating the project, monitoring and project management.

Component 1. On-Farm Environmental Improvements (US\$11.7 million or 81% of total cost)

Outreach, Technical Assistance and Training (US\$1.5 million or 10% of total cost). NGOs, institutes or private firms will work with farmers, farmers' families and rural communities to discuss options for and demonstrate benefits of environmental management on farms. This will include cropping, tilling, manure spreading, buffer strips, fertilizer application practices, constructed wetlands etc. The outreach agents will also explain the terms of investment support offered under the project. An element of this process would be review of the economic benefits to farmers and their communities from adoption of these practices. The outreach workers will coordinate their technical advice with local extension agents (ODRs). The MAFE will collaborate with the PIU to ensure consistency of approach.

Infrastructure Investments (US\$10.2 million or 71% of total cost). The subcomponent will channel financial support to eligible farmers to invest in facilities to store manure, urine, slurry and silage correctly. The financial support will consist of credits or a mix of grants and credits. During the first phase of implementation, the project will be limited to supporting slurry and manure storage facilities. It will support these activities to eligible farmers with grants on a cost-sharing basis. In these first stages the project will provide flat grants of US\$4,000 to participating farms. The farmers will provide their share in a mix of labor, materials and direct payments. Both the levels and terms of support may be adapted during the course of implementation. Eligibility criteria for farmers will include: having between 15 and 50 l.a.u., agreeing to use facilities for at least 5 years, being in targeted areas.

Component 2. Outreach and Management (US\$2.7 million or 19% of total cost)

Public Awareness & Outreach (US\$0.5 million or 3% of total cost). The subcomponent will support a public awareness and outreach program to widen understanding of the importance of agriculture and environment issues in Poland. This program will work with local groups to promote environmentally sound agricultural practices and to highlight the critical role of the farmer as an “environmental manager.” It will include information on the agronomic and economic benefits of improved practices and the cost savings which can be obtained from the substitution of chemical fertilizers by the properly times application of slurry. The program will disseminate good practices,

results from demonstrations, new approaches and information about incentive programs. It will also be used for dissemination of information to facilitate project replication and lessons learned from the implementation process.

Monitoring (US\$0.7 million or 5% of total cost). The NFEP will monitor project performance. This component will involve a social assessment, including ongoing beneficiary assessment, to ensure that the project is meeting the needs of its clients in rural Poland and to suggest modifications to project design and implementation. RWBs, Voivodship Environmental Authorities and SANIPED will monitor the long-term environmental benefits from reduced discharges of pollutants to surface and groundwater, and agree with MEP and Ministry of Health on methods to standardize data collection.

Replication. (US\$0.8 million or 6% of total cost) The project will include five activities aimed at project replication: (i) a strategy for replicating the project which will include economic and financial evaluation of project activities; (ii) assessment of the individual, local and national benefits of integrating environmental concerns into agricultural and rural development practices; (iii) development of lessons learned and good practices; (iv) an outreach and dissemination program; and (v) learning from international experience including the EU and the United States (study tours, lessons learned etc.). At the mid-term review, the Government and the Bank will decide whether to prepare the next phase in the national program, and the basic principles on which that will be based.

Management (US\$0.7 million or 5% of total cost). The NFEP will manage the project. In the project areas, local implementation bodies will be selected to appraise subproject applications, supervise implementation, and manage the process at the local level.

The project will potentially be active in four areas, all of which are sensitive to nitrate pollution. They are also representative of different farm types, soil types, and will be in different parts of the country to enable maximum demonstration effect.

As the project focuses on learning and testing approaches, it is designed to be flexible and to adapt to experience during implementation. It will therefore rely on an Operational Handbook. The project documents will include broad principles for the project. Implementation will be based on detailed plans and criteria set out in the Operational Handbook. As implementation proceeds, these can be changed in agreement with the implementation agency, the World Bank and cofinanciers without the need to amend legal agreements.

<u>Component</u>	<u>Category</u>	<u>Cost Incl. Contingencies (US\$m)</u>	<u>% of Total</u>	<u>Bank- financing (US\$m)</u>	<u>% of Bank- financing</u>	<u>GEF financing (US\$ m)</u>
1. On-farm environmental improvements	Training & Investment	11.7	81%	1.0	50%	
Technical Assistance		(1.5)	10%			
Investment Support		(10.2)	71%			2.5
2 Outreach and Management	Learning & Adaptation	2.7	19%	1.0	50%	
Public Awareness and Outreach		(0.5)	3%	0	0	0.3
Monitoring		(0.7)	5%			
Replication		(0.8)	6%			0.2
Project Management		(0.7)	5%			
Total		14.4	100%	2.0	100%	3.0

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

Reducing pollution from agriculture and rural communities is key to the Government's agricultural and environmental strategies. Thus, rather than seeking policy changes, this project will assist the Government to develop an effective mechanism to implement existing policies.

3. Benefits and target population:

Reducing the level of nutrients entering the Baltic Sea will, over the long term, bring significant international and national benefits by decreasing eutrophication. International experience shows that improving environmental practices on farms is also likely to bring benefits to individual farmers over the long run. They will have access to safer drinking water, cleaner local streams and lakes, and a reduced need for fertilizer. Many improved practices can also increase soil productivity. This project will explicitly calculate and disseminate these benefits in order to reduce the barriers to other farmers of adopting these practices.

The benefits of this project will be considerable on many different levels:

- Σ Improved quality of local streams, lakes and ultimately rivers, coastal lagoons and the Baltic Sea, with benefits for quality of life, fisheries and tourism in certain areas.
- Σ Reduction of nitrates reaching Poland's water bodies and ultimately the Baltic Sea, of approximately 300 kg per farm per year for approximately 1500-2000 farms.
- Σ Farms investing in manure storage can use the manure as fertilizer and thus can save \$150-200 per year on chemical fertilizer. Over the long run, the farmer may also see productivity improvements. In fact, excessive slurry spread on grazing land generates toxic levels of potassium in grass. Improved storage of animal wastes will reduce odor and inconvenience and improve hygienic conditions on participating farms.
- Σ Quantification and demonstration to farmers of these benefits.
- Σ Demonstration of an effective mechanism for channeling investment for environmental protection in rural areas.
- Σ Progress towards meeting Poland's water quality targets and its obligations under the Helsinki Convention as well as towards compliance with the European Union directive on prevention of pollution from nitrates.
- Σ Improved health for families in the project areas over the long run, by reducing nitrates entering groundwater.

The target populations for this initial activity are families and rural communities in a maximum of four potential areas: Elblag, Ostroleka, Lublin and Gorzow Wielkopolski. They have been chosen because they are sensitive to nitrate pollution, representative of different farm types, have a variety of soil types, and are well distributed within the country. The project will start by targeting two voivodships—Elblag and Ostroleka. Elblag borders the Vistula Lagoon which is shared by Poland and Russia and is a highly sensitive international water body. Farmers in this area have experience from a Swedish-supported program and are prepared to proceed with a larger effort. Ostroleka is in the lower Vistula River basin and has participated in the largest and longest running pilot demonstration activity, supported by the US Government and EU (Phare). The local farmers are already sensitized to the issues and interested in participating. During implementation, the project may expand into the other pre-identified areas in agreement with the World Bank, the PIU and cofinanciers.

An independent technical review was prepared by a STAP roster expert (see Annex 5). The reviewer endorsed the project in positive terms and noted that it was of “substantial importance.” The reviewer made a number of constructive suggestions for further strengthening of the proposal. These proposals have been incorporated into the present text, as described below.

The reviewer suggested that the presentation should make more explicit the linkage between farmers adopting improved practices for storing and application of slurry to crops, the economic benefit to the farmers from these practices and the environmental benefit to the community resulting from these actions. The reviewer noted that the project would assist in making the internalization of costs, which in GEF terms are incremental, broadly recognized over the long term as economically beneficial to farmers, communities and the global environment..

The reviewer also noted that to the extent that synthetic fertilizers play a role in Polish non-point source pollution, there is a potential to demonstrate the economic benefits which could be obtained from the substitution of stored manure slurry for synthetic fertilizers.

4. Institutional and implementation arrangements:

NFEP will implement the project on behalf of MEP. The project will be decentralized to the participating project areas. Annex 2 contains details of the implementing arrangements, and the Operational Handbook will spell these out further.

The institutional arrangements include:

- Σ *Project Steering Committee.* At the national level, a Project Steering Committee (PSC) will coordinate the project. This will be chaired by the NFEP, and include representatives of the MOF, MAFE, MEP, relevant RWBs, and possibly the Chambers of Agriculture, NGOs and representatives from the project areas.
- Σ *Project Implementation Unit (PIU).* The NFEP will manage the project; promote project activities; disburse funds and maintain the account; monitor project impacts and propose improvements; and prepare quarterly and annual reports.
- Σ *Local Implementation Team (LIT).* The project will select local bodies (possibly NGOs, institutes or farmers’ chambers) to implement the project at the local level, who will make up the LIT. They will manage the project at the local level, including appraising and deciding upon the individual subprojects that the project will support. They will also prepare project reports and accounts; receive and appraise sub-project requests; visit the project sites prior to approval and disbursements; and coordinate work with ODRs and other technical services.

Potential Administrative Changes. It is possible that during the life of the project a new structure for regional and local government may be introduced in Poland; in this case the composition and

responsibilities of the various project management units may require adjustment. At any time the Operational Handbook may be revised to reflect these administrative changes.

D: PROJECT RATIONALE

1. Project alternatives considered and reasons for rejection:

- Σ *Full-Scale National Program.* While the demonstration programs have generated significant experience in technical and social aspects, the administrative mechanism for delivering support for the investments is less developed. Therefore, a full-scale program would not be justified at this stage. This project will be the first phase of a national program and will allow for development and testing of management, financing and outreach systems which could be expanded in geographical coverage over time. A phased approach will also allow for a more precise calculation of the direct and broader social benefits of the interventions, which will be an important element in generating support for a larger program of interventions.
- Σ *On-lending to farmers for environmental infrastructure.* Passing a proportion of the funds to the farmers as loans was considered, in order to test the farmers' willingness to borrow for investments of this type. This option was rejected for the first stage of the program for three reasons. First, because the projects bring very little private benefit to the farmer, but rather benefits that are mostly regional, national and international. Thus a large grant component will be necessary in any case. Second, because the administrative costs of managing large numbers of small loans (\$1,000-3,000) are likely to be very high and cause delays in the project. Third, because the project can test willingness to pay (or borrow) by cost sharing with the farmers and varying the proportion of grant funds versus farmer contribution. The possibility of passing loans to farmers will be considered as the project develops.
- Σ *Targeting larger farms.* The team decided against targeting larger farms, since they are more financially viable and need less subsidies. This project aims to create a model that will allow efforts to reach a majority of Polish farmers, and that can be applicable to small farms.

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

The Environment Management Project supported various activities to strengthen environmental management capacity in several areas of Poland.

In addition, the design of the proposed project has benefited from experience gained through field-based studies and demonstration programs addressing management of pollution from agriculture and rural settlements conducted since the early 1990s in the Baltic Sea region.

Sector issue	Project	Latest Supervision (Form 590) Ratings (Bank-financed projects only)	
<u>Bank-financed</u> Strengthen Environmental Management at central and local levels <u>Other development agencies</u> US Government, EU (Phare) and other bilateral government financed demonstration activities of on-farm environmental improvements	Environment Management Project	Implementatio n Progress (IP)	Development Objective (DO)
		HS	HS

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

3. Lessons learned and reflected in the project design:

Key lessons learned from agricultural and environmental projects in Poland, as well as regional initiatives to protect the Baltic Sea include:

- Σ The need for a long-term commitment to address agriculture and environment issues through phased programs of interventions and a broad-based partnership.
- Σ The need to focus on working with farmers through field-level outreach activities to encourage them to think of themselves as environmental managers at the farm level.
- Σ The importance of calculating and disseminating the benefits of improved environmental management in rural areas at local and national levels in order to sustain support for the program.
- Σ The high capacity of local and national Government officials for innovation and effective management.
- Σ The importance of adequate counterpart training and specialized support for procurement, disbursement and supervision.
- Σ The benefits from working within the existing policy environment rather than using the project to push for major policy reforms.

In addition, the Bank's experience with social funds in over forty countries worldwide has generated important lessons for establishing the mechanism for implementing this project. These include:

- Σ The need for an established framework for project management in the form of an Operational Handbook which can be updated on the basis of implementation experience;
- Σ The importance of agreeing in advance on clear, flexible approaches to administrative procedures such as procurement and disbursement;
- Σ The benefits in project quality associated with careful attention during the early phases of innovative projects to the provision of specialized support for implementation activities.

STAP Reviewer's Comments. The STAP reviewer was very supportive of the project's objectives and activities. He fully endorses the project concept and its importance in the Region. His chief concern was that the link was not clear between the technical assistance to farmers on the one hand, and the financial and economic impact of the adoption of new technologies on the other. We fully agree that this link must be made--clearly, precisely, and with solid analysis-- and is critical to the success of the project and its replicability. This section has been more precisely described in the text, and is a key indicator to project success.

4. Indications of borrower commitment and ownership:

MEP and MAFE have been working throughout the 1990s on on-farm environmental pilot initiatives in cooperation with EU (Phare), Sweden and the United States. Both MEP and MAFE recognize the success of the farm-level demonstration programs and have expressed repeatedly the need to broaden these successful pilots into larger programs. As an indication of this, when US Government funding ended for the first pilot operation, MAFE independently applied for EU (Phare) funding to enable it to continue the program.

In addition, the Government is committed to demonstrating its seriousness in moving towards compliance with EU agricultural and environmental policies and directives and its pollution reduction goals for the Baltic. The Government is aware that significant pre-accession resources will become available for environmental and infrastructure activities and wishes to develop a mechanism to ensure that these resources are used efficiently and equitably.

5. Value added of Bank and GEF support in this project:

The principal value added of GEF support for this project comes from providing additional funds to address the top priority transboundary water problem in the Baltic Sea. GEF funds will specifically help reduce the barriers to farmers adopting environmentally sensitive practices and will allow the Government of Poland to consider scaling early pilot operations up to a larger scale. Without GEF support to coordinate these activities, Poland would undertake a series of small activities in different parts of the country to address these issues. It would lack a mechanism to coordinate the financing, approaches and geographical targeting of activities. Without support from the GEF, the project would lack sufficient resources to accelerate the program, to demonstrate measures on a wide range of farm types and to undertake a public outreach program. The GEF is thus leveraging funds from the donors, stimulating a program to coordinate activities, increase coverage and generate larger impact.

Because of their international scope, the World Bank and GEF can provide funds and finance the incremental costs for replicating such activities both within Poland and in other countries in the region. This is particularly important as agricultural pollution is a major local and transboundary problem in most countries in the ECA region, particularly those in the Baltic, Danube and Black 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.

In addition, the World Bank has significant experience with a demand-driven mechanism that can usefully be applied to the problem of agricultural pollution, which requires a blend of outreach, technical assistance and investment for a large number of small polluters. This mechanism, applied in social funds, has given the Bank significant experience linking technical assistance, outreach, and beneficiary assessment with small grants for investments in social infrastructure.

E: SUMMARY PROJECT ANALYSIS (Detailed assessments are in the project file, see Annex 11)

1. Economic

The baseline cost without the GEF alternative for this activity includes ongoing government programs, bilateral donor funded activities and the project without GEF funding. The total baseline cost is US\$12.2 million. With the GEF alternative, the cost is US\$15.2 million. The baseline comprises activities related to, but not included in this project which total \$0.8m. Total project costs described here are US\$14.4 million, which includes US\$3.5 million contribution from the beneficiaries and US\$1 million counterpart funding (see Annex 3 for Incremental Cost Analysis).

Given the emphasis on learning and innovation, the project has included resources to review economic evaluation of the on-farm investments and the changes in farming practices in component 2 (outreach and management). Component 1 (investment in manure, urine and slurry storage) is unlikely to generate positive rates of return, at least in the short term, because the benefits will only be seen in the long term, will be diffuse and are extremely difficult to quantify.

2. Financial

This is a small loan focused on learning and innovation; it does not include ex ante financial analysis, but again will review financial implications of the on-farm environmental improvements during project implementation.

Experience in other countries indicates that improved manure storage, together with changing fertilization, tilling and cropping practices can generate positive financial rates of return. The project will specifically assess the conditions in Poland under which these positive FRRs can be established. Preliminary estimates suggest that proper storage of manure will save the average farmer participating in this project \$150-200 per year in reduced need to purchase fertilizer.

Fiscal impact: This will also be developed over the course of project appraisal and implementation.

3. Technical:

Most of the technology that this project will use is simple and well tested in Poland and other countries in the Baltic Sea Region. The emphasis will be on the use of low cost on-farm infrastructure. Technical assistance activities will include support for construction, supervision and development of standardized design and specifications for commonly supported improvements. Experience from the three internationally-supported demonstration projects and the work of the Water Supply Foundation has been reviewed with regard to design and construction experience.

4. Institutional:

The NFEP will undertake the principal project management functions. In addition to its specialized technical staff, including water resources and water quality specialists, the NFEP will hire one person with specific expertise in outreach and technical assistance who can supervise the TA sub-component. This specialist will have experience working with individual farmers. During the project's preparation, a consultant will be hired to assess NFEP's accounts and MIS. During the project, the NFEP will submit quarterly financial statements and management reports on its operations, including liquidity and arrears. Its accounts will be audited annually by an independent auditor acceptable to IBRD, EU (Phare) and NEFCO.

5. Social:

While there has been no systematic social assessment, the field-based evaluations of joint Polish-United States supported demonstration projects for on-farm environmental improvements show positive social results. Farm families, particularly the farmers' wives, were extremely supportive of the activities, because of increased farm productivity and the reduction in odor and inconvenience associated with improved manure storage. Communities in areas that depend on clean water for potential tourism development are particularly supportive of sanitation activities, and are prepared to contribute their own resources and labor to construct the facilities. The project will undertake a social assessment to evaluate social impacts of the on-farm investments, which will include ongoing consultations with beneficiaries.

6. Environmental assessment: Environmental Category [Proposed] ☐ A ☒ B ☐ C

The project will support a series of complementary measures to improve environmental management in rural areas, with a focus on reducing pollution of surface and groundwater, leading to a beneficial impact on inland water, coastal water and the Baltic Sea. The primary environmental issues will be addressed in the Operational Handbook and include: (a) adoption of guidelines for design of manure pads and slurry tanks and for the use of their contents; and (b) guidelines for the development of buffer strips. The activities supported under the project will be subject to review by the local environmental authorities. The Environmental Data Sheet is provided in Annex 14.

7. Participatory approach [key stakeholders, how involved, and what they have influenced; if participatory approach not used, describe why not applicable]:

a. Primary beneficiaries and other affected groups:

The project is based on demonstration programs conducted throughout the 1990s with highly participatory approaches. They included field-based demonstrations, field days for farmers and farmers' wives, participatory water quality monitoring with farmers and their families, outreach programs and extensive "farmer to farmer" visits. The project has been prepared jointly with officials involved in implementing these programs and in consultation with voivodship and gmina

governments, extension agents, contractors, participating farmers and other members of rural communities. The team has also consulted extensively with the Water Supply Foundation, a major Polish NGO, which has an extensive record in cooperative development of rural infrastructure including the construction of manure pads. It has also collaborated with the Foundation for Development of Polish Agriculture and the National Association of Farmers.

During implementation, the project will be highly participatory with a social assessment providing a mechanism for incorporating the views and experiences of local communities and farmers on an ongoing basis. Project performance and impact monitoring will also use consultative processes where appropriate, including focus group meetings and surveys of cooperating parties.

b. Other key stakeholders:

The United States Environmental Protection Agency and Department of Agriculture, which were involved in designing and supervising the first pilot phases of this operation, have been key members of the project preparation team, including participating in preparation and appraisal missions. The cofinancing bodies, EU (Phare) and NEFCO, have also been involved in the project design processes, with NEFCO participating in project missions.

The team has prepared the project in close collaboration with representatives of the MAFE. The field review and design phases included the direct participation of representatives of the Foundation of Assistance Programs for Agriculture (FAPA).

The team has consulted with the representatives of the Helsinki Commission and the Baltic 21 Secretariat, both of which are involved in supporting measures at the regional level to improve environmental management in agriculture to reduce the degradation of rivers, wetlands, coastal zones and the marine environment in the Baltic Sea region.

Finally, the team benefited from ideas generated through discussions with representatives of the Coalition Clean Baltic (CCB) and the World Wide Fund for Nature (WWF).

F: SUSTAINABILITY AND RISKS

1. Sustainability:

The site-specific feasibility studies for farmer investments will pay particular attention to operation and maintenance plans and to cost recovery. The proposed farm-level infrastructure investments will

use field-tested design approaches which allow for minimum investment and require limited expenditures for successful operation and maintenance. Social assessment and follow-up visits built into the technical assistance program will assess sustainability issues explicitly.

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

<u>Risk</u>	<u>Risk Rating</u>	<u>Risk Minimization Measure</u>
<i>Annex 1, cell "from Outputs to Objective"</i> Targeted farmers are in the same watershed(s) to achieve maximum nutrient reduction in selected water bodies. Project management structure cannot adapt to changes in regional administrative structures and/or destroys local support.	N M	Eligibility criteria state that participating farmers must be in project areas, which will be selected on basis of being in sensitive watersheds, among other things. Ensure project management structure is flexible and that all participating parties know that it may change in accordance with administrative changes. Details of project management structure outlined in Operational Handbook which can be adapted during project implementation. Review at mid-term. Ensure that benefits to farmers are clear to all participants and widely disseminated. If one local area loses interest, increase focus in other participating voivodships or move to another part of the country.
<i>Annex 1, cell "from Components to Outputs"</i> Sustained Government commitment to the project. Government, Bank and cofinanciers can streamline procedures for project implementation. Other Government programs do not contradict project objectives. Appropriate farmers are selected.	S H N M	Ensure that MEP and the NFEP receive recognition for their role in the initiative. Ensure that the benefits to the farmers are explicit and reported widely. Involve key stakeholders, such as National Farmers' Union, Chambers of Agriculture, extension agents, NGOs to broaden support for initiatives of this type. Substantial efforts in project preparation and start-up phase for simplifying procedures. Key aspects in Operational Handbook rather than loan agreement, so that they can be adapted during implementation. Involve extension agents and other key services in outreach and training. Replication strategy led by MEP, NFEP. Ensuring broad government participation. Eligibility criteria are flexible and can be changed over course of implementation if appropriate. Regular revisions during

<u>Risk</u>	<u>Risk Rating</u>	<u>Risk Minimization Measure</u>
Project incentives are sufficient to motivate farmers to participate in the project.	H	implementation. Regular reviews during implementation. If problems occur, increase portion of project dedicated to outreach and training. Change levels of project support.
Overall Risk Rating	M	

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

3. Possible Controversial Aspects:

It is not anticipated that the project will have any controversial aspects. The proposed interventions have formally been given high priority by the Helsinki Commission, European Union, Polish authorities and by international and national NGOs.

G: MAIN LOAN CONDITIONS

1. Effectiveness Conditions:

- ∑ Project and local steering committees appointed,
- ∑ Project staff in NFEP and in LIT appointed and ready to begin work,
- ∑ Operational Handbook drafted, satisfactory to the Bank, detailing eligibility criteria, levels of investment support, precise responsibilities of implementing agencies, guidelines for TA, arrangements for project supervision and monitoring activities, procurement arrangements, disbursement arrangements, environmental procedures.

ANNEX 1
POLAND: RURAL ENVIRONMENTAL PROTECTION PROJECT
PROJECT DESIGN SUMMARY

Narrative Summary	Key Performance Indicators	Monitoring and Evaluation	Critical Assumptions
Sector-related CAS Goal: 1. Improve environmental quality through increased focus on non-point source pollution; 2. Assist process of integration with European Union.	1. Gradual improvements in ambient water quality measures; 2. Progress towards meeting environmental compliance targets.	1. Government's State of the Environment Report (annual); 2. EU reports (periodic).	(Goal to Bank Mission) EU membership is likely to increase average incomes.
Project Development Objective: To develop interventions that motivate farmers to reduce organic and nutrient pollution entering selected water bodies, to comply with Polish and EU standards.	1. High demand from non-participating farmers to join a similar program; 2. High satisfaction rates among participating farmers; 3. Significant reduction in nutrients discharged to selected water bodies compared to baseline levels.	1. Report from non-user survey (within Social assessment); 2. Social assessment; 3. On-farm case reports; watershed case reports.	(Objective to Goal) Project-developed interventions are replicated on a wide scale; Government negotiations with EU continue on track.
Outputs: 1. Successful program developed to motivate farmers to adopt environmentally responsible practices;	1. High percentage of participating farmers adopt environmentally responsible practices; financial and other benefits of on-farm interventions documented;	1. Quarterly reports of the NFEP; social assessment; supervision mission report(s); evaluation mission reports (mid-term & final); economic evaluation report (NFEP);	(Outputs to Objective) Targeted farmers and participating villages are in the same watershed(s) to achieve maximum nutrient reduction in selected water bodies;

Narrative Summary 2. Functional Operational Handbook developed for reducing nutrient levels in targeted watersheds.	Key Performance Indicators 2. Administrative systems effective; targeting criteria effective in reaching relevant polluters in selected watersheds; baseline and M&E systems in place agreed with MEP, NFEP, and meeting the standards for reporting to HELCOM and the EU.	Monitoring and Evaluation 2. Quarterly reports of the NFEP; social assessment; supervision mission report(s); evaluation mission reports (mid-term & final); M&E reports produced by RWBs; strategy study report.	Critical Assumptions Upcoming administrative changes do not disrupt project activities.
Project Components/Sub-components: 1. On-farm environmental improvements: ¥ TA; Σ Investment support. 2. Outreach and Management: ¥ Public awareness and outreach; ¥ Monitoring; ¥ Replication; ¥ Project Management.	Inputs: (budget for each component) 1. US\$11.7 million 2. US\$2.7 million	Progress reports (quarterly); Disbursement reports (quarterly).	(Components to Outputs) Continuing government (MOF, MEP, NFEP, MAFE) commitment to project activities; Government, World Bank and cofinanciers can streamline procedures for project implementation; Other Government programs do not contradict project objectives; Appropriate farmers are selected; Project incentives are sufficient to motivate farmers to participate in the project.

ANNEX 2
POLAND: RURAL ENVIRONMENTAL PROTECTION PROJECT
INCREMENTAL COST ANALYSIS

Overview

1 Project activities are directly linked to the implementation of the Baltic Sea Joint Comprehensive Environmental Program which provides a framework for regional cooperation for protection of this important international water body. The project also supports Poland's move towards compliance with its national policies and with international legal agreements. These include the Helsinki Convention and the environmental directives of the European Union (EU), which will apply to Poland as part of the process of joining the Union.

Project Development Objective.

. **Global Environmental Goal.** The long-term goal of the project is to improve the quality of the water of the Baltic Sea by reducing non point source pollution from agriculture.

2. **Project Objectives.** The project's specific objective is to develop interventions can be which motivate farmers to reduce organic and nutrient pollution entering water bodies in target project areas. GEF funding will help remove institutional, financial and knowledge barriers which currently serve as disincentives to farmer adoption of environmentally sustainable agricultural practices. The project supports Poland's move toward compliance with its national policies and legislation, as well as international legal agreements, including the Helsinki Convention and the environmental requirements of the European Union (EU), which Poland will have to implement as part of the process of joining the Union.¹

3. **Project Components.** Specific project components include:

- (a) **Component 1 - On-Farm Environmental Improvement.** This blends two complementary activities: (i) technical assistance to farmers concerning Good Agricultural Practices (GAP) that emphasize environmental management concerns (cropping, tilling, crop cover, fertilizer use, wetland treatment and buffer systems etc.); and (ii) support for farmers to invest in the construction of manure and slurry storage facilities; and
- (b) **Component 2 - Outreach and Management.** This will include: (i) an initiative to raise farmer and general public awareness of the issues concerning environmental management and pollution control in agriculture; (ii) monitoring; (iii) a strategy for replicating the project; and (iv) project management.

The GEF alternative would be US\$15.2 million, against a baseline without GEF support of US\$12.2 million.

Context and Broad Development Goals

¹ The most directly relevant requirement is the Council Directive on the Protection of Waters Against Pollution caused by Nitrates from Agriculture (91/676/EEC), known as the Nitrates Directive. This aims to reduce or prevent the pollution of water caused by application and storage of fertilizer and manure on farmland, and is intended to safeguard drinking water supplies and to prevent ecological damage from eutrophication. The directive requires member states to designate areas that are sensitive to pollution from nitrates and to establish plans for reducing that pollution. It includes requirements for storage of livestock manure and for application of fertilizers.

4. **Eutrophication.** Eutrophication of international water bodies is a major environmental problem in many parts of the world, including the Adriatic Sea, Baltic Sea and Black Sea. The common symptoms of eutrophication, which is caused by over enrichment of water by nutrients, are increased plant biomass in the form of algae, oxygen deficiency in water bodies, the formation of hydrogen sulfide and remineralization of the biomass. These processes disrupt the balance of freshwater, coastal and marine ecosystems and cause changes in their structure and function. Excessive nutrient loads to the Baltic Sea affect the entire ecosystem; the work of the Helsinki Commission has identified nitrogen as the substance of highest transboundary concern. Impacts associated with eutrophication in Baltic coastal and marine waters have been a shift in the composition of marine vegetation in many coastal areas, repeated large scale algal blooms, disruption of reproductive cycles of some fish species, declines in some fish stocks and increases in others. Summer algal blooms have periodically necessitated the closing of many bathing beaches throughout the region with an adverse affect on their recreational use and tourist value.

5. **Important Role of Agriculture.** Nutrient pollution from agriculture is a major cause of this problem. The Helsinki Commission estimates that non-point source pollution from agriculture contributes 30-40 percent of the current nitrogen, and 10 percent of the current phosphorus loading entering the Baltic Sea, as well as pesticide residues. This issue is particularly relevant to Poland because the country has approximately 40 percent of the agricultural land in the Baltic Sea drainage basin and the largest rural population in the region. The main issues are improper storage and application of animal waste, rather than excessive application of artificial fertilizers. Less than 10 percent of Poland's 2 million farms are thought to have adequate facilities for storing manure or slurry. Reports prepared by the Helsinki Commission and the Polish Ministry of Environment have identified the following Polish coastal areas as being most subject to impacts from eutrophication: the Vistula Lagoon which is shared with the Russian Federation, the Gulf of Gdansk adjacent to the mouth of the Vistula River, and the Odra Lagoon which is shared with Germany.

6. **A Major Challenge.** Because agricultural pollution is caused by a large number of dispersed sources and because the agricultural sector is traditionally conservative, the problem has been particularly difficult to tackle in most countries. Establishing mechanisms to provide incentives to farmers to change their agricultural practices and to make on-farm investments to control non-point source pollution have proven to be difficult. This is because the benefits of these activities are long-term and because the farmers themselves only reap part of the overall benefits of their actions. This has been a particular problem in the countries in economic transition in the eastern and southern portions of the Baltic Sea drainage basin where the restructuring of the agricultural sector has needed to address a diversity of issues beyond environmental management. The proposed project will test mechanisms for providing incentives to farmers and the level of support required to develop effective actions that could be replicated elsewhere within Poland and in other countries.

7. **Bank Strategy.** The World Bank has an established commitment to support improved environmental management in the Baltic Sea Region. Since 1990 it has worked closely with the Helsinki Commission and the cooperating countries in the development and implementation of the Baltic Sea Joint Comprehensive Environmental Action Program. In this context it has supported a series of environmental projects to address priorities established under this strategic action program in Estonia, Latvia, Lithuania, Poland and the Russian Federation. Consistent with this regional approach, the Country Assistance Strategy (CAS) for Poland includes a strategy for helping Poland increase the focus on reducing pollution from non-point sources, and move towards compliance with EU directives and international conventions and protocols in a cost-effective manner. To address this issue, the Government of Poland is going to adopt legislation that will require on-farm facilities to provide storage for

liquid manure with a capacity of at least six months, and has already supported several internationally financed pilot activities.

Baseline Scenario

8. **Agricultural Sector.** Poland has a rural population of about 15 million, representing 40 percent of the whole population, with farmland covering about 65 percent of the total land area. The agricultural sector provides 25 percent of the country's employment, although only 6 percent of GDP. Unusual for an economy in transition, Poland has retained a large number of small family farms, and still has 1.4 million farms with an average size of 12-15 hectares. Some areas of the country, predominantly to the north and west, were farmed as state farms, but 90 percent of this land has since been privatized or leased out. Livestock accounts for 42 percent of Poland's agricultural production, mostly cattle and pigs.

9. **Environmental Management.** At the national level, Poland is committed to manage and conserve its water resources and coastal zone, and in the nine years since transition to a market economy has made significant progress through a sustained commitment to environment as an integral element of its national priorities. The domestic policy framework is strongly supportive of activities to reduce pollution from agriculture, for three reasons:

Σ **Domestic policy.** The 1990 National Environmental Strategy states an objective of reducing pollution entering the Baltic Sea from Polish rivers by 80 percent by the year 2020. As part of this policy, Poland has prepared a draft law aiming to reduce non-point source pollution that will, among other things, require farmers to invest in proper manure and slurry storage.

Σ **European Union requirements.** Much of the domestic policy agenda is currently driven by Poland's need to move into compliance with EU environmental regulations, one of which specifically addresses pollution from agriculture (the "Nitrates Directive"). In addition, the European Union has published a draft "Framework Directive for Community Action in the Field of Water Policy" which includes requirements for improving water quality.¹

Σ **Helsinki Convention.** The 1992 "Baltic Sea Joint Comprehensive Environmental Action Program" and the 1998 "Recommendations for Strengthening and Updating" of the Program, which have been adopted by the Contracting Parties to Helsinki Convention, identify measures for the management of non-point source pollution from agriculture and rural settlements as a top priority. For GEF purposes, these constitute the top priority transboundary water problem in the Baltic. In addition, the proposed "Amendments to Annex III of the Helsinki Convention Concerning Regulations on Prevention of Pollution from Agriculture" are currently under review and are anticipated to be approved in March 1999.

10. **Recent Activities.** Poland has had an ongoing interest in addressing non-point source pollution from agriculture. The Ministry of Agriculture and Food Economy (MAFE), the Ministry of Environmental Protection, Natural Resources and Forestry (MEP), and the National Fund for Environmental Protection and Water Management (NFEP) have actively participated in a series of recently completed demonstration programs which tested a wide range of technical, education and investment activities directly with farmers in various parts of the country. These demonstration activities have been successfully implemented and were designed to serve as the basis for developing full-scale investment projects. These included the

¹ A recent study conducted in the upper Odra basin by Warsaw Technical University concluded that, however much Poland spent on reducing pollution from point sources, it would not be able to meet its current standards for water quality without addressing pollution from non-point sources.

project “Promoting Environmentally Friendly Agriculture on Individual Farms in the Bug-Narew Basin” supported by the European Union (Phare) (ECU1.3 million); “Demonstration Farms and Advisory Service Project” supported by the Baltic Agricultural Run-Off Program (BAAP) of Sweden (Phase I US\$600,000); “Agriculture and Water Quality Project” supported by the United States (\$1,550,000). The World Wide Fund for Nature also coordinated development of management plans for the Vistula Lagoon and Odra Lagoon supported by the European Union (Life) and Sweden (US\$500,000) which address non-point source pollution measures for these sensitive areas. The Water Supply Foundation, a major Polish nongovernmental organization, has also undertaken a small number of field-based activities in this area with limited funding from domestic and international sources.

11. **Ongoing activities.** Ongoing projects include the second phase of the BAAP project which supports development of extension services for control of non-point source pollution (US\$400,000) and the second phase of the management planning process for the Vistula Lagoon and Odra Lagoon supported by Denmark and Sweden (US\$400,000). In addition, a number of ongoing activities are being implemented with domestic and international resources to strengthen the planning capacity of the Regional Water Management Boards which have a strategic role in addressing non-point source pollution.

12. **Impact of the Odra River Flood.** The severe economic and social impacts from the catastrophic Odra River flood in the summer of 1997 have had broad ramifications for the investment program of the Polish Government and many activities which were well prepared have been either delayed or reduced in their scope. Support for investments for improved environmental management have not been exempted from budget reallocations required for the massive reconstruction effort in southwestern Poland. However, even under these constraints, the Polish Government remains prepared to support development and implementation of a first phase project to address non-point source pollution from agriculture which would provide the basis for a larger country-wide project in the medium term. Given these serious short-term constraints, Poland has adopted a strategy that focuses on provision of personnel drawn from government agencies to support the preparation and implementation of such a project, other types of services in-kind, and use of government land, while seeking support for investment activities from the independent National Fund for Environmental Protection and Water Management and from international sources.

13. **Importance of International Assistance.** Without international assistance, Poland is unlikely to address these issues comprehensively in the next few years. This will cause a disruption in the progress achieved to date through the successful demonstration programs and delay the valuable opportunity to proceed with a full-scale investment project that will undertake an operational program of interventions. In addition, since Poland has the most advanced level of field-based knowledge in conducting non-point source pollution activities among the countries in economic transition, the added benefit of having a model project that could be replicated elsewhere in Central and Eastern Europe will be lost. Identification and dissemination of lessons learned will also be delayed, an important loss for parties planning to develop similar projects in the greater region.

14. **Baseline Scenario.** Donors previously involved in these activities are phasing out their funding, and there is no major new donor activity other than that leveraged by this project. It is assumed that the baseline will include the ongoing activities listed above plus the Rural Environmental Project, but without GEF support. The total cost of Baseline Scenario investments for the Government of Poland and the donors, is US\$12.2 million. This cost includes technical assistance to farmers on Good Agricultural Practices (US\$1.9 million); on-farm investments to support storage of manure and slurry (US\$7.7 million); public awareness and outreach (US\$0.2 million); monitoring (US\$1.1 million); replication (US\$0.6 million); and

project management (US\$0.7 million). Implementation of the Baseline Scenario will result in a limited reduction of nutrients into a small number of local water bodies in Poland. Reduced coverage on farms would limit the number of opportunities for demonstration on different types of farms and in different environmental conditions. Furthermore, there would be no program to estimate and communicate the benefits of improving environmental practices on farms.

Global Environmental Objective

15. **Current Situation.** The current situation, the Baseline Scenario, will result in non-point source pollution from agriculture in Poland and the adjacent countries contributing significant and excessive loads of nutrients to the Baltic Sea, leading to widespread eutrophication and the ecological damage and economic losses associated with this process. The long-term implication will be continued degradation of a globally significant element of international waters and its associated biodiversity in the shared coastal and marine environment of the Baltic Sea. The GEF Alternative would build on the Baseline Scenario by providing support for an expanded range of on-farm interventions, an enhanced program for public awareness and outreach, and catalytic support for a replication initiative. The GEF Alternative would go beyond the Baseline Scenario by establishing a mechanism for coordinating the approach, funding and the geographic location of activities designed to

reduce non-point source pollution in Poland. This would overcome the risk of the current course of action, under the Baseline Scenario, that Poland's effort to reduce nutrient flow into the Baltic will have limited effect due to a lack of coherence in strategy.

16. **Demonstration of a Replicable Mechanisms.** The global environmental objective of the project is to demonstrate effective mechanisms for improving environmental practices in agriculture through a project designed to reduce nutrients entering the Baltic Sea. The role of the GEF and the other donors in this project would be to buy down the risks to farmers of adopting these techniques. It would also be to calculate, demonstrate and disseminate the benefits of improved environmental practices in agriculture. It would assist in making the internalization of costs, which in GEF terms are incremental, broadly recognized over the long term as economically beneficial to farmers, communities and the global environment. The GEF Alternative would accelerate, coordinate and expand field tested technologies and approaches and link them with a major outreach and communications program. The GEF Alternative would build on the Baseline Scenario, increase the coverage of the mechanisms to be tested in Poland and provide a model for potential use in other Central and Eastern European countries. Links with the work of the European Union, GEF partners, Helsinki Commission, international financial institutions and donors will assist in sharing and replication of successful practices within the region. Because of the potential for replication in other countries, and because of its transboundary implications, the GEF Alternative has leveraged approximately US\$5.0 million grant contribution from other donors and at least \$100,000 in kind contribution from the US Government.

17. **Scope.** The GEF Alternative has been developed to accelerate the opportunity provided by the project in Poland to become a model which, with adjustment for local conditions, could be replicated in other countries. The addition of GEF resources would reduce the threshold for the Polish Government to proceed with a project whose success in turn would reduce the risk of other countries in undertaking similar initiatives. It would build on the Baseline Scenario in four ways:

- Σ Allow additional investments in on-farm infrastructure in selected project areas, all of which are sensitive to pollution from nitrates and have an impact on the Baltic Sea. The increased coverage will provide greater environmental benefits and augment the demonstration potential of the exercise.
- Σ Expand the outreach and public awareness program to effectively explain the benefits of improved environmental practices at the farm level.
- Σ Allow the development of a strategy for replication of the project within Poland and internationally; and
- Σ Help to coordinate the testing and operationalization of a number of mechanisms to address the challenge of controlling non-point source pollution under the Baseline Scenario.

18. **Participatory Approach.** This project builds on the successful demonstration and planning activities outlined above, which were based on a participatory approach. These activities were developed and implemented through a range of partnerships between the Polish Government, local authorities, domestic and international nongovernmental organizations, the European Union, World Bank and a range of bilateral donors. The project will follow the model of these pilots by taking a participatory approach, involving farmers and their families in investment planning and monitoring, and undertaking extensive outreach campaigns. Project implementation will include the participation of nongovernmental organizations. The project preparation process has been undertaken collaboratively with the Helsinki Commission and members of its Program Implementation Task Force, United States Environmental Protection Agency and United States Department of Agriculture, the European Commission

and the Nordic Environmental Finance Corporation. Project design has benefited from consultations with Coalition Clean Baltic and long-term cooperation with the World Wide Fund for Nature (WWF) and the European Commission.

Costs

19. **Cost of the GEF Alternative.** The total cost of the GEF alternative is estimated at US\$15.2 million, detailed as follows:

Σ **Component 1 - On-Farm Environmental Improvement:** (a) Technical assistance - US\$1.9 million (same as baseline); (b) Investment support - US\$10.2 million (*GEF financing 2.5 million*).

Σ **Component 2 - Outreach and Management:** (a) Public awareness and outreach - US\$0.5 million (*GEF financing US\$0.3 million*); (b) Monitoring - US\$1.1 million (same as baseline); (c) Replication - US\$0.8 million (*GEF financing US\$0.2 million*); (d) Project management - US\$0.7 million (same as baseline).

Benefits

20. **Domestic and International Benefits.** Poland's successful experience in serving as a lead party in work on agriculture and environment issues at a regional level, in the context of the Helsinki Commission and the pilot initiatives sponsored by the Swedish and United States governments and EU (Phare), represent a good start for regional cooperation and commitment to reducing agricultural pollution in the Baltic Sea. Under the Baseline Scenario, over the long term, a variety of domestic benefits would indeed accrue, such as cleaner surface and ground water, and improved farm productivity. However, because of the dispersed nature of the benefits and the long time horizon, the more substantial effort as proposed in the GEF Alternative, would be necessary for the benefits of this first phase project to be realized more broadly within Poland and the region. The most valuable domestic benefits that will come from the project are associated with increased public awareness and adoption of improved on-farm environmental management. Internationally, the most important benefits will come from development of a replicable model for addressing this important transboundary issue and the dissemination of lessons learned from project implementation.

Incremental Costs

21. **Baseline vs. GEF Alternative.** The difference between the cost of the Baseline Scenario (US\$12.2 million) and the cost of the GEF alternative (US\$15.2 million) is estimated at US\$3.0 million. This represents the incremental cost for achieving environmental benefits through public awareness; outreach; adoption of on-farm environmental practices by farmers and local communities; and developing, strengthening, monitoring and testing replicability of on-farm environmental practices to improve the quality of the Baltic Sea. Discussions are ongoing with interested donors regarding cofinancing possibilities. It is anticipated that the European Union (Phare) will contribute US\$3.9 million, the Nordic Environment Finance Corporation (NEFCO) US\$1.0 million, and IBRD a possible credit of US\$2.0 million. The Bank will report on the success of additional cofinancing mobilization at the time of final CEO endorsement.

Incremental Cost Analysis

Component	Cost Category	US\$m	Domestic Benefit	Transboundary Benefit
1. On-Farm Environmental Improvement				
(a) Technical assistance	baseline	1.9	Long run productivity on participating farms. Sustainable use of manure storage facilities	Increased understanding of farmers of economic benefits from improved practices creates an economic incentive to take actions which more rapidly reduce agricultural non-point source pollution.
	With GEF	1.9		
	Incremental	0		
(b) Investment support	baseline	7.7	Improved local quality of surface water in participating watersheds. Improved quality of groundwater over long run	Increased coverage of manure storage in project areas. Demonstration of effective mechanisms to reduce pollution from agriculture. Reduced pollution of the Baltic Sea from agricultural sources.
	with GEF	10.2		
	incremental	2.5		
2. Outreach and Management				
(a) Public awareness and outreach	baseline	0.2	Limited increased farmer awareness of importance of environmental management	Wider understanding among Polish farmers and public of issues involved
	with GEF	0.5		
	incremental	0.3		
(b) Monitoring	baseline	1.1	Provision of information concerning response to project supported interventions at the national level which allows for establishment of trends and more effective national and local level management actions.	

	with GEF	1.1		Provision of information concerning response to project supported interventions at the regional level which allows for establishment of trends and more effective regional level management actions by Helsinki Commission, European Union and other bodies.
	incremental	0		
(c) Replication	baseline	0.6	Potential for national replication	
	with GEF	0.8		Accelerate development of a strategy for replicating project both within Poland, Baltic Sea region and in other Central and Eastern European countries.
	incremental	0.2		
(d) Project Management	baseline	0.7	Increased capacity for project management and awareness of agricultural pollution	
	with GEF	0.7		
	incremental	0		
Total	baseline	12.2		
	with GEF	15.2		
	incremental	3.0		

ANNEX 3
POLAND: RURAL ENVIRONMENTAL PROTECTION PROJECT
TRANSBOUNDARY ANALYSIS

1. **Strategic Action Program.** The management of nutrient pollution from agricultural non-point sources is a problem common to all the countries in the Baltic Sea Region, with impacts on the shared coastal waters and marine environment. The need to address agricultural inputs to international waters has been highlighted as a major priority in the “Baltic Sea Joint Comprehensive Environmental Action Program (Program),” the strategic action program for the region, which was prepared under the coordination of the Helsinki Commission by a broadly representative high level task force. Since the Ministers of Environment adopted the Program in 1992, many field-based demonstration activities have been undertaken in the countries in economic transition in the eastern and southern portion of the Baltic Sea drainage basin. These activities were designed to establish a basis for preparation and implementation of operational projects that support long-term measures required to incrementally reduce non-point source pollution of the coastal and marine environment. Implementation of operational programs was not possible in the early 1990s due to political changes in these countries which resulted in a complete reorganization of the agricultural sector as the shift from planned to market economies took place.

2. **Updated Strategic Action Program.** The “Recommendations for Updating and Strengthening” of the Program were adopted by the Ministers of Environment in 1998. This document noted that agriculture contributes an estimated 30-40 percent of the nitrogen and 10 percent of the phosphorous loading entering the Baltic Sea and that increased efforts should be made to address control of non-point source pollution from agriculture and rural settlements. A review, conducted as part of the “updating and strengthening” process, assessed the status of the demonstration activities. The review concluded that measures to initiate operational projects to control non-point source pollution from agriculture in the countries in economic transition would be possible in the next phase of Program implementation due to increased stability in the sector and resolution of many issues concerning land ownership. The importance of rapidly proceeding with a cooperatively-based project in Poland was specifically identified in the document. This is justified by the high level of transboundary impacts from its extensive agricultural sector, the opportunity to introduce Good Agricultural Practices as part of the restructuring process, and the considerable potential for success given the commitment of the Polish Government and the positive results from the cooperatively funded demonstration programs. The report also recognized that a project could be rapidly developed, given the advanced state of preparation of the Polish Government and nongovernmental institutions, and their positive experience with the use of participatory approaches.

3. **Assessment of Transboundary Impacts.** The Helsinki Commission, working in cooperation with the signatory countries, has prepared three Pollution Load Compilations, in 1987 (PLC-1), 1990 (PLC-2) and 1995 (PLC-3). A fourth PLC is currently being prepared. These compilations have aimed to amass information on the inputs of important pollutants entering the Baltic Sea from different sources on the basis of harmonized monitoring methods. They have been complemented by a series of Periodic Assessments which review trends in the Baltic Sea environment. The PLCs also included special studies including non-point source pollution from agriculture at the regional level, selected country level studies, and local studies prepared to support demonstration activities in Estonia, Latvia and Lithuania, Poland and Russia. Efforts are currently underway to upgrade the quality and comparability of monitoring data and to develop a series of indicators which can be used to assess trends. In addition,

regional meetings were held to review progress in addressing agriculture and environment issues in the eastern and southern portion of the drainage basin in Vilnius (1993) and Warsaw (1996). This issue was also the subject of the 1996 Royal Colloquium chaired by H.M. King Carl XVI Gustaf of Sweden on “The Baltic Sea Region: Agriculture and Sustainability.”

4. **Eutrophication.** Eutrophication of international water bodies is a major environmental problem in many parts of the world, including the Adriatic Sea, Baltic Sea and Black Sea. The common symptoms of eutrophication, which is caused by over enrichment of water by nutrients, are increased plant biomass in the form of algae, oxygen deficiency in water bodies, the formation of hydrogen sulfide and remineralization of the biomass. These processes disrupt the balance of freshwater, coastal and marine ecosystems and cause changes in their structure and function. Excessive nutrient loads to the semi-enclosed Baltic Sea affect the entire ecosystem; the work of the Helsinki Commission has identified nitrogen as the substance of highest concern. For the purposes of GEF, eutrophication from nutrients and organic matters is a top priority transboundary water problem. Impacts associated with eutrophication in Baltic coastal and marine waters have been a shift in the composition of marine vegetation in many coastal areas, repeated large scale algal blooms, disruption of reproductive cycles of some fish species, declines in some fish stocks and increases in others. Summer algal blooms have periodically necessitated the closing of many bathing beaches throughout the region with an adverse affect on their recreational use and tourist value.

5. **Eutrophication Trends.** The symptoms of eutrophication, such as increased plant biomass and oxygen deficiency in the bottom water, have decreased in some coastal areas while in others they have stayed the same. Improvements have occurred in some portions of the western and northern part of the region due to a reduction of nutrient inputs resulting from construction of wastewater treatment plants and measures to control pollution from agriculture. However, in open sea areas no clear changes have been observed. With respect to long-term variations, there were no major differences in the dominance of phytoplankton species reported in the Periodic Assessments on the state of the Baltic Sea. In fact there are indications that the frequency and spatial coverage of harmful algal blooms in the Baltic Sea may have increased. This may be partially due to changes in seasonal availability and relative proportions of nutrients. Information available on macrophytobenthos strongly suggests that general changes have taken place during the recent decades along the coasts of virtually the whole of the Baltic Sea area. The depth distribution of perennial macrophytes, attached to the seabed, has decreased, and short-lived filamentous or thin-bodied epiphytic or drifting algae have become increasingly prevalent in recent times. These changes are most commonly explained by the high inputs of nutrients during the early 1990s.

6. **Massive Blue-Green Algal Blooms in 1997.** The summer of 1997 brought about exceptional blue-green algal blooms in different parts of the Baltic Sea. According to studies by the Finnish Institute for Marine Research, the surface accumulations of blue-green algae during this period were the most extensive ever recorded in the whole Baltic Sea area. Toxic blooms were found in the entire Baltic Sea. Large amounts of blue-green algal biomass drifted ashore, particularly along the northern coast of the Gulf of Finland and in the Archipelago Sea between Finland and Sweden. The large scale blooms have been attributed to the high nutrient load in the Baltic Sea, with exceptionally sunny weather serving as an effective catalyst for starting the blooms. In Helsinki, the extensive blue-green algal blooms forced the city to close many of its beaches for most of the swimming season. During the summer several cases of cyanobacterial toxicosis were reported both in humans and animals in Finland. This event caused widespread demands from politicians and the public for intensified action to reduce nutrient loading to the Baltic Sea from all types of sources to avoid such large scale transboundary impacts.

6. **Transboundary Pollution in Sensitive Coastal Areas.** The eastern and southern portion of the Baltic Sea includes a number of semi-enclosed bays and large coastal lagoons that are critical elements of the regional ecosystem and require special management efforts. These areas include portions of the Gulf of Finland (Estonia, Finland, Russia); Haapsalu and Matsalu Bays (Estonia); Gulf of Riga (Estonia, Latvia); Kursiu Lagoon (Lithuania, Russia); Vistula Lagoon (Poland, Russia); Gulf of Gdansk (Poland); and the Oder/Odra Lagoon (Germany, Poland). They provide extensive habitat for aquatic and terrestrial species, support important fisheries and are of recreational and tourism value. In particular, the coastal lagoons and their associated wetlands serve as nutrient traps which reduce the impacts on the greater Baltic Sea by concentrating these substances. The Program has identified the need to take priority actions to strengthen management of, and reduce the discharge of nutrients to these sensitive areas. Because most of these areas are transboundary, special measures should be taken through the Helsinki Commission to promote development of cooperative management plans and to support actions for investments to control both point and non-point sources of pollution. Special monitoring programs and indicators are currently being developed for use in the Vistula Lagoon and Odra Lagoons. It is important to note that while the Gulf of Gdansk is within Poland, the current pattern in the Baltic carries its waters to coastal areas of Russia (Kaliningrad Oblast) and Lithuania, making its management a transboundary concern as well.

ANNEX 4
STAP REVIEW

TECHNICAL REVIEW
POLAND
RURAL ENVIRONMENTAL PROTECTION

Mr Stephen Litner
World Bank

Dear Stephen

Thank you for forwarding me the relevant annexes of the Polish Rural Environmental Protection Project. I have had an opportunity to read the materials and offer this hastily prepared commentary.

The project clearly is one of substantial importance in the context of international waters and the specific situation applying to the Baltic.

Successfully conducted, this project should make a significant contribution which would have a significance in other areas suffering the same widespread problem.

My major comment on the papers are that the linkage between the complementary activities:

1. Technical assistance to farmers concerning good agricultural practices and
2. Support to farmers to invest in the construction of manure and slurry storage facilities is not clearly drawn.

I infer that the agronomic benefits to farmers are that by storing slurry for substantial periods they are able to withdraw it from storage and apply it to crops at times when there will be maximum benefits in terms of conversion of nitrate and phosphate to plants in their crops.

They thus achieve an agronomic, economic benefit and the community at large receives an environmental benefit because those nitrates and phosphates are locked up and do not reach the water courses as non-point source pollution.

It seems to me that if this is the case the project should seek to monitor and demonstrate the economic benefits which flow to farmers from the adoption of these practices. This would provide the greatest probability of the costs which in GEF terms are incremental, becoming eventually recognised as economically

beneficial to the farmers and communities and thus being internalised in the longer run.

Having said that, I reaffirm that the project is one of substantial importance. I note that the Polish government is in the process of legislating to support this measure and thus reduce non-point source pollution from agriculture. I note also that Poland is regarded as the country in economic transition which has the most advanced level of field-based knowledge in conducting non-point source pollution activities. These factors add to the possibility of a successful outcome.

It is not clear to me from the material which I have received, to what extent synthetic fertilisers play a role in the non-point source pollution burden flowing from Polish agricultural lands. They may not be a significant factor. However, if they are used there could be a potential to demonstrate economic substitutability if farmers use stored manure slurry instead of synthetic fertiliser. This may well be an attractive demonstration of cost efficient environment management.

With regard to the incremental cost analysis, it seems to me that the trans-boundary benefit under 1 b) would go beyond the increased coverage of manure storage to reflection of the global benefit of reduced pollution reaching the international waters of the Baltic. In the case of outreach and management, if we assume that the project will include a demonstration of the economic benefit to farmers of the adoption of the technology, then the trans-boundary benefit goes beyond wider understanding among farmers to an economic incentive to farmers to take up the technology and thus more rapidly reduce the flow of non-point source pollution to the water courses.

The trans-boundary analysis is clear and frightening in its implications. It provides strong support to the case for the project to be conducted.

I reiterate that these comments are made in some haste, I hope that they are helpful to you in progressing the project to implementation. Please do not hesitate to contact me if you require further information.

Yours sincerely

14 May 1998

ANNEX 5

Poland: Rural Environmental Protection Project

LIST OF ANNEXES

(included in printed version)

- Annex 1: Project Design Summary
- Annex 2: Incremental Cost Analysis
- Annex 3: Transboundary Analysis
- Annex 4: STAP Technical Review

(included in electronic version or to be provided by the IA upon request)

- Annex 6: Estimated Project Costs
- Annex 7: Cost-Benefit Analysis Summary, or
Cost-Effectiveness Analysis Summary
- Annex 8: Financial Summary for Revenue-Earning Project Entities, or
Financial Summary
- Annex 9: Procurement and Disbursement Arrangements
 - Table A. Project Costs by Procurement Arrangements
 - Table A1. Consultant Selection Arrangements
 - Table B. Thresholds for Procurement Methods and Prior Review
 - Table C. Allocation of Loan Proceeds
- Annex 10: Project Processing Budget and Schedule
- Annex 11: Documents in Project File
- Annex 12: Statement of Loans and Credits
- Annex 13: Country at a Glance
- Annex 14: Environmental Data Sheet

Map